



Pension Markets in Focus

2017

This annual report reviews trends in the financial performance of private pension plans, including investment returns and asset allocation. Underlying data for the tables and graphs, plus a statistical annex, can be found in an Excel format at www.oecd.org/daf/pensions/pensionmarkets.

The data complement information gathered at the pension fund level through the Survey of Large Pension Funds and Public Pension Reserve Funds. The survey is part of the OECD project on Institutional Investors and Long-term Investment. More information can be found at www.oecd.org/finance/lti.

More information about pensions-related work is available at www.oecd.org/pensions and www.iopsweb.org.

The report was made possible by close co-operation between the OECD, the IOPS, the World Bank and various national bodies that provided data and comments. Comments were also provided by Pablo Antolin, Emmy Labovitch and Stéphanie Payet of the OECD Private Pensions Unit. Editorial and communication support was provided by Pamela Duffin and Lynn Kirk. For further information, please contact Romain Despalins (romain.despalins@oecd.org).

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries. This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

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.

FOREWORD

This annual report, which now covers 85 countries, gives an overview of private pension systems worldwide and outlines latest developments. It assesses the amount of assets in funded and private pension plans, describes the way these assets are invested in financial markets, and looks at how investments have performed, both in the past year and over the past decade.

In 2016, private pension assets reached their highest-ever level at over USD 38 trillion in OECD countries. Investment losses resulting from the financial crisis have been recouped in almost all reporting OECD countries. However, the low-interest rate environment continues to exert pressure on pension providers through lower yields on the bond portion of their portfolio investments, which may affect their ability to maintain promises to plan members. This has given rise to concerns that pension providers could increase their exposure to riskier investments in a search for potential higher yield.

Financial theory suggests that pension funds could achieve higher returns without an undue increase in risk through well-diversified asset allocation. Investors can seek out more diverse sources of return by investing in different types of instrument, in different sectors, or in assets issued by entities located in different countries or expressed in different currencies. If these investments are de-correlated from each other, and consequently react differently to market events, investors can reduce the overall risk of their portfolios.

This report includes a special feature focusing on foreign investment by pension providers. It analyses the extent to which pension providers exploit diversification opportunities through foreign investment, which geographical areas pension assets are invested in, and how these investments are channelled. It also considers what operational and regulatory hurdles may exist when investing abroad.

The data used to prepare this report have been collected from national authorities within the framework of the OECD's Global Pension Statistics project. The OECD's partnership with the International Organisation of Pension Supervisors (IOPS) and the World Bank has enabled geographical coverage of this project to be extended beyond the OECD area. The Global Pension Statistics project now provides key measures on the private pension systems of 85 countries using a common framework and methodology.

TABLE OF CONTENTS

FOREWORD.....	3
TABLE OF CONTENTS	4
HIGHLIGHTS	5
PENSION MARKETS IN FOCUS	6
LATEST TRENDS IN PENSION MARKETS	6
SPECIAL FEATURE: FOREIGN INVESTMENTS OF PENSION PROVIDERS IN 2016 – PRACTICES AND CHALLENGES	19
STATISTICAL ANNEXES	27
METHODOLOGICAL NOTES.....	33
BIBLIOGRAPHY	38

Figures

Figure 1. Assets in funded and private pension arrangements, 2016.....	7
Figure 2. Total assets in funded and private pension arrangements, in 2006 and 2016	9
Figure 3. Assets in funded and private pension arrangements in the OECD area, by country, 2006-2016	11
Figure 4. Types of pension arrangements available in the OECD area and selected non-OECD jurisdictions according to OECD taxonomy, 2016.....	12
Figure 5. Split of pension assets by type of funded and private pension arrangement, 2016.....	13
Figure 6. Real investment rate of return of pension providers, net of investment expenses, Dec 2015-Dec 2016	15
Figure 7. Look-through of pension providers' assets in Collective Investment Schemes, 2016	18
Figure 8. Investments by pension providers from selected OECD and non-OECD jurisdictions in assets overseas issued by entities located abroad, 2016.....	21
Figure 9. Pension assets overseas issued by entities located abroad broken down by geographical area, 2016	22
Figure 10. Number of times countries are reported as one of the five main destinations of foreign investments by pension providers from selected OECD and non-OECD jurisdictions, 2016	23
Figure 11. Investments by pension providers in assets overseas issued by entities located abroad, by type of asset, 2016	24
Figure 12. Pension assets abroad and in foreign currency, 2016.....	25

Tables

Table 1. Nominal and real 5-year and 10-year geometric average annual returns of pension providers in selected OECD and non-OECD countries.....	16
Table 2. Allocation of assets in funded and private pension arrangements, 2016	17

HIGHLIGHTS

>> **Assets in funded and private pension arrangements reached new heights at the end of 2016**

Assets in funded and private pension arrangements exceeded USD 38 trillion in the OECD area at the end of 2016, the highest level ever. The United States alone held around 66% of these assets. Funded and private pension arrangements continued to expand in countries such as Australia, Canada, Denmark and the Netherlands where pension assets exceeded the size of the GDP. This reflects a trend which has seen pension assets grow faster than GDP in most countries over the last decade. This trend is most pronounced in countries with large private pension markets.

>> **Pension providers in most countries experienced positive real investment rates of return, net of investment expenses**

Pension providers achieved positive real investment rates of return, net of investment expenses, in 2016 in 28 of the 31 reporting OECD countries and 25 of the 32 reporting non-OECD jurisdictions. These rates of investment return were above 2% on average both inside and outside the OECD area. Annual returns were also positive over the last decade in most countries, with the highest average annual real investment rates of return (net of investment expenses) observed in the Dominican Republic (6.3%), Colombia (5.8%) and Slovenia (5.2%).

>> **Asset allocation is mostly in traditional investments or collective investment schemes**

Most countries in 2016 mainly invested pension plan assets directly in bills and bonds or shares. However, pension providers in some countries chose to invest in these asset classes indirectly through collective investment schemes. This includes Belgium, Estonia, Luxembourg, the Netherlands and Switzerland among OECD countries, and Kosovo and Lithuania among non-OECD jurisdictions. Other asset classes may also represent a significant share of portfolios, such as land and buildings in some African countries (Kenya, Tanzania and Zambia) or private equity funds in Colombia and Zambia.

>> **Foreign investments are concentrated in a few geographical areas**

As traditional financial theory suggests, pension providers may still have some room to further diversify their portfolios. Pension providers from all countries tend to favour domestic markets, so are subject to a home bias. Their investments abroad are mainly directed towards certain regions or neighbouring countries (with the same currency), which also suggests a potential regional bias. These biases could be due to the additional risks that investing abroad entails (e.g. foreign currency or political risks), the costs of hedging those risks and building expertise in foreign markets, and/or by regulatory barriers that could prevent investment abroad. While some non-OECD countries still prevent pension providers from investing abroad, there is a general tendency towards lifting restrictions, increasing ceilings and extending the list of countries where pension providers can invest. Such moves are in line with the OECD Codes of Liberalisation promoting open access to markets for well-diversified investment portfolios.

PENSION MARKETS IN FOCUS

Latest trends in pension markets

The first part of this report describes the main characteristics of funded and private pension arrangements in the OECD area and beyond. It describes them by size (in terms of assets) and type of plan (occupational/personal, defined benefit/defined contribution). It then shows the investment performance of private pension assets in 2016 and on average over the last 5 and 10 years. The final section reports on how assets in funded and private pension arrangements were invested in financial markets in 2016.

The analysis covers all types of funded and private pension arrangements and considers all types of pension providers: pension funds, employers through their books, insurance companies, banks or investment companies. These arrangements can be publicly or privately managed and cover both public and private sector workers.¹

Private pension assets on the rise and reaching new heights in 2016

The amount of assets in pension plans provides a measure of the size of the private pension markets.² Contributions from plan members and their employers, and returns generated in financial markets, determine the amount of assets earmarked for financing the benefit payments of plan members at retirement.

The largest amounts of assets earmarked for retirement are found in some of the more advanced economies. Panel A of Figure 1 shows that pension assets exceeded USD 1 trillion in six OECD countries in 2016: Australia, Canada, Japan, the Netherlands, the United Kingdom and the United States.

The size of assets in funded and private pension plans relative to the size of the economy (i.e. GDP) is uneven worldwide. The ratio of pension assets to GDP provides an indicator of the relative importance of funded and private pension arrangements in a country. Assets in such arrangements exceeded total GDP in 2016 in 8 out of the 81 reporting countries: Australia, Canada, Denmark, Iceland, the Netherlands, South Africa, Switzerland and the United States (Panel B of Figure 1). The

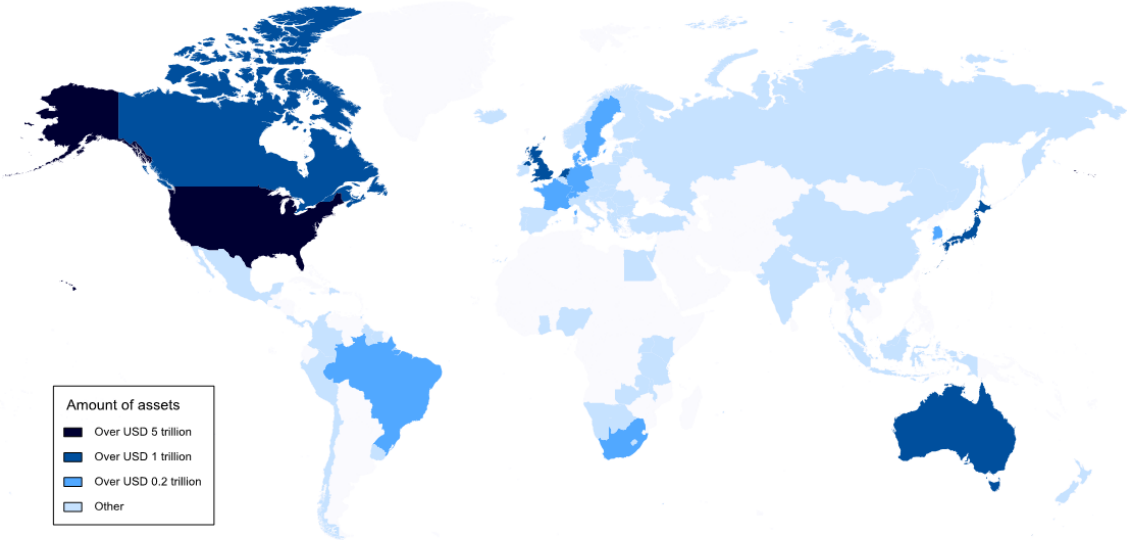
¹ For reasons of data availability, previous editions of this annual report focused only on pension funds. However, in some countries, such as Denmark, Sweden or France, insurance companies are the main providers of pension arrangements. While the issue of data availability persists in some countries, this report covers as many arrangements as the data allow. The methodological section at the end of this report specifies the exact data coverage for each country when the entire system is not covered.

² The Global Pension Statistics exercise collects the amount of investments by providers of funded and private pension arrangements. This amount could be used as a proxy for the assets of pension providers held as a result of their pension activities. While in general, the difference between assets and investments would be minimal, it may be more substantial in some cases, such as the United States, where claims of pension funds on the plan sponsors are considered as an asset but not as an investment of pension funds.

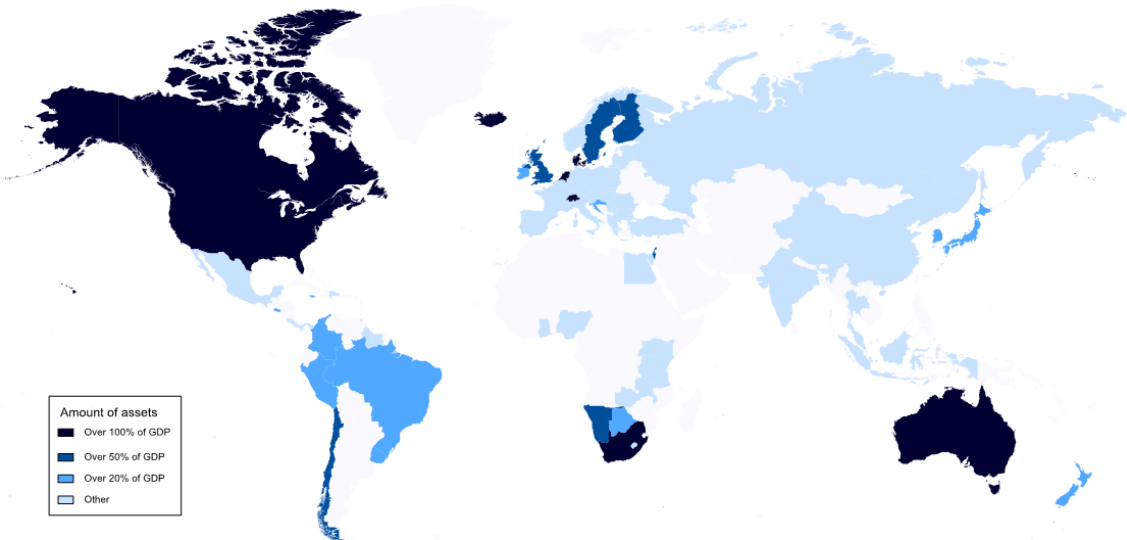
value of assets in occupational plans in the United Kingdom was below GDP. However, Levy (2017) suggests that the overall amount of pension assets including personal pension contracts provided by insurance companies was over 100% of GDP over the last years. By contrast, the size of funded and private pension arrangements was still limited in 50 reporting countries (mostly in Europe, Asia and a selection of African countries) representing less than 20% of GDP in 2016.

Figure 1. Assets in funded and private pension arrangements, 2016

A. In USD million



B. As a percentage of GDP



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

Source: OECD Global Pension Statistics.

Differences in the size of funded and private pension arrangements are partly due to their introductory date. The first pension plan covering public sector employees in the United States was set up in 1857 and the first plan covering private sector workers was established in 1875 (Employee Benefits Research Institute, 2005). The first employer-sponsored pension plan in Canada was introduced in 1874 (Gale et al., 2006). By contrast, some countries have only recently introduced private pension plans. Most countries in Latin America and Central and Eastern Europe introduced their funded private pension systems in the 1990s and 2000s. Armenia introduced voluntary pension plans in 2011 and mandatory pension plans in 2014. At the end of 2016, assets in the nascent mandatory system in Armenia accounted for 1.2% of GDP.

The amount of pension assets in a country also varies depending on whether participation in a pension plan is mandatory or voluntary. Those countries with the highest amount of assets relative to their GDP have mandatory pension plans, with the exception of Canada and the United States. In Australia, since 1992 employers are required to contribute to a superannuation fund on behalf of all employees (except part time employees under 18 years of age) who have a monthly salary of more than AUD 450 (before tax). In the Netherlands, social partners in most sectors requested the Ministry of Social Affairs and Employment to make participation in a pension fund mandatory for all employers within their sector, obliging employers to set up an occupational plan for their employees. Employees are then obliged to participate in that plan (Chen and Beetsma, 2015).

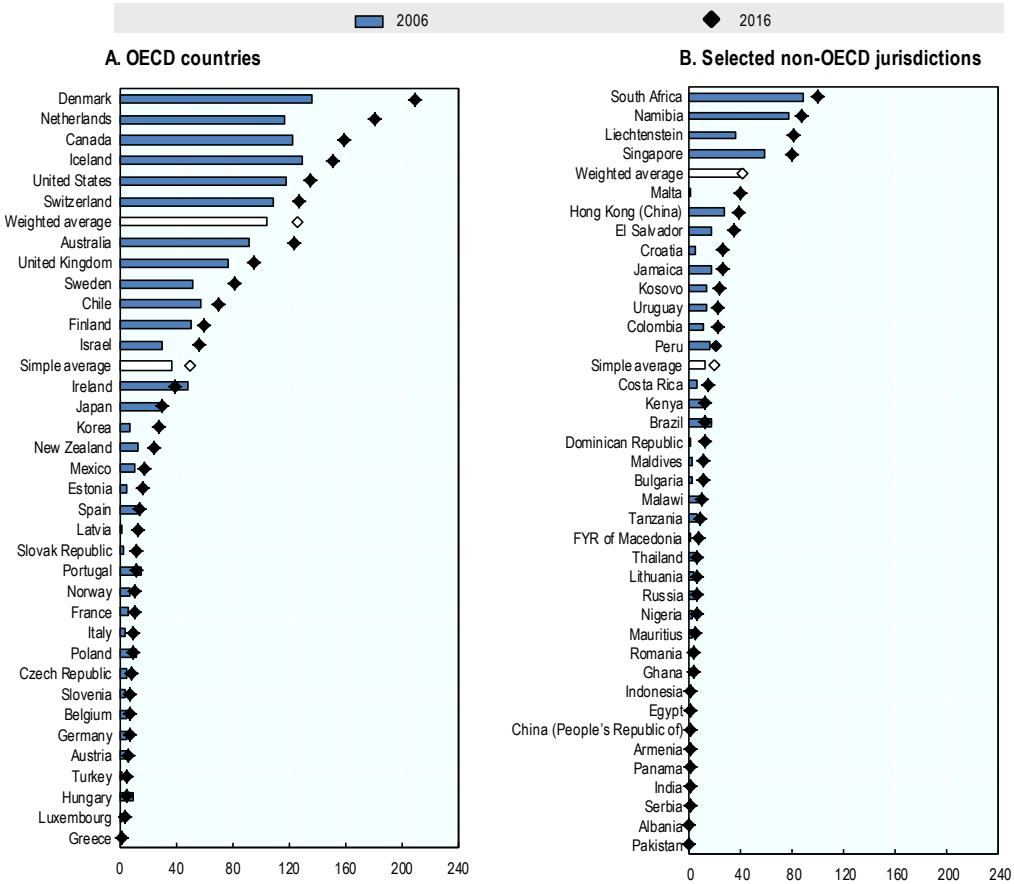
Employers in some countries may offer private pension arrangements as a part of a compensation package to attract employees. In Canada and the United States, individuals are generally not obliged to join a pension plan and employers have no obligation to enrol individuals in pension plans. Armstrong and Selody (2005) argue that most employers in large corporations in Canada consider the offer of a retirement plan as a feature of a competitive compensation package. Likewise, in the United States, the National Conference on Public Employee Retirement Systems (2008) sees the provision of retirement benefit plans as a means for employers to attract and retain employees. This perception may therefore also explain the high amount of assets in pension plans in Canada and in the United States.

Pension assets have been growing faster than GDP in most countries over the last decade (Figure 2). Assets have increased faster than GDP in 65 out of 73 reporting countries: 31 OECD and 34 non-OECD jurisdictions. Overall, the average asset-to-GDP ratio increased from 36.8% in 2006 to 49.5% in the OECD area and from 12.4% to 19.8% amongst reporting non-OECD jurisdictions. The weighted average (giving larger weights to countries with the largest amount of pension assets) also increased between 2006 and 2016 in the OECD but declined slightly outside the OECD area (driven by the relative decline of assets in closed pension funds as a percentage of GDP in Brazil).

Private pensions have however expanded at different speeds worldwide. The largest increases in percentage points of GDP occurred in countries where pension assets already represented the highest share of GDP. Denmark and the Netherlands are the two countries with the fastest rate of expansion, with increases of 73 and 64 percentage points of GDP respectively between 2006 and 2016. Denmark was already the country with the highest proportion of pension assets relative to

GDP in 2006 (136% of GDP); the level of assets represented more than twice Denmark’s GDP at the end of 2016 (209% of GDP). Australia and Canada also experienced some of the largest increases with a growth of more than 30 percentage points of GDP of pension assets between 2006 and 2016, as well as Liechtenstein (44 percentage points of GDP between 2007 and 2015) and Malta (39 percentage points of GDP between 2011 and 2016). By contrast, assets increased by less than 3 percentage points of GDP in 21 countries. Except for Japan, these countries had an asset-to-GDP ratio below 20% in 2006. Private pension systems are still recent in some of these countries, such as Armenia (2011/2014) or Ghana (2008). These countries have time to catch up and expand their systems further following the example of Croatia which introduced mandatory pension savings in 2001 and 15 years later total pension assets were worth 26% of GDP.

Figure 2. Total assets in funded and private pension arrangements, in 2006 and 2016
As a percentage of GDP



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

Source: OECD Global Pension Statistics.

Private pensions are increasing, but not as fast as GDP, in a limited number of countries. The amount of assets has increased by 78% in closed pension funds in Brazil (from BRL 0.4 trillion in 2006 to BRL 0.8 trillion in 2016) and by 205% in employer pension funds and financial institution pension funds in Indonesia (from IDR 75.0 trillion in 2006 to IDR 228.9 trillion in 2016). However, the GDP of Brazil and

Indonesia has increased faster over the same time period (respectively 160% and 242%). In addition, the Brazilian pension supervisor (PREVIC) reported that the current economic and political crisis in Brazil may decrease the willingness of employers to implement sponsored-pension plans in the short term.

Several factors may explain the increase in assets in funded and private pension plans. The increase may result directly from positive investment rates of return (net of investment expenses) and/or a rise in the amount of contributions (that may come from an increase in contribution rates or salaries or the number of contributing members) offsetting the amount of benefits paid to retirees and other expenses.³ Recently introduced funded private pensions accumulate savings but may not be paying out large amounts of benefit yet.

Lack of formal employment, either due to unemployment or informal working, can also have an impact on the development of the funded private pension sector in some countries. High levels of unemployment (such as in Greece and Portugal) can limit the coverage of individuals by plans that are accessed through employment. In 2016, the unemployment rate still exceeded 10% of the civilian labour force in Portugal and 20% in Greece (OECD, 2017a). In these two countries, where participation in a work-based pension arrangement is voluntary, less than 10% of the working age population was covered by an occupational pension plan in 2016 (OECD, forthcoming). Informality can also represent a challenge in some countries, such as Mexico and Peru, where only formal workers are obliged to participate in a pension plan.⁴

Private pensions are losing ground in a few countries, mainly in Central and Eastern Europe. The decline in the relative size of private pensions in Hungary and Poland is due to the transfer of part of the assets in funded private pension plans to the pay-as-you-go system. A pension reform in Hungary in 2011 suspended payments to mandatory private individual accounts and redirected all contributions to pay-as-you-go public pension schemes. At the time of the reform, individuals could choose to keep their private accounts but, accordingly they would no longer accrue rights in the pay-as-you-go system. The rules were changed later in 2011 but some individuals had already transferred their assets back to the pay-as-you-go system (Freudenberg et al., 2016). As a consequence, the amount of assets in funded and private arrangements was lower in 2016 (HUF 1.5 trillion) than in 2006 (HUF 2.3 trillion), even if individuals with private accounts can now continue to contribute to their accounts on a voluntary basis.⁵ In Poland, a reversal of the mandatory funded private pension system in 2014 led to a transfer of domestic sovereign bonds held by open pension funds into the social security system. Similarly, in Portugal the assets of bank employees in pension funds sponsored by banks were transferred to the public pay-as-you-go system. Lately, the Czech Republic has closed pension plans which initially allowed individuals to divert part of their social security

³ A following subsection of this report further examines investment rates of return of pension providers.

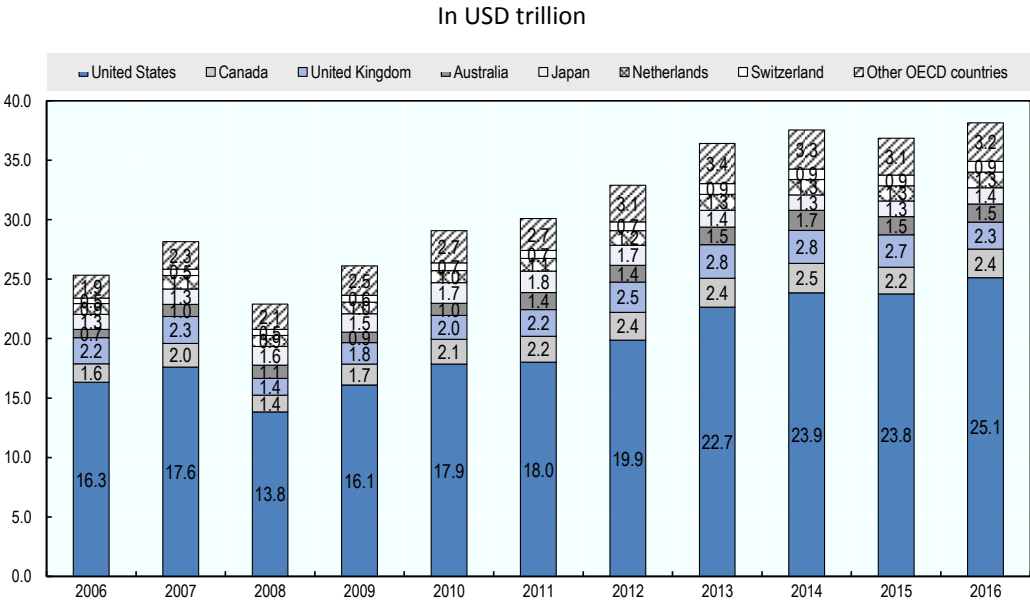
⁴ Independent workers in Mexico are not obliged to participate in a plan but they can also join the Retirement Savings System (SAR) and save for their retirement in a pension fund (AFORE).

⁵ The amount of assets in funded and private pension arrangements is available in millions of national currency in Annex Table A.1, in USD million in Annex Table A.2 and as a percentage of GDP in Annex Table A.3.

contributions and contribute a further 2% from their gross wages. They could choose to receive their assets in cash or transfer them to voluntary personal pension plans.

Summing up, assets in funded and private pension arrangements in the OECD area continued to grow and reached new heights in 2016. Assets earmarked for retirement exceeded USD 38 trillion in the OECD area at the end of 2016 (Figure 3). Losses from the financial crisis in 2008 have been recouped. Assets in pension plans in the United States represented 66% of the overall pension assets in the OECD area and peaked at USD 25.1 trillion in 2016. Finally, assets earmarked for retirement in most countries have grown faster than their economies.

Figure 3. Assets in funded and private pension arrangements in the OECD area, by country, 2006-2016



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

Source: OECD Global Pension Statistics.

Diverse types of funded and private pension plans worldwide

The pension landscape includes various types of plans worldwide. For example, pension plans may be accessed through employment or by individuals directly without any involvement of their employers. When plans are accessed through employment and were established by employers or groups thereof (e.g. industry associations) on behalf of their employees, these plans are considered as occupational in OECD taxonomy (OECD, 2005). OECD taxonomy classifies plans as personal when access to these plans does not have to be linked to an employment relationship and these plans are established directly by a pension fund or a financial institution acting as pension provider without any intervention of employers.

Occupational and personal plans coexist in most reporting countries. Figure 4 shows that 32 out of 35 OECD members and 22 out of 31 reporting non-OECD jurisdictions have both occupational and

personal plans. Individuals may be members of several types of pension plans that their employers have set up for them or that they have opened directly with a pension provider.

Figure 4. Types of pension arrangements available in the OECD area and selected non-OECD jurisdictions according to OECD taxonomy, 2016

A. OECD countries

		Occupational plans			
		DB only	Both DB and DC	DC only	None
Personal plans	Yes	Finland, Germany, Israel, Switzerland	Australia, Austria, Belgium, Canada, Chile, Denmark, France, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Turkey, United Kingdom, United States	Greece, Hungary, Latvia, Poland, Slovenia	Czech Republic, Estonia, Slovak Republic
	No				

B. Selected non-OECD jurisdictions

		Occupational plans			
		DB only	Both DB and DC	DC only	None
Personal plans	Yes	Nigeria	Brazil, Costa Rica, Gibraltar, Hong Kong (China), India, Indonesia, Jamaica, Kenya, Malta, Mauritius, Namibia, South Africa, Suriname, Zambia	Albania, Bulgaria, Croatia, FYR of Macedonia, Ghana, Serbia, Thailand	Armenia, Colombia, Lithuania, Maldives, Peru, Romania, Uruguay
	No		Liechtenstein, Malawi		

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

Source: OECD.

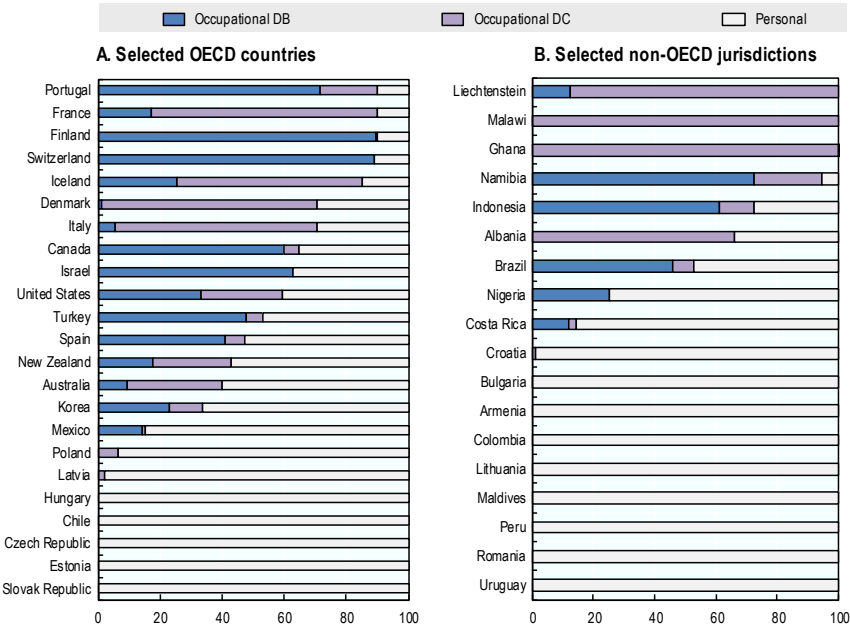
Occupational plans can provide different types of benefit guarantee or promises to members. When the plan sponsor (employer) is responsible for guaranteeing these promises and has to finance any gap between the assets in the plan and the liabilities arising from the promises, the plan is considered as defined benefit (DB) according to OECD taxonomy. For example, in Finland, pension plans regulated by the Employees' Pensions Act (TyEL plans) provide a benefit level at retirement based on a formula. When TyEL plans are administered by company pension funds or industry-wide pension funds, employers have to pay additional contributions when plans are underfunded. These plans are therefore DB. In contrast, if the employer is not responsible for financing any funding shortfall, the plan is considered as defined contribution (DC). For instance, some occupational plans in Slovenia promise their members an absolute minimum return on contributions. The pension providers, not the employers, are responsible for financing any funding shortfall. These plans are therefore DC.

Both DB and DC plans can be found in most OECD countries. In almost two thirds of OECD countries, occupational plans can be DB or DC. Outside the OECD area, 14 out of the 31 reporting countries have both occupational DB and DC plans (Figure 4).

The prominence of occupational plans in terms of assets varied greatly across countries in 2016 (Figure 5). Occupational plans held the largest share of accumulated assets for retirement in 11 OECD

countries and 7 non-OECD jurisdictions. Approximately 90% of pension assets were held in occupational plans in Finland, France, Portugal and Switzerland. Outside the OECD area, only occupational plans are available to individuals in Liechtenstein and Malawi. In the United States, the split of assets between occupational plans and personal plans is more balanced. Overall, 59% of total pension assets were held in occupational plans (either public retirement funds or private-sector employee plans such as 401(k) plans), while the remaining assets were essentially held in individual retirement accounts (IRAs) that are not set up by employers in most cases. There are no occupational plans in a selection of European countries (e.g. Armenia, the Czech Republic, Estonia, Lithuania and Romania) and Latin American countries (e.g. Colombia, Peru and Uruguay). However, individuals are required to join a personal plan when they start working in Armenia, Colombia, Estonia, Peru, Romania and Uruguay. Employers may play a role in the financing of pension arrangements, even in personal plans as they may have the possibility (e.g. in Peru) or the obligation (e.g. in Colombia) to make contributions on behalf of their employees in a personal plan, but they do not set up the plan nor are responsible for any shortfall.

Figure 5. Split of pension assets by type of funded and private pension arrangement, 2016
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 assets in DC and personal plans is higher than in DB plans in most of the reporting countries. More than 50% of assets are held in DC plans or personal plans in 18 out of the 23 reporting OECD economies (including the United States) and in 16 out of 18 reporting non-OECD jurisdictions.

DC plans and personal plans are 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 (OECD, 2016a).

Assets in IRAs kept on growing in the United States in 2016 and assets in occupational DC plans (e.g. 401(k) plans) grew faster than those in occupational DB plans. The transition from DB to DC plans and personal plans was also still under way in 2016 in Ireland and Iceland. In Ireland, the amount of assets in DB schemes continued to decline (from EUR 62,146 million in 2015 to EUR 61,465 million in 2016). Iceland enacted a law at the end of 2016 transforming DB pension funds covering the A-division of civil servants into DC funds.

Pension providers in most countries experienced positive real investment rates of return, net of investment expenses, both in 2016 and over the longer run

Funded and private pension arrangements provided positive real investment rates of return, net of investment expenses, in most OECD and non-OECD jurisdictions.⁶ Returns on investments (net of investment expenses) by pension providers were positive in real terms in 28 out of 31 reporting OECD countries and 25 out of 32 reporting non-OECD jurisdictions (Figure 6). Pension providers achieved a real investment rate of return net of investment expenses of more than 2% on average both inside and outside the OECD area.

The highest returns in 2016 were achieved mainly by European countries. Pension providers in Armenia exhibited the highest real investment rate of return (9%), followed by those in Poland (8.3%) and Ireland (8.1%) despite the volatility created by international developments such as the Brexit vote. Pension providers in 14 other countries experienced real returns on investments above 5%, including Denmark and the Netherlands.⁷ The Danish authorities explain the high investment return in 2016 by the investment of pension assets in equities, alternative investments and high yield credit.

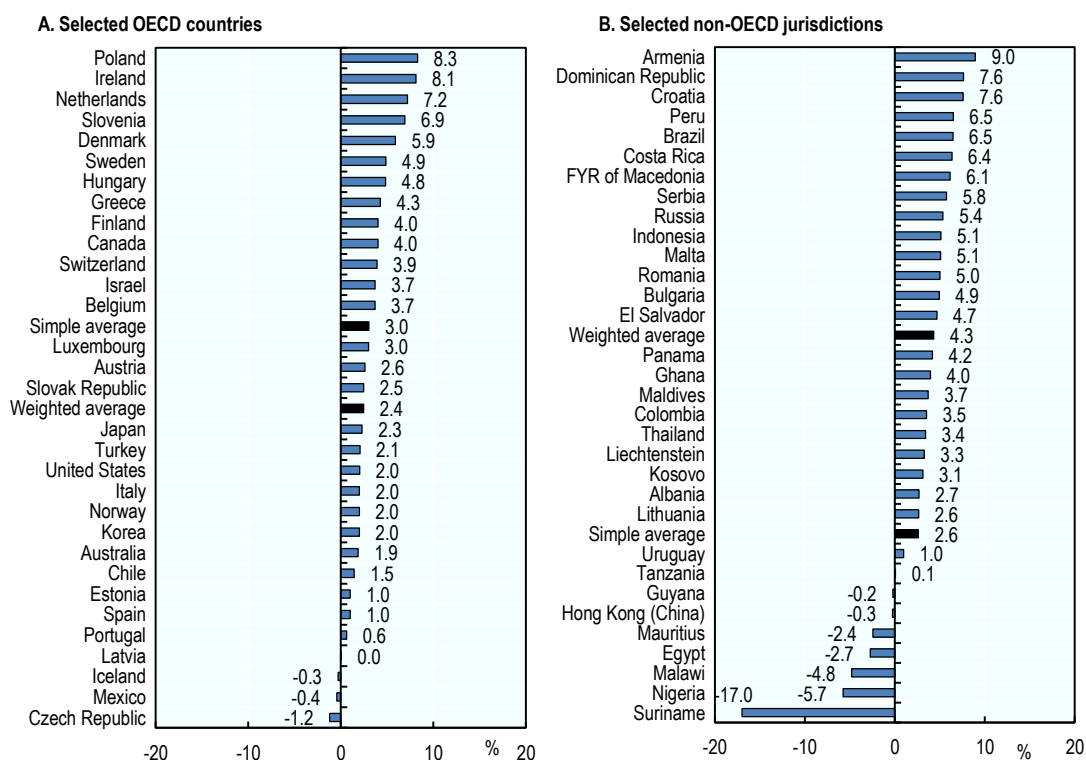
Conversely, pension plans failed to achieve positive investment rates of return net of investment expenses in real terms in 2016 in three OECD countries and seven non-OECD countries. The lowest performance occurred in Malawi (-4.8%), Nigeria (-5.7%) and Suriname (-17%). In these countries, returns on investments by pension providers were positive in nominal terms (14.2% in Malawi, 11.8% in Nigeria and 26.4% in Suriname), but inflation was 20% in Malawi, 18.6% in Nigeria and 52.3% in Suriname. The loss of value of Suriname's local currency compared to the US dollar following the shift from pegged to floating exchange rates in March 2016, coupled with hikes in the utility tariff, led to the inflationary spike observed in 2016 (IMF, 2016). Pension providers with negative real investment rates of return in 2016 in the OECD also achieved positive returns in nominal terms (0.8% for the Czech Republic, 1.6% for Iceland and 2.9% for Mexico).

⁶ Calculations of the returns on investments are based on the income earned from investments of contributions in funded and private pension arrangements in financial markets. This income results from: i) the realised gains (or losses) that come from dividends, interest earned or the sale of assets; and ii) the unrealised gains (or losses) coming from the price movement of the assets that are in the balance sheet of the pension providers. The return on investment is adjusted on the variation of the consumer price index to control for the effect of inflation on the gains of the plans.

⁷ Investment performance of pension assets may hide disparities between different funds or types of plans. For instance in Denmark, ATP, LD and company pension funds achieved higher returns than plans in insurance companies in 2016.

Figure 6. Real investment rate of return of pension providers, net of investment expenses, Dec 2015-Dec 2016

In per cent



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

Source: OECD Global Pension Statistics.

Returns over one year may not accurately reflect long-term performance. Pension assets are invested over 30 to 40 years, it is therefore important to assess performance over a longer period of time than just one year. This newsletter therefore calculates average annual returns over the past 5 and 10 years for a selection of countries.

In the post-financial crisis timeframe, the average annual returns over the last five years (between December 2011 and December 2016) were positive in all countries except Nigeria (Table 1). The highest 5-year average real investment rates of return (net of investment expenses) were achieved in Dominican Republic (8%), Serbia (7.1%), Canada (6.9%) and Costa Rica (6.9%). Overall, 39 out of 45 reporting countries experienced an annual real investment rate of return (net of investment expenses) above 2% over the last five years.

Losses from the financial crisis were recouped in most reporting countries. Pension providers in most countries experienced negative investment returns in 2008 and to a lesser extent in 2011. Despite this negative performance, investments from pension plans generated a positive annual income on average over a 10-year period (between December 2006 and December 2016) in 25 out 31 reporting countries. The highest annual returns over this period were observed in the Dominican Republic (6.3%), Colombia (5.8%) and Slovenia (5.2%). The lowest annual returns over the period can be

observed in Europe (Bulgaria, the Czech Republic, Estonia, Latvia and the Slovak Republic) and the United States.⁸

Table 1. Nominal and real 5-year and 10-year geometric average annual returns of pension providers in selected OECD and non-OECD countries

In per cent

A. Selected OECD countries					B. Selected non-OECD jurisdictions				
Country	5-year average		10-year average		Country	5-year average		10-year average	
	Nominal	Real	Nominal	Real		Nominal	Real	Nominal	Real
Canada	8.3	6.9	5.2	3.5	Dominican Republic	10.9	8.0	11.2	6.3
Netherlands	8.2	6.7	5.5	3.8	Serbia	11.2	7.1	8.1	1.7
Hungary	8.1	6.6	..	..	Costa Rica	9.7	6.9	8.6	3.2
Sweden	6.9	6.5	..	..	Romania	7.6	6.4	..	..
Belgium	7.8	6.5	4.6	2.6	FYR of Macedonia	6.7	5.7	..	..
Israel	6.4	6.0	5.5	3.6	Lithuania	6.0	5.1	..	..
Slovenia	6.7	5.9	7.0	5.2	Bulgaria	4.8	4.5	2.3	-0.5
Australia	7.7	5.8	5.3	2.9	Uruguay	13.1	4.3	13.3	4.8
Finland	6.4	5.3	..	..	Liechtenstein	3.8	3.8	..	..
Switzerland	4.9	5.3	2.5	2.4	Colombia	7.9	3.6	10.3	5.8
Iceland	7.9	5.2	5.5	0.3	Albania	5.3	3.5	..	..
Denmark	6.0	5.1	5.4	3.8	Peru	6.7	3.3	5.5	2.1
Norway	6.9	4.6	5.1	2.9	El Salvador	3.5	3.0	4.0	2.0
Spain	5.0	4.2	..	..	Thailand	4.2	2.9	..	..
Portugal	4.7	4.1	2.4	1.2	Panama	5.1	2.9	..	..
Luxembourg	5.0	3.9	2.7	0.9	Hong Kong (China)	3.6	0.3	..	..
Chile	7.3	3.9	5.5	1.8	Malta	1.3	0.1	..	..
Austria	5.3	3.7	2.5	0.5	Nigeria	10.7	-0.4	..	..
United States	5.1	3.7	1.5	-0.3					
Italy	4.2	3.5	3.0	1.5					
Estonia	4.3	3.2	1.1	-1.8					
Latvia	3.9	3.1	2.7	-0.6					
Korea	3.5	2.3	4.2	1.8					
Mexico	5.7	2.3	5.8	1.8					
Slovak Republic	2.4	1.7	1.3	-0.4					
Turkey	8.3	0.5	10.6	2.3					
Czech Republic	1.5	0.3	1.9	-0.2					

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

Source: OECD Global Pension Statistics.

Pension assets essentially invested in bills and bonds and shares, either directly or through collective investment schemes

Investment performance depends notably on the allocation of assets, the performance of the financial markets in which these assets are invested and the skill of asset managers in choosing the type of investments and the investment period (Better Finance, 2016).

Pension plan assets in most countries are mainly invested in bills and bonds as these instruments are still generally perceived as a safe source of income. Bills and bonds were the preferred instruments for direct investment by pension providers in 2016 in 18 out of 34 reporting OECD countries and 29 out of 44 non-OECD countries (Table 2). Bills and bonds accounted for more than 75% of all investments in two OECD countries (Czech Republic and Mexico) and eight non-OECD jurisdictions (Albania, Costa Rica, Dominican Republic, India, Maldives, Nigeria, Serbia and Singapore). In Slovenia,

⁸ The annual nominal and real rates of investment returns are available for each country and each year between 2006 and 2016 in Annex Table A.4 and Annex Table A.5. The annual variations of the consumer price index over the same time period are reported in Annex Table A.6.

bills and bonds accounted for a majority of assets of pension providers, probably because some providers are required to provide a guaranteed return on contributions that is based on the yield of Slovenian government bonds. Investing in bonds therefore limits the risk of failure for pension providers to achieve the guaranteed minimum return.

Table 2. Allocation of assets in funded and private pension arrangements, 2016
As a percentage of total investment

	Cash and Deposits	Bills and bonds	Loans	Shares	Land and Buildings	Mutual funds (CIS)	Unallocated insurance contracts	Hedge funds	Private equity funds	Structured products	Other investments
Selected OECD countries											
Australia	17	10	1	51	7	n.d.	n.d.	n.d.	n.d.	n.d.	14
Austria	9	46	1	33	4	n.d.	n.d.	n.d.	n.d.	8	0
Belgium	3	12	1	9	0	72	2	n.d.	n.d.	1	1
Canada	4	23	0	23	6	38	n.d.	n.d.	n.d.	n.d.	6
Chile	0	54	0	8	0	38	n.d.	n.d.	n.d.	n.d.	0
Czech Republic	8	83	n.d.	0	0	2	n.d.	n.d.	n.d.	1	0
Denmark	1	31	2	22	1	8	n.d.	n.d.	n.d.	n.d.	36
Estonia	23	18	0	3	0	55	n.d.	0	n.d.	n.d.	0
Finland	3	31	3	37	10	n.d.	n.d.	n.d.	n.d.	n.d.	17
Germany	1	35	12	0	3	45	n.d.	0	1	0	3
Greece	4	61	n.d.	7	n.d.	25	n.d.	n.d.	n.d.	n.d.	2
Hungary	4	61	n.d.	8	n.d.	26	n.d.	n.d.	n.d.	n.d.	2
Iceland	7	48	6	16	0	18	n.d.	n.d.	4	n.d.	0
Ireland	3	42	n.d.	33	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	22
Israel	6	65	4	8	1	4	n.d.	0	2	0	9
Italy	5	43	n.d.	13	2	11	21	n.d.	n.d.	n.d.	4
Japan	8	32	n.d.	9	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	51
Korea	18	45	11	3	1	5	14	n.d.	0	0	3
Latvia	13	47	0	1	0	38	n.d.	n.d.	n.d.	n.d.	1
Luxembourg	3	44	0	0	0	50	0	0	0	0	2
Mexico	1	75	n.d.	10	n.d.	14	n.d.	n.d.	n.d.	n.d.	n.d.
Netherlands	0	25	1	14	1	53	n.d.	n.d.	0	n.d.	6
New Zealand	7	18	0	20	n.d.	32	n.d.	n.d.	n.d.	n.d.	23
Norway	2	41	1	15	3	36	n.d.	n.d.	n.d.	n.d.	2
Poland	7	10	0	83	0	0	0	0	0	0	0
Portugal	7	47	0	7	8	28	0	0	0	3	0
Slovak Republic	10	64	0	2	0	19	n.d.	n.d.	n.d.	n.d.	4
Slovenia	14	62	0	1	1	21	0	0	0	0	0
Spain	12	51	0	11	0	18	7	0	1	0	0
Sweden	1	17	1	15	1	62	n.d.	n.d.	n.d.	n.d.	2
Switzerland	4	14	3	9	9	56	n.d.	2	2	n.d.	0
Turkey	25	54	n.d.	12	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	10
United Kingdom	2	25	1	14	2	27	7	n.d.	n.d.	n.d.	22
United States	3	24	1	31	1	33	3	n.d.	n.d.	n.d.	5
Selected non-OECD jurisdictions											
Albania	3	55	0	0	0	0	0	0	0	0	2
Armenia	27	45	0	27	0	0	0	0	0	0	0
Brazil	0	42	2	5	2	46	n.d.	1	1	0	2
Bulgaria	14	55	n.d.	15	2	12	n.d.	n.d.	n.d.	n.d.	1
Colombia	4	51	n.d.	16	n.d.	22	n.d.	n.d.	6	2	0
Costa Rica	2	37	0	0	0	8	0	0	0	0	2
Croatia	3	72	n.d.	20	n.d.	4	n.d.	n.d.	0	n.d.	0
Dominican Republic	n.d.	83	n.d.	n.d.	n.d.	0	n.d.	n.d.	n.d.	n.d.	15
Egypt	20	70	1	6	1	n.d.	n.d.	n.d.	n.d.	n.d.	1
FYR of Macedonia	8	61	n.d.	8	n.d.	22	n.d.	n.d.	n.d.	n.d.	0
Ghana	23	70	n.d.	5	n.d.	2	n.d.	n.d.	n.d.	n.d.	n.d.
Gibraltar	7	45	n.d.	37	3	n.d.	n.d.	5	1	n.d.	2
Guyana	29	20	1	23	2	n.d.	20	0	0	0	5
Hong Kong (China)	13	23	n.d.	60	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	5
India	3	84	n.d.	11	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	2
Indonesia	26	45	n.d.	13	6	6	n.d.	n.d.	3	n.d.	1
Jamaica	1	39	1	17	5	37	0	0	0	0	1
Kenya	6	32	n.d.	27	19	n.d.	14	n.d.	n.d.	n.d.	2
Kosovo	3	6	0	0	0	92	0	0	0	0	0
Liechtenstein	5	41	1	30	12	n.d.	n.d.	2	2	n.d.	6
Lithuania	9	37	0	0	0	53	0	0	0	0	0
Malawi	10	38	0	38	8	0	0	0	0	0	6
Malaysia	1	14	0	26	0	47	0	0	0	0	12
Maldives	5	31	n.d.	4	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Malta	14	13	1	12	0	29	30	0	0	1	1
Mauritius	17	20	0	46	1	10	n.d.	n.d.	n.d.	n.d.	5
Namibia	7	24	0	58	0	n.d.	n.d.	n.d.	4	n.d.	8
Nigeria	7	79	0	9	4	0	0	0	0	n.d.	0
Pakistan	n.d.	34	n.d.	49	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	17
Panama	43	55	0	0	0	0	0	0	0	0	1
Papua New Guinea	11	24	3	49	11	0	0	0	0	0	3
Peru	6	41	0	10	0	36	0	0	4	0	2
Romania	7	70	n.d.	19	n.d.	4	n.d.	n.d.	0	n.d.	0
Russia	18	61	n.d.	12	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	9
Serbia	14	77	n.d.	7	0	0	n.d.	n.d.	n.d.	n.d.	1
Singapore	3	37	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
South Africa	5	9	0	21	0	13	48	1	0	n.d.	3
Suriname	18	34	15	10	20	1	n.d.	n.d.	n.d.	n.d.	2
Tanzania	9	26	29	7	27	2	n.d.	n.d.	n.d.	n.d.	0
Thailand	18	56	n.d.	16	n.d.	10	n.d.	n.d.	n.d.	n.d.	1
Trinidad and Tobago	6	43	n.d.	32	1	n.d.	n.d.	n.d.	n.d.	n.d.	17
Uganda	5	73	n.d.	17	6	n.d.	n.d.	n.d.	n.d.	n.d.	0
Uruguay	8	72	2	0	0	0	0	0	7	n.d.	10
Zambia	8	22	7	22	21	8	0	0	9	0	4

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

Source: OECD Global Pension Statistics.

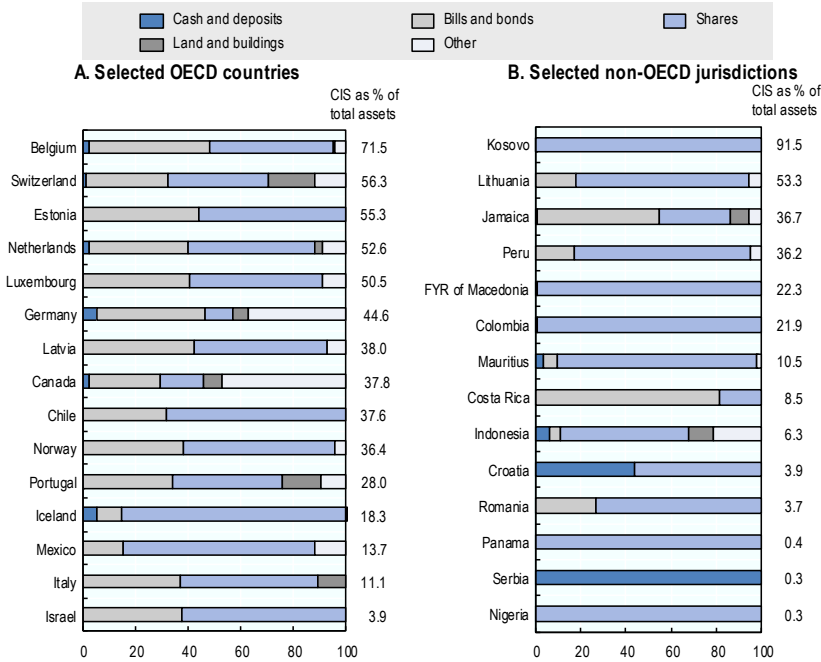
Pension providers also allocated part of their portfolio to directly-held shares. Shares were the main direct investment of pension assets in three OECD countries and seven non-OECD jurisdictions. Among these countries, shares represented more than half of the investments in Australia (51%), Hong Kong (China) (60%), Namibia (58%) and Poland (83%). The low investments in equities by pension providers in some countries may be due to the absence, or small size, of the domestic capital market, for example in Albania.

Pension providers also allocated assets to collective investment schemes in some countries. More than half of pension assets were invested in collective investment schemes in six OECD countries (Belgium, Estonia, Luxembourg, the Netherlands, Sweden and Switzerland) and two non-OECD jurisdictions (Kosovo and Lithuania). The high proportion of investments in collective investment schemes in Sweden is driven by unit-linked pension insurance contracts. Insurance companies providing such contracts in Sweden would buy units of UCITS and Alternative Investment Funds and would keep them on the account of the policyholders.

Investments from pension providers through collective investment schemes were essentially used to invest in bills and bonds and shares (Figure 7). Irrespective of the proportion of assets invested by pension providers in collective investment schemes (CIS), more than 75% of these assets in CIS were reinvested in bills and bonds and shares in 23 out of the 29 reporting countries. The real exposure of pension providers to the bond and stock markets is therefore higher than their direct allocation suggests.

Figure 7. Look-through of pension providers’ assets in Collective Investment Schemes, 2016

As a percentage of total investment in collective investment schemes (CIS)



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

Source: OECD Global Pension Statistics.

While direct investments by pension providers in categories other than bills and bonds, shares and collective investments schemes were generally minor (leaving aside assets kept in cash and deposits), a few exceptions are noteworthy. Pension providers in three African countries (Kenya, Tanzania and Zambia) and Suriname invested around 20% or more of pension assets in land and buildings in 2016. In the OECD area, pension providers in Australia, Canada, Finland, Portugal and Switzerland invested more than 5% of their assets in land and buildings. Investments in unallocated insurance contracts represented more than 20% of pension assets in Italy, Guyana, Malta and South Africa. Unlike other countries, pension providers in Colombia and Zambia invested more than 5% of their assets in private equity funds, and pension providers in Austria and Uruguay invested more than 5% of their assets in structured products.

Special feature: foreign investments of pension providers in 2016 – practices and challenges

Traditional financial theories, such as Modern Portfolio Theory, explain how a diversified portfolio allows investors to lower their investment risk without reducing the expected return of the portfolio. Portfolio diversification requires investing in assets with a negative or low price correlation. Movements in asset prices can offset each other when the correlation between asset performance is low. Diversification allows investment risk to be spread across assets and limits portfolio exposure to the idiosyncratic risk related to a single asset (Cheung, 2014).

Portfolio diversification can be achieved through different strategies. Investors can diversify their portfolios by investing in different types of instrument, different sectors or in assets issued by entities located in different countries or expressed in different currencies. Many studies have analysed correlations of equity prices across countries and sectors to assess which provided the best opportunities for portfolio diversification. Some, such as LaBarge (2008), advocate considering both types of diversification. This may reflect the rising trend in correlations between global financial markets since the 1980s (Philips, 2014).

One of the main duties of pension providers is to act in the best interest of their plan members (OECD, 2016b). According to traditional financial theory, pension providers may be able to fulfil this duty by diversifying their investments. Investing abroad provides more investment possibilities and allows for greater portfolio diversification. This can increase potential returns while lowering investment risk, or at least keeping it constant, for pension plan sponsors or members.

However, a recent OECD study (OECD, 2017b) showed that pension funds from all countries were subject to home bias. Pension funds tend to invest less than they should in foreign securities relative to the proportion of foreign securities in global financial markets.

A special feature section in this report assesses to what extent and how pension providers invested abroad in 2016. It also touches upon the barriers or risks that could limit a well-diversified allocation along a geographical dimension.

The special feature section shows that pension providers from countries with small capital markets are either those investing the most or the least abroad. Investments abroad are directed mostly towards North America (especially the United States), Europe or neighbouring areas, suggesting a potential regional bias. Luxembourg was also a primary destination for foreign investment by pension providers. Foreign investments in Luxembourg may go towards collective investment schemes, which may then invest in other countries. Therefore, when details on investments of collective investment schemes are not available, the final geographical destination of pension providers' investments is unknown.

Foreign investments present some risks and challenges that could explain the bias of pension providers towards domestic markets which they are more familiar with. Foreign investments also still face some regulatory barriers which, if removed, could help to facilitate capital movements and more optimal asset allocation.

Foreign investments are concentrated in a few geographical areas

Pension providers have to decide to what extent they wish to invest abroad, and then in which geographical areas, and through which instruments or vehicles.

Those countries with the largest proportion of pension assets abroad are Eurozone members with small domestic capital markets. Pension providers from European countries invested the largest proportion of assets abroad in 2016 (Figure 8). The ten countries with the largest proportion of assets invested abroad by pension providers are all from the euro area or are countries using the euro as their main currency: Kosovo (92% of assets invested abroad), the Netherlands (81%), Estonia (76%), the Slovak Republic (75%), Lithuania (75%), Finland (72%), Latvia (66%), Portugal (64%), Italy (59%) and Slovenia (53%). Their capital markets are also relatively small, representing less than 1% of world market capitalisation. The domestic capital markets of these countries may be too small to absorb the savings from pension plans (Stewart et al., 2017).

Other countries with small domestic capital markets have opted for domestic investment options instead of investments abroad. Pension funds from Albania and the Maldives do not invest abroad at all.⁹ These funds mainly invest in domestic bonds instead, even if regulation in Albania for instance does not prevent them from investing abroad.

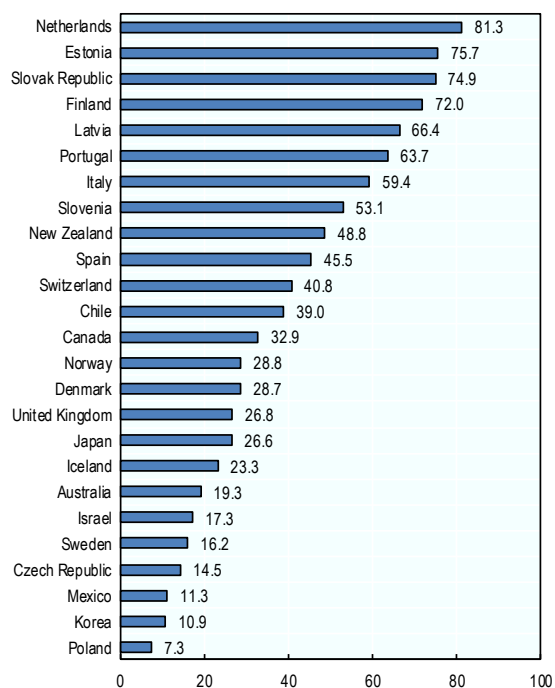
Countries where pension providers have a limited share of their investments abroad include some European countries (Poland, Romania and Serbia which are all outside the euro area), some Asian countries (Malaysia, Thailand) and some Latin American countries (Brazil and Costa Rica). Pension providers from all these countries invested less than 8% of their assets abroad.

⁹ These countries are not shown in Figure 8, which only includes countries where pension providers invest at least a portion of their assets under management abroad.

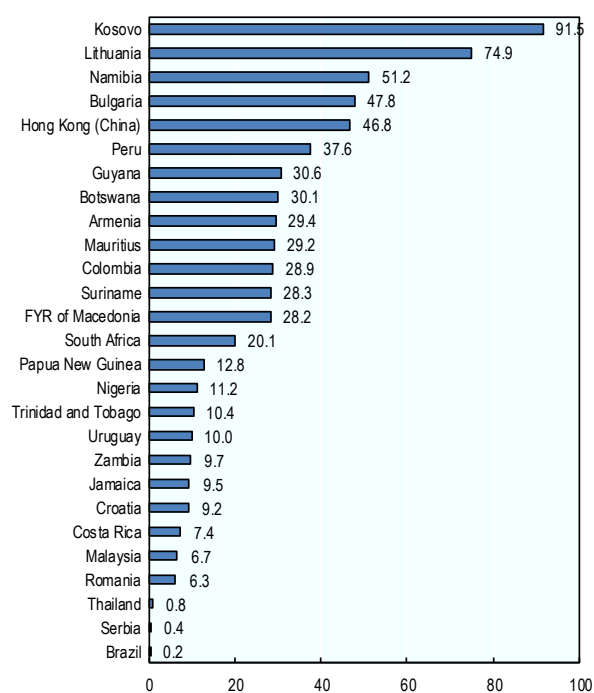
Figure 8. Investments by pension providers from selected OECD and non-OECD jurisdictions in assets overseas issued by entities located abroad, 2016

As a percentage of total investment

A. Selected OECD countries



B. Selected non-OECD jurisdictions



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

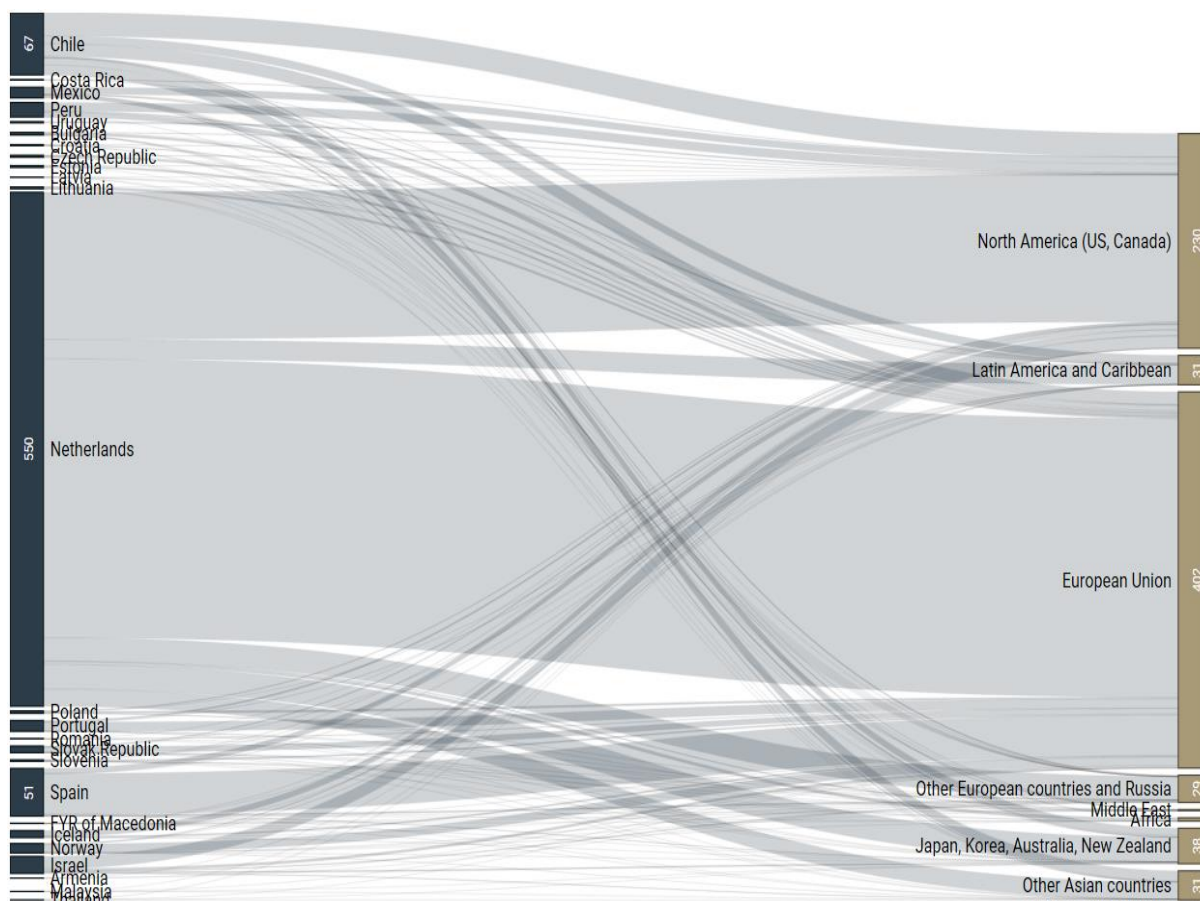
Source: OECD Global Pension Statistics.

Most foreign investments for which data can be broken down by geographical area were directed towards Europe and North America (Figure 9). The amount of foreign investments by pension providers in the 25 jurisdictions that reported a geographical area breakdown was worth USD 767 billion in 2016.¹⁰ More than half of this investment (52% or USD 402 billion) went to the European Union. Pension funds from the Netherlands were the main investors in the European Union (USD 298 billion), followed by Spain (USD 44 billion). North America was the second most popular geographical area for foreign investment (in USD) by pension providers (from the sample) who invested USD 230 billion there.

¹⁰ The breakdown of foreign investments by geographical area is not available for some of the largest pension markets: Australia, Canada, Japan and the United States. The values of assets abroad by pension providers of these countries are therefore not included in the USD 767 billion. However, in 2016 assets abroad by pension providers from these countries represented USD 289 billion for Australia, USD 424 billion for Canada and USD 291 billion for Japan. No estimate is available for the United States.

Figure 9. Pension assets overseas issued by entities located abroad broken down by geographical area, 2016

In USD billion



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

Source: OECD Global Pension Statistics.

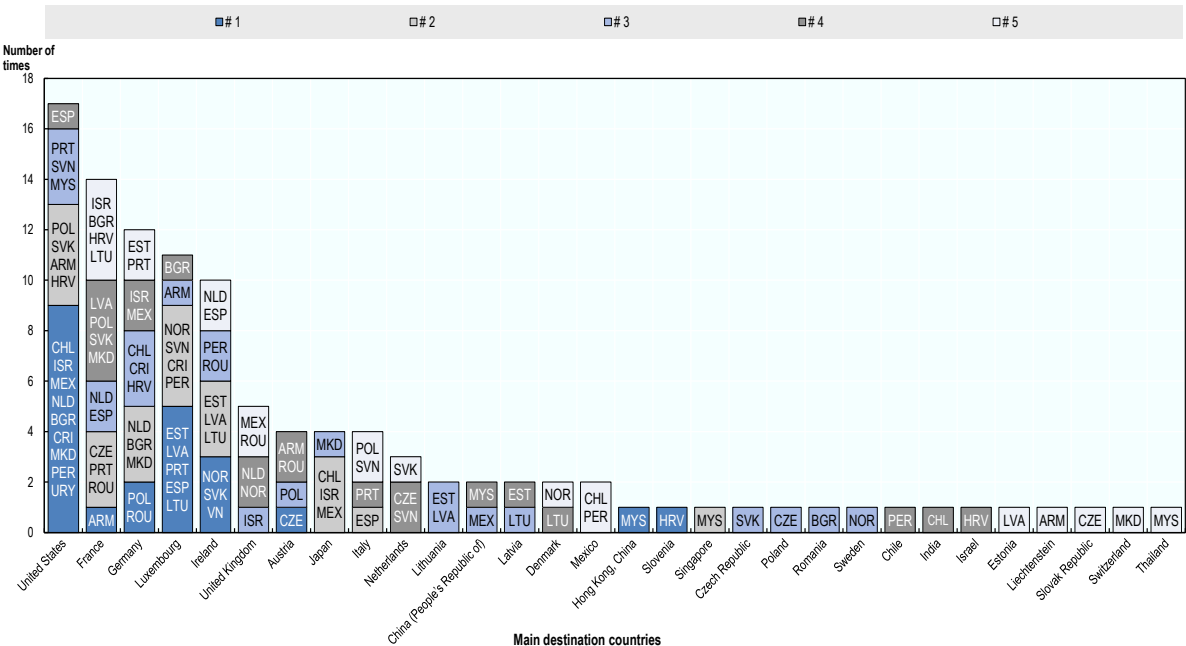
Pension providers for most of the reporting countries invested primarily in their own geographical region or neighbourhood, suggesting a potential regional bias. Pension providers from European countries all invested the biggest proportion of their assets abroad in the European Union. De Dreu and Bikker (2012) found that many pension funds from their sample of Dutch pension funds favoured regional investments in the euro area, limiting international diversification. Two Asian countries also provided the breakdown of pension assets abroad by geographical area: Malaysia and Thailand. Providers of private retirement schemes in Malaysia and Thailand's provident funds invested mainly in other Asian countries, more than 80% and 50% of their foreign assets respectively. Pension providers from reporting Latin American countries (Chile, Costa Rica, Mexico, Peru and Uruguay) directed their foreign investments towards North America first.

Foreign investments were primarily directed towards some of the most advanced economies. The United States, France and Germany attracted the most foreign investment by pension providers (from the 23 countries that reported the five main destination countries of foreign investments in

2016). The United States ranks as the first destination for foreign investments by pension providers from Chile, Israel, Mexico, the Netherlands among OECD countries, and Bulgaria, Costa Rica, the FYR of Macedonia, Peru and Uruguay among non-OECD jurisdictions (Figure 10). Overall, 17 out of 23 reporting countries mentioned the United States as one of the five main destinations for foreign investments by their pension providers. France and Germany received respectively 14 and 12 mentions. France especially attracts savings from Armenia’s mandatory pension plans while Germany attracts savings from Poland’s open pension funds and Romania’s private pension plans.

It is interesting to note that Luxembourg was mentioned 11 times as one of the five main destinations for foreign investments by pension providers. However, the Luxembourg stock market represents less than 1% of world market capitalisation. Foreign investments in Luxembourg may be directed to collective investment schemes located there. These collective investment schemes may then invest in assets issued by entities located in other countries. The ultimate geographical diversification of the pension providers’ portfolio is therefore impossible to identify in this case. A look-through of collective investment schemes is necessary to assess investment risk and exposure to different countries.

Figure 10. Number of times countries are reported as one of the five main destinations of foreign investments by pension providers from selected OECD and non-OECD jurisdictions, 2016



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

Source: OECD Global Pension Statistics.

Pension providers from 12 countries favoured bonds for their foreign investments in 2016: the Czech Republic, Italy, the Netherlands, Portugal and the Slovak Republic among OECD countries and Bulgaria, Guyana, Jamaica, Serbia, Suriname, Thailand and Uruguay among non-OECD jurisdictions

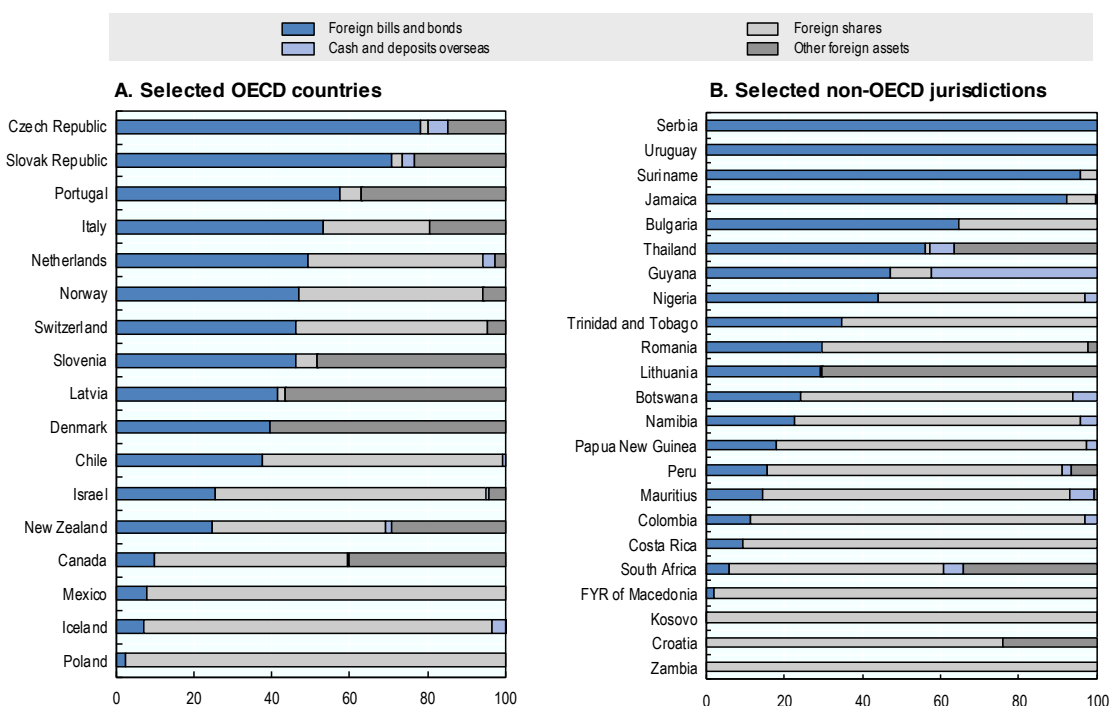
(Figure 11). In these countries, foreign bonds represented close to or more than half of the foreign investments of pension providers. Pension providers, such as pension funds in Uruguay, may purchase instruments issued by multinational organisations (e.g. IADB).

In half of the reporting countries, however, foreign investments were geared towards foreign shares. Foreign shares represented more than 90% of pension assets overseas in six countries: Mexico (92.1%), Poland (97.6%) among OECD countries, and Costa Rica (90.4%), FYR of Macedonia (97.9%), Kosovo (99.8%) and Zambia (100%) among non-OECD jurisdictions. Pension funds in Costa Rica did not invest directly in shares but indirectly through exchange-traded funds.

Investments in other types of foreign assets represented more than 50% of the investments in three countries: Denmark, Latvia and Lithuania.

Figure 11. Investments by pension providers in assets overseas issued by entities located abroad, by type of asset, 2016

As a percentage of pension assets overseas issued by entities located abroad



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

Source: OECD Global Pension Statistics.

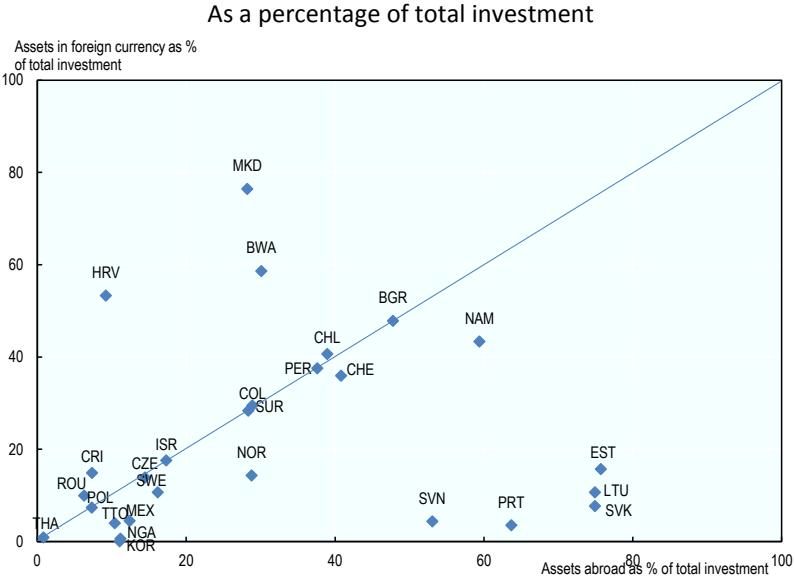
Challenges and barriers to foreign investments

Home or regional bias may be accounted for by risks associated with foreign investments. Pension providers may be exposed to additional risks, such as exchange rate or political risk, with extra costs to hedge against these risks. Regulatory barriers may also impede foreign investments in some countries.

Investors in assets issued abroad may be exposed to an exchange rate risk. Investments abroad are usually expressed in foreign currency (Figure 12). There are, however, some notable counterexamples from the euro area where pension providers invest abroad but in another member of the euro area, leaving the proportion of assets issued in foreign currency relatively low (e.g. Estonia, Lithuania, Portugal, the Slovak Republic and Slovenia). By contrast, some other countries may be exposed to foreign exchange risks even in their domestic markets. For instance, pension providers in the FYR of Macedonia invested a part of their assets in domestic government bonds denominated in a foreign currency (euro) in 2016.

Where pension providers hold assets denominated in a foreign currency, changes in exchange rates may lead to a mismatch between their assets and liabilities. Pension providers’ liabilities are expressed in local currency and are not affected by exchange rate fluctuations. This foreign currency risk can be hedged (through forward currency contracts, currency futures contracts or currency options for instance) but it has a cost.

Figure 12. Pension assets abroad and in foreign currency, 2016



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

Source: OECD Global Pension Statistics.

Pension providers, like other foreign investors, may be exposed to political risk when investing in other countries. Political decisions in a country can affect the value of local assets. To a certain extent, domestic investments can also be subject to such risk. Diversifying investments geographically can help to mitigate the potential effects of country-specific political risks on the value of assets.

Gains from foreign investments may also be reduced depending on the tax system and tax treaties of foreign countries which may withhold taxes on interest and dividends earned.

Investing abroad requires knowledge of foreign markets in order to assess risks and optimise asset allocation. Pension providers can follow multiple approaches to obtain or build up expertise on

foreign markets (PwC, 2015). PwC lists investments in foreign funds as one way to invest abroad. Developing asset management teams in foreign countries is another solution that PwC mentions. This approach helps to build expertise on foreign markets and optimise asset selection abroad. Acquiring or partnering with foreign asset managers who already have expertise in foreign markets could also enable investors to increase their exposure abroad. Davis (2005) argues that investors may decide to concentrate investments in their domestic market as they have better information about home markets.

Investing abroad has a cost that may discourage some pension providers. Albanian authorities reported that Albanian pension funds only invested in domestic securities in 2016 due to exchange rate risks and the cost of investing abroad. Building expertise in foreign markets has an entry cost. Some risks, such as foreign exchange risk, can be hedged but this can be expensive.

Regulatory hurdles also remain in some countries, limiting possibilities for pension providers to invest abroad. Some non-OECD jurisdictions such as Dominican Republic, Egypt, India and Nigeria (for contributory pension scheme) forbid pension funds from investing abroad (OECD, 2017c).¹¹ Other countries allow investments abroad but only in certain geographical areas, which could potentially lead to a concentration of investments there. These areas are usually in OECD countries, European regulated markets or the European Economic Area. Some OECD countries (e.g. Finland, Iceland, Israel, Luxembourg, Mexico, Norway, Poland, Portugal, the Slovak Republic, Slovenia) permit investments in countries considered as "eligible" and, in some cases, allow unlimited investment if they are made in these eligible countries. Spain only sets restrictions on the geographical location of investments when assets are not traded on regulated markets. Spain does not set any restriction on pension fund investments in assets traded in any regulated markets worldwide. However, if pension funds are willing to invest in assets that are not traded on regulated markets, they can only invest in securities issued by companies based in the OECD.

The OECD Codes of Liberalisation of Capital Movements and of Current Invisible Operations promote free capital flows.¹² The Codes notably invite adherents to ease restrictions limiting investments of pension providers abroad.

Some countries have already removed some of the barriers to foreign investment that may prevent an optimal and well-diversified asset allocation. In 2017, Iceland lifted restrictions on foreign investments by pension funds. Canada and Hungary both eliminated their 30% limits on foreign investments in 2005. Mexico raised the ceilings on foreign investments in 2005 and enlarged the list of eligible countries over the years to include Colombia, Iceland, Korea, Malaysia, New Zealand, Peru, Singapore, South Africa and Thailand for instance among others.

¹¹ In Nigeria, Closed Pension Fund Administrators and Approved Existing Schemes are allowed to continue to invest in foreign assets provided that they do not exceed the investment limits that are specified in their Internal Investment Guidelines as approved by the National Pension Commission of Nigeria (https://www.pencom.gov.ng/docs/1492535703_Amended_Investment_Regulation_April%202017.pdf).

¹² The latest edition of these codes is available at: <http://www.oecd.org/daf/inv/investment-policy/codes.htm>.

Statistical Annexes

Table A.1. Total investment of providers of funded and private pension arrangements, in millions of national currency, 2006-2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
OECD countries											
Australia	912,367	1,195,170	1,137,897	1,069,052	1,193,337	1,338,843	1,399,298	1,599,898	1,785,336	1,976,058	2,051,309
Austria	12,743	13,150	12,546	14,063	15,217	14,764	16,306	18,253	19,171	20,569	20,852
Belgium	13,365	14,792	11,407	13,799	13,308	15,631	17,245	19,732	22,701	24,191	29,041
Canada	1,822,368	1,969,837	1,730,306	1,826,094	2,087,050	2,223,424	2,345,160	2,582,640	2,855,900	3,111,986	3,227,682
Chile	47,186,675	55,173,152	46,750,900	59,785,152	69,523,450	70,377,419	77,543,241	85,366,585	100,479,815	109,433,421	116,428,629
Czech Republic	145,948	167,197	191,705	215,871	232,422	247,509	273,198	297,428	339,175	373,066	402,119
Denmark	2,287,477	2,385,164	2,647,974	2,744,949	3,104,432	3,341,040	3,600,384	3,578,733	4,014,761	4,088,260	4,315,576
Estonia	631	904	921	1,171	1,326	1,396	1,763	2,062	2,542	2,963	3,468
Finland (1)	129,979	142,013	131,609	148,962	164,091	99,484	107,277	115,520	122,605	122,077	127,946
France (2)	103,661	110,702	121,359	154,494	169,088	173,288	183,264	196,764	186,453	194,961	218,370
Germany (3)	100,728	115,733	119,016	130,458	140,158	149,094	167,585	171,802	194,551	200,673	212,414
Greece (4)	..	25	34	45	53	73	86	979	1,089	1,135	1,190
Hungary (5)	2,309,891	2,766,268	2,667,247	3,412,000	3,964,528	1,060,484	1,111,079	1,187,403	1,306,716	1,381,292	1,499,422
Iceland	1,549,840	1,737,801	1,770,047	1,930,934	2,093,851	2,279,803	2,565,906	2,836,386	3,076,521	3,453,653	3,650,780
Ireland (6)	87,744	86,602	63,519	72,200	75,500	72,300	80,500	91,500	112,458	112,358	112,249
Israel	201,499	223,973	307,014	357,410	398,990	431,160	485,643	533,191	600,091	644,720	681,692
Italy	52,777	59,446	63,535	74,754	84,944	92,686	106,894	118,453	134,164	142,363	156,757
Japan	153,488,800	147,674,700	143,562,400	142,576,800	141,007,000	141,131,800	145,031,100	148,667,700	157,549,000	159,581,000	158,235,300
Korea	65,691,486	71,350,903	78,508,318	102,070,391	183,224,206	221,428,750	267,016,396	308,971,434	359,370,815	402,537,382	440,368,061
Latvia	247	434	765	1,141	1,336	1,411	1,661	1,922	2,317	2,679	3,168
Luxembourg	354	374	390	844	799	832	902	959	1,484	1,444	1,574
Mexico	1,065,371	1,221,351	1,328,442	1,527,142	1,804,905	1,995,736	2,362,296	2,546,915	2,877,673	3,027,296	3,244,518
Netherlands	671,880	772,452	670,244	679,856	760,115	815,868	931,525	968,089	1,055,934	1,163,253	1,266,699
New Zealand	20,231	19,781	19,388	22,008	27,158	31,374	34,756	40,426	45,923	57,723	64,738
Norway	146,739	160,435	153,541	175,191	194,170	201,427	219,759	248,723	277,377	301,388	318,069
Poland (7)	118,609	142,334	140,664	182,808	224,816	230,981	276,620	309,969	165,020	157,878	171,512
Portugal (8)	24,057	25,241	21,882	23,384	21,151	14,334	15,487	16,147	18,506	19,553	20,009
Slovak Republic	1,323	2,286	3,174	3,966	4,982	5,798	6,817	7,198	7,944	8,037	9,034
Slovenia	969	1,238	1,441	1,792	2,117	2,227	2,270	2,327	2,561	2,688	2,811
Spain	121,589	132,319	126,324	133,534	134,398	133,428	136,757	144,754	151,223	154,353	155,811
Sweden	1,607,698	1,761,449	1,849,722	1,723,061	1,878,842	2,219,149	2,454,476	2,566,420	2,968,332	3,158,088	3,527,589
Switzerland (9)	583,267	605,459	538,524	598,930	621,234	625,295	672,785	809,246	871,130	885,534	920,477
Turkey	5,670	10,296	14,200	21,682	25,845	53,555	53,813	75,927	95,435	106,249	124,045
United Kingdom	1,118,254	1,131,112	968,752	1,124,262	1,269,071	1,444,019	1,603,292	1,706,682	1,784,104	1,850,276	1,848,247
United States	16,333,218	17,604,249	13,844,580	16,110,283	17,854,583	18,029,025	19,865,478	22,661,532	23,865,675	23,755,234	25,126,592
Selected non-OECD jurisdictions											
Albania (10)	..	45	102	209	311	155	284	436	632	930	1,325
Armenia	..	..	..	..	..	..	..	..	12,145	31,540	63,323
Bolivia	18,003	21,912	26,255	31,278	37,657	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	58,700	..	..	..
Brazil (11)	423,775	436,565	412,506	485,878	539,093	573,018	645,527	644,860	1,093,798	1,213,636	1,432,133
Bulgaria	1,622	2,328	2,303	3,173	3,996	4,598	5,709	6,821	8,185	9,394	10,824
China (People's Republic of)	91,000	152,000	191,100	253,300	280,900	357,000	482,100	603,500	768,900	952,600	1,107,500
Colombia	43,338,555	64,867,218	69,025,803	67,015,269	87,911,524	104,916,828	120,856,919	128,639,830	152,499,223	163,672,394	193,781,053
Costa Rica (12)	774,952	842,379	1,120,971	1,339,188	1,453,484	1,795,276	2,213,151	2,734,179	3,153,594	4,854,558	5,518,666
Croatia	16,377	21,814	23,539	30,628	38,088	43,036	53,563	60,940	70,312	78,941	89,092
Dominican Republic	21,667	32,900	49,076	69,031	91,321	118,508	154,572	194,688	305,905	336,457	397,260
Egypt	..	..	21,847	..	..	..	..	35,274	39,659	43,035	48,300
El Salvador	29,331	34,634	39,119	43,877	47,894	53,311	59,805	64,060	69,939	74,499	80,942
FYR of Macedonia	..	3,125	5,037	8,751	12,494	16,141	21,336	27,137	33,582	40,802	49,079
Ghana	..	..	..	..	..	..	..	..	2,582	4,672	6,793
Gibraltar (13)	..	..	..	..	..	..	22	25	26	7	..
Guyana	..	..	..	..	..	..	..	..	..	45,435	47,013
Hong Kong (China)	410,653	503,723	469,147	523,777	608,325	618,484	701,392	798,960	854,859	893,230	954,518
India	..	..	..	..	150,000	151,696	298,540	422,047	726,098	1,078,020	1,595,046
Indonesia	74,960,000	87,904,869	86,550,000	108,060,000	125,720,000	136,543,778	153,750,000	157,600,000	186,140,000	200,104,742	228,878,462
Jamaica	131,916	173,912	196,410	222,402	259,067	282,981	290,388	303,740	338,415	395,077	452,146
Kenya	243,327	263,700	272,284	313,865	431,727	460,988	548,700	696,680	755,163	814,100	912,660
Kosovo	..	..	..	..	..	..	717	919	1,094	1,186	1,432
Lesotho	..	..	..	..	..	2,216	2,617	..	..	..	..
Liechtenstein	..	2,235	2,266	2,728	3,472	3,527	3,597	3,953	4,228	4,934	5,303
Lithuania	..	..	..	1,134	1,209	1,430	1,611	1,919	2,182	2,574	..
Malawi	..	..	..	..	..	..	..	177,981	246,980	306,663	380,829
Malaysia	..	..	..	..	..	..	..	..	..	1,190	..
Maldives	..	..	..	..	..	817	1,656	2,543	..	4,795	6,023
Malta (14)	..	..	..	..	..	35	575	1,227	2,141	3,146	3,904
Mauritius	..	..	..	..	..	..	6,924	7,975	..	17,281	19,003
Namibia	..	..	..	..	63,903	69,479	85,757	103,612	117,163	..	138,353
Nigeria	..	815,193	1,098,990	1,517,020	2,021,590	2,442,840	3,153,110	4,057,440	4,611,630	5,301,780	6,164,829
Pakistan	..	648	735	1,008	1,375	1,842	3,232	6,089	10,199	15,294	..
Panama	..	..	108	..	161	216	142	333	384	427	684
Papua New Guinea	..	..	..	..	..	..	..	8,593	..	..	..
Peru	46,050	61,051	49,881	69,287	87,296	81,881	96,853	102,077	114,503	124,093	138,191
Romania	..	14	934	2,473	4,663	6,867	10,242	14,689	20,172	25,940	32,988
Russia	..	..	..	..	..	..	..	3,835,186	3,985,916	4,793,277	5,279,485
Serbia	226	3,057	4,662	7,222	9,912	12,493	16,366	19,747	23,654	28,954	32,860
Singapore (15)	..	..	..	..	..	205,653	228,117	250,735	272,893	296,951	325,650
South Africa	1,620,900	1,938,600	1,972,346	1,874,100	2,198,384	2,429,800	2,749,145	3,211,017	3,677,244	4,035,825	..
Suriname	721	..	..	..	..	..	..	..	..	..	2,302
Tanzania	..	..	..	..	..	..	..	4,714,088	6,711,300	8,840,236	9,026,510
Thailand	390,928	441,710	465,297	516,651	577,865	619,007	699,850	753,580	841,514	890,200	979,399
Trinidad and Tobago	21,164	23,400	25,843	31,811	34,521	29,589	32,561	..	..	..	..
Uganda	..	..	..	..	..	..	..	..	..	..	8,043,945
Ukraine	..	..	612	..	1,144	1,387	..	..	..	..	..
Uruguay	63,096	72,757	69,941	100,183	134,505	154,517	196,813	224,752	266,614	317,041	

Table A.2. Total investment of providers of funded and private pension arrangements, in USD million, 2006-2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
OECD countries											
Australia	678,162	1,014,341	1,095,339	867,429	1,017,082	1,437,784	1,426,024	1,482,946	1,681,786	1,517,613	1,523,302
Austria	16,783	19,359	17,460	20,259	20,333	19,103	21,514	25,173	23,276	22,393	21,980
Belgium	17,601	21,775	15,875	19,879	17,783	20,225	22,753	27,213	27,561	26,337	30,612
Canada	1,563,861	1,993,561	1,412,956	1,744,787	2,085,173	2,177,692	2,356,471	2,427,293	2,462,195	2,248,545	2,403,874
Chile	88,293	111,277	74,313	118,052	148,437	134,962	162,021	162,988	165,432	154,711	174,480
Czech Republic	6,991	9,249	9,909	11,753	12,395	12,413	14,337	14,951	14,854	15,028	15,684
Denmark	404,048	469,955	501,045	528,882	553,049	581,495	636,211	661,173	655,857	598,574	611,895
Estonia	831	1,331	1,282	1,687	1,772	1,806	2,326	2,843	3,087	3,226	3,656
Finland (1)	171,182	209,057	183,160	214,595	219,258	128,723	141,541	159,314	148,855	132,905	134,867
France (2)	136,522	162,964	168,895	222,564	225,935	224,217	241,799	271,357	226,372	212,254	230,184
Germany (3)	132,659	170,371	165,634	187,938	187,280	192,912	221,112	236,932	236,204	218,473	223,906
Greece (4)	..	36	47	65	71	95	113	1,350	1,322	1,236	1,254
Hungary (5)	12,055	16,026	13,662	18,142	19,001	4,406	5,029	5,506	5,043	4,819	5,105
Iceland	21,628	28,097	14,679	15,460	18,199	18,579	19,892	24,547	24,244	26,651	32,359
Ireland (6)	115,559	127,487	88,399	104,011	100,883	93,549	106,212	126,188	136,535	122,324	118,322
Israel	47,692	58,235	80,751	94,678	112,423	112,840	130,095	153,613	154,305	165,228	177,293
Italy	69,507	87,511	88,422	107,690	113,502	119,887	141,035	163,359	162,889	154,991	165,238
Japan	1,290,364	1,295,392	1,581,955	1,548,738	1,731,209	1,815,901	1,675,692	1,411,849	1,305,943	1,324,324	1,354,754
Korea	70,651	76,221	62,333	87,652	161,459	192,246	249,408	292,753	326,909	343,315	364,634
Latvia	325	639	1,065	1,643	1,785	1,826	2,192	2,650	2,813	2,917	3,340
Luxembourg	467	550	542	1,215	1,067	1,076	1,190	1,323	1,801	1,572	1,659
Mexico	97,911	112,399	98,125	116,944	146,062	142,650	181,574	194,770	195,521	175,939	156,503
Netherlands	884,866	1,137,127	932,779	979,401	1,015,666	1,055,652	1,229,054	1,335,092	1,282,009	1,266,434	1,335,227
New Zealand	12,406	14,100	15,384	12,371	19,275	23,929	28,406	33,831	39,788	39,529	45,109
Norway	23,441	29,655	21,934	30,310	33,135	33,627	39,454	40,908	37,380	34,210	36,899
Poland (7)	40,752	58,453	47,493	64,137	75,846	67,590	89,244	102,911	47,052	40,470	41,038
Portugal (8)	31,683	37,158	30,453	33,886	28,262	18,546	20,433	22,268	22,469	21,288	21,092
Slovak Republic	1,743	3,366	4,417	5,713	6,523	7,503	8,994	9,926	9,645	8,750	9,523
Slovenia	1,276	1,823	2,006	2,582	2,828	2,882	2,995	3,209	3,110	2,927	2,963
Spain	160,133	194,787	175,805	192,369	179,583	172,642	180,437	199,630	183,600	168,044	164,241
Sweden	234,208	274,643	236,822	242,122	280,019	322,190	377,350	399,517	383,674	374,146	389,264
Switzerland (9)	477,970	537,946	506,274	581,203	661,168	664,571	734,001	907,735	880,703	892,586	904,380
Turkey	4,024	8,794	9,309	14,543	16,769	28,284	30,200	35,543	41,119	37,196	35,217
United Kingdom	2,195,133	2,266,070	1,412,247	1,820,742	2,018,041	2,232,598	2,529,995	2,810,564	2,784,630	2,741,924	2,273,713
United States	16,333,218	17,604,249	13,844,590	16,110,283	17,854,583	18,029,025	19,865,478	22,661,532	23,865,675	23,755,234	25,126,592
Selected non-OECD jurisdictions											
Albania (10)	..	1	1	2	3	1	3	4	5	7	10
Armenia	..	..	..	..	..	..	..	..	26	65	131
Bolivia	2,256	2,876	3,740	4,456	5,387	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	6,731	..	..	..
Brazil (11)	198,285	246,577	176,571	279,061	319,785	308,273	315,153	273,965	411,790	310,806	439,507
Bulgaria	1,025	1,749	1,660	2,326	2,714	3,042	3,848	4,807	5,089	5,248	5,834
China (People's Republic of)	11,654	20,809	27,961	37,096	42,413	56,659	76,650	98,896	125,658	146,746	159,357
Colombia	19,474	32,633	31,403	32,783	44,179	54,006	68,221	66,911	63,742	51,968	64,578
Costa Rica (12)	1,496	1,691	2,018	2,369	2,833	3,507	4,355	5,453	5,846	9,017	9,950
Croatia	2,936	4,375	4,566	6,018	6,840	7,395	9,353	10,982	11,157	11,291	12,428
Dominican Republic	646	966	1,371	1,897	2,408	3,055	3,829	4,543	6,892	7,369	8,502
Egypt	..	..	4,104	..	..	..	..	5,031	5,550	5,658	5,453
El Salvador	3,352	3,958	4,471	5,015	5,474	6,093	6,835	7,321	7,993	8,514	9,251
FYR of Macedonia	..	75	116	205	270	340	457	608	664	724	841
Ghana	..	..	..	..	..	..	..	..	808	1,231	1,617
Gibraltar (13)	..	..	..	..	..	35	39	42	11	..	..
Guyana	..	..	..	..	..	..	..	..	..	220	228
Hong Kong (China)	52,821	64,567	60,531	67,536	78,246	79,645	90,496	103,045	110,226	115,248	123,100
India	..	..	..	..	3,347	2,848	5,450	6,819	11,465	16,253	23,472
Indonesia	8,310	9,333	7,904	11,496	13,983	15,058	15,900	12,930	14,963	14,506	17,035
Jamaica	1,968	2,470	2,448	2,490	3,026	3,276	3,137	2,864	2,958	3,292	3,533
Kenya	3,506	4,207	3,504	4,140	5,346	5,419	6,380	8,072	8,344	7,957	8,905
Kosovo	..	..	..	..	..	..	946	1,267	1,328	1,291	1,510
Lesotho	..	..	..	..	..	272	308	..	..	..	..
Liechtenstein	..	1,986	2,131	2,647	3,696	3,748	3,925	4,434	4,275	4,974	5,210
Lithuania	..	..	..	..	1,515	1,564	1,887	2,221	2,330	2,376	2,713
Malawi	..	..	..	..	..	..	..	409	525	462	525
Malaysia	..	..	..	..	..	..	..	..	..	277	..
Maldives	..	..	..	..	..	53	108	165	..	311	392
Malta (14)	..	..	..	..	..	45	759	1,692	2,599	3,425	4,116
Mauritius	..	..	..	..	..	..	227	265	..	482	528
Namibia	..	..	..	..	9,636	8,532	10,088	9,877	10,117	..	9,964
Nigeria	..	6,910	8,290	10,142	13,418	15,435	20,042	25,801	27,178	26,913	20,213
Pakistan	..	11	9	12	16	20	33	58	102	146	..
Panama	..	..	108	..	161	216	142	333	384	427	684
Papua New Guinea	..	..	..	..	..	..	..	3,549	..	..	..
Peru	14,411	20,377	15,888	23,979	31,083	30,371	37,982	36,521	38,360	36,386	41,177
Romania	..	6	330	842	1,455	2,053	3,051	4,513	5,471	6,254	7,666
Russia	..	..	..	..	..	..	..	117,179	70,850	65,767	87,038
Serbia	4	57	74	108	125	154	190	238	238	260	281
Singapore (15)	..	..	..	..	..	158,109	186,447	198,163	206,533	210,023	225,160
South Africa	232,554	284,670	211,966	253,943	331,501	298,395	323,385	306,107	317,525	259,622	..
Suriname	263	..	..	..	..	..	..	..	..	..	310
Tanzania	..	..	..	..	..	..	..	2,986	3,889	4,115	4,155
Thailand	10,845	13,100	13,333	15,506	19,165	19,532	22,847	22,965	25,529	24,667	27,334
Trinidad and Tobago	3,353	3,690	4,103	4,991	5,374	4,612	5,062	..	..	..	..
Uganda	..	..	..	..	..	..	..	..	..	..	2,228
Ukraine	..	..	80	..	144	174	..	..	..	..	..
Uruguay	2,586	3,384	2,872	5,104	6,694	7,765	10,146	10,508	10,957	10,613	12,483
Zambia	..	..	..	..	..	..	..	..	876	581	..
Regional indicators											
Total OECD	25,343,945	28,154,003	22,915,361	26,123,524	29,085,857	30,093,425	32,894,583	36,412,756	37,543,654	36,856,110	38,140,159
Total selected non-OECD	571,745	730,478	591,553	774,165	960,240	1,099,705	1,237,679	1,368,276	1,522,253	1,375,489	1,347,420
Total G20 (16)	23,022,815	25,353,261	20,364,207	23,410,906	26,268,124	27,274,430	29,655,325	32,804,793	34,241,494	33,543,508	34,584,325
Euro area (17)	1,741,136	2,175,340	1,876,241	2,095,297	2,124,046	2,062,252	2,346,345	2,591,739	2,476,475	2,371,870	2,474,892
BRICS	442,492	552,056	416,498	570,100	697,047	666,175	720,638	802,966	937,289	799,194	709,375
Latin America and the Caribbean	434,295	542,298	417,431	597,141	720,904	698,788	798,456	766,179	909,875	769,261	921,186
Asia (18)	1,492,337	1,537,668	1,834,777	1,862,713	2,162,263	2,452,911	2,453,126	2,301,255	2,281,633	2,361,044	2,472,532
Total World	25,915,690	28,884,481	23,506,915	26,897,689	30,046,096	31,193,130	34,132,262	37,781,032	39,065,907	38,231,600	39,487,579

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

Source: OECD Global Pension Statistics.

Table A.3. Total investment of providers of funded and private pension arrangements, as a percentage of GDP, 2006-2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
OECD countries											
Australia	91.4	109.9	96.5	84.9	92.0	94.9	93.8	104.7	112.3	122.2	123.9
Austria	4.8	4.7	4.3	4.9	5.2	4.8	5.1	5.7	5.8	6.1	6.0
Belgium	4.1	4.3	3.2	4.0	3.6	4.1	4.5	5.0	5.7	5.9	6.9
Canada	122.1	125.2	104.7	116.5	125.6	125.6	128.7	136.1	144.0	156.7	159.2
Chile	57.5	60.8	49.8	61.8	62.3	57.7	59.7	61.9	67.5	69.0	69.6
Czech Republic	4.2	4.4	4.8	5.5	5.9	6.1	6.7	7.3	7.9	8.1	8.4
Denmark	136.0	137.2	147.0	159.4	171.4	180.9	190.0	185.5	203.0	201.7	209.0
Estonia	4.7	5.6	5.6	8.3	9.0	8.4	9.8	10.9	12.9	14.6	16.4
Finland (1)	75.3	76.1	67.9	82.3	87.7	50.5	53.7	56.8	59.7	58.2	59.3
France (2)	5.6	5.7	6.1	8.0	8.5	8.4	8.8	9.3	8.7	8.9	9.8
Germany (3)	4.2	4.6	4.6	5.3	5.4	5.5	6.1	6.1	6.6	6.6	6.8
Greece (4)	..	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.6	0.7
Hungary (5)	9.6	10.8	9.5	13.0	14.6	3.8	3.9	3.9	4.0	4.1	4.3
Iceland	129.6	127.4	114.1	121.2	129.2	134.0	144.3	150.0	153.4	156.0	150.7
Ireland (6)	47.4	43.9	33.8	42.4	45.1	42.0	45.9	50.7	57.8	42.9	40.7
Israel	29.4	30.5	39.6	43.8	45.7	46.1	48.9	50.3	54.3	55.4	55.7
Italy	3.4	3.7	3.9	4.8	5.3	5.7	6.6	7.4	8.3	8.7	9.4
Japan	29.1	27.8	27.6	29.1	28.2	28.7	29.3	29.5	30.7	30.1	29.4
Korea	6.8	6.8	7.1	8.9	14.5	16.6	19.4	21.6	24.2	25.7	26.9
Latvia	1.4	1.9	3.1	6.1	7.4	6.9	7.6	8.4	9.8	11.0	12.7
Luxembourg	1.0	1.0	1.0	2.3	2.0	1.9	2.0	2.1	3.0	2.8	2.9
Mexico	10.1	10.7	10.8	12.6	13.6	13.7	15.1	15.8	16.7	16.6	16.7
Netherlands	116.0	126.0	104.9	110.1	120.4	126.9	144.4	148.3	159.3	170.2	180.3
New Zealand	12.4	11.5	10.4	11.6	14.0	15.4	16.3	18.6	19.8	22.9	24.4
Norway	6.6	6.8	5.9	7.2	7.5	7.2	7.4	8.1	8.8	9.7	10.2
Poland (7)	11.1	12.0	10.9	13.3	15.6	14.7	17.0	18.7	9.6	8.8	9.3
Portugal (8)	14.5	14.4	12.2	13.3	11.8	8.1	9.2	9.5	10.7	10.9	10.8
Slovak Republic	2.4	3.6	4.6	6.2	7.2	8.2	9.4	9.7	10.5	10.2	11.2
Slovenia	3.1	3.5	3.8	5.0	5.8	6.0	6.3	6.4	6.8	6.9	7.0
Spain	12.1	12.2	11.3	12.4	12.4	12.5	13.2	14.1	14.6	14.3	14.0
Sweden	51.9	53.4	54.6	52.4	53.4	60.7	66.6	68.1	75.4	75.5	80.6
Switzerland (9)	108.4	105.6	90.1	102.0	102.5	101.1	107.9	127.5	135.3	137.2	141.6
Turkey	0.7	1.2	1.4	2.2	2.2	3.8	3.4	4.2	4.7	4.6	4.8
United Kingdom	76.8	73.9	61.9	74.0	82.0	88.7	95.7	98.1	97.9	98.8	95.3
United States	117.9	121.6	94.1	111.7	119.3	116.2	123.0	135.8	136.9	131.1	134.9
Selected non-OECD jurisdictions											
Albania (10)	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Armenia	..	..	..	..	..	..	..	..	..	0.3	0.6
Bolivia	19.6	21.3	21.8	25.7	27.3	..	..	..	..	..	..
Botswana	..	..	..	..	..	..	..	47.2	..	..	..
Brazil (11)	17.6	16.0	13.3	14.6	13.9	13.1	13.4	12.1	18.9	20.2	22.9
Bulgaria	2.9	3.7	3.2	4.3	5.3	5.7	7.0	8.3	9.8	10.6	11.5
China (People's Republic of)	0.4	0.6	0.6	0.7	0.7	0.7	0.9	1.0	1.2	1.4	1.5
Colombia	11.3	15.0	14.4	13.3	16.1	16.9	18.2	18.1	20.1	20.5	22.5
Costa Rica (12)	6.7	6.1	7.0	7.6	7.4	8.4	9.5	11.0	11.6	16.6	17.6
Croatia	5.6	6.8	6.8	9.3	11.6	12.9	16.2	18.5	21.4	23.6	26.0
Dominican Republic	1.7	2.3	3.0	4.0	4.6	5.4	6.5	7.5	10.8	11.0	12.0
Egypt	..	..	2.3	..	..	..	..	1.9	1.9	1.8	1.8
El Salvador	18.1	19.7	20.9	24.3	25.6	26.3	28.7	30.1	31.9	32.9	34.6
FYR of Macedonia	..	0.8	1.2	2.1	2.9	3.5	4.6	5.4	6.4	7.3	8.1
Ghana	..	..	..	..	..	..	..	..	2.3	3.4	4.0
Gibraltar (13)	..	..	..	..	..	1.9	1.9	1.7	0.4	..	..
Guyana	..	..	..	..	..	..	..	..	..	6.9	6.6
Hong Kong (China)	27.3	30.5	27.5	31.6	34.2	32.0	34.4	37.4	37.8	37.2	38.3
India	..	..	..	..	0.2	0.2	0.3	0.4	0.6	0.8	1.1
Indonesia	2.1	2.0	1.6	1.8	1.8	1.7	1.8	1.7	1.8	1.7	1.8
Jamaica	17.5	20.5	19.7	20.9	22.5	22.8	22.1	21.2	22.0	23.7	25.8
Kenya	13.1	12.3	11.0	11.0	13.6	12.4	12.9	14.7	14.0	13.1	13.1
Kosovo	..	..	..	..	..	..	14.2	17.2	19.6	20.4	23.7
Lesotho	..	..	..	..	..	10.4	11.4	..	..	..	..
Liechtenstein	..	36.2	36.9	49.8	58.6	61.9	62.9	66.7	69.3	80.6	..
Lithuania	..	..	..	..	4.0	3.9	4.3	4.6	5.2	5.8	6.7
Malawi	..	..	..	..	..	..	..	8.8	9.6	9.6	9.7
Malaysia	..	..	..	..	..	..	..	..	..	0.1	..
Maldives	..	..	..	..	..	2.3	4.3	5.9	..	9.7	11.6
Malta (14)	..	..	..	..	..	0.5	8.0	16.1	25.4	33.9	39.4
Mauritius	..	..	..	..	..	..	2.0	2.2	..	4.3	4.4
Namibia	..	..	..	..	77.4	77.1	80.2	84.4	84.0	..	87.0
Nigeria	..	2.5	2.8	3.4	3.6	3.8	4.3	5.0	5.1	5.6	6.0
Pakistan	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	..
Panama	..	..	0.4	..	0.6	0.6	0.4	0.7	0.8	0.8	1.2
Papua New Guinea	..	..	..	..	..	..	..	18.1	..	..	..
Peru	16.0	19.1	14.0	19.0	20.9	17.6	19.4	19.1	19.9	20.3	21.0
Romania	..	0.0	0.2	0.5	0.9	1.2	1.7	2.3	3.0	3.6	4.3
Russia	..	..	..	..	..	..	..	5.4	5.0	5.8	6.1
Serbia	0.0	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.6	0.7	0.8
Singapore (15)	..	..	..	..	..	59.3	63.1	66.2	69.9	72.8	79.4
South Africa	88.1	91.9	83.3	74.7	80.0	80.4	84.5	90.5	96.4	100.6	..
Suriname	10.0	..	..	..	..	..	..	..	..	..	10.4
Tanzania	..	..	..	..	..	..	..	6.6	8.4	9.7	8.8
Thailand	4.7	4.9	4.8	5.3	5.3	5.5	5.7	5.8	6.4	6.5	6.8
Trinidad and Tobago	18.3	17.1	14.7	26.2	24.4	18.2	19.7	..	..	..	..
Uganda	..	..	..	..	..	..	..	..	..	..	9.0
Ukraine	..	..	0.1	..	0.1	0.1	..	..	..	..	..
Uruguay	13.4	13.2	11.0	14.0	16.6	16.7	18.9	19.1	20.0	21.7	22.6
Zambia	..	..	..	..	..	..	..	..	3.4	3.5	..

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

Source: OECD Global Pension Statistics.

Table A.4. Annual nominal net rate of investment returns of funded and private pension arrangements in selected OECD and non-OECD countries (%), 2006-2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Selected OECD countries											
Australia	13.3	15.3	-7.5	-8.9	8.9	9.0	1.9	12.9	12.2	9.4	2.9
Austria	5.3	1.8	-13.3	8.4	6.1	-3.0	8.4	4.9	7.3	2.2	4.0
Belgium	12.2	11.0	-20.2	13.7	7.7	-1.3	11.7	6.8	10.3	4.7	5.8
Canada	12.6	3.4	-15.9	11.8	10.1	4.2	8.8	11.1	9.4	6.8	5.6
Chile	17.3	12.6	-18.7	20.3	11.5	-1.8	6.6	6.7	13.1	5.9	4.2
Czech Republic	3.1	3.3	2.1	0.4	3.0	3.0	2.6	1.6	1.3	1.0	0.8
Denmark	3.8	0.4	-0.8	6.0	9.4	9.2	8.6	1.4	11.8	2.2	6.4
Estonia	7.4	3.7	-27.7	15.0	9.5	-4.6	8.9	3.1	4.5	2.0	3.3
Finland	..	..	..	..	..	..	7.7	7.7	6.7	5.0	5.1
Germany	4.6	4.2	1.6	4.8	4.9	3.0	4.8	4.3	4.6	3.3	..
Greece	..	..	4.4	2.9	-3.1	-3.3	5.9	..	3.8	4.5	4.3
Hungary	7.8	3.2	-19.0	19.1	9.0	..	13.2	7.4	8.6	4.6	6.6
Iceland	16.7	6.3	-9.3	8.4	3.7	7.5	11.4	9.1	8.0	9.6	1.6
Ireland	..	-3.0	-35.0	..	..	..	..	..	..	4.6	8.1
Israel	5.6	7.0	-13.1	24.8	9.8	-2.2	9.6	10.4	5.6	3.3	3.5
Italy	4.0	2.9	-3.2	6.4	3.1	0.4	6.4	4.5	5.7	1.8	2.5
Japan	..	..	..	..	..	..	..	..	..	..	2.6
Korea	2.7	5.3	2.5	8.2	5.1	3.5	3.4	3.2	4.1	3.7	3.4
Latvia	4.0	3.3	-12.8	12.9	7.9	-2.1	8.3	2.3	5.3	1.7	2.2
Luxembourg	7.3	0.8	-10.4	8.4	3.5	0.9	8.5	3.3	7.7	1.7	4.2
Mexico	9.8	3.6	-1.8	11.4	11.2	5.0	13.6	2.5	8.9	1.3	2.9
Netherlands	7.8	2.4	-15.7	12.8	11.0	6.8	12.7	3.3	15.9	1.6	8.3
New Zealand	12.4	7.7	-2.3	-6.8	12.8	7.7	3.2	10.5	8.9	..	..
Norway	9.8	6.0	-8.7	12.0	8.4	0.0	7.5	10.1	7.2	4.3	5.5
Poland	14.9	5.4	-14.7	13.0	10.5	-4.9	4.0	3.4	..	-6.7	9.3
Portugal	9.8	8.3	-12.5	11.5	-0.5	-3.9	7.8	5.1	6.6	2.5	1.5
Slovak Republic	..	3.3	-5.0	1.5	1.3	0.5	3.7	1.5	3.7	0.3	2.6
Slovenia	..	14.3	6.2	9.2	5.2	1.6	7.2	3.4	9.8	5.7	7.5
Spain	..	..	-6.6	7.2	1.2	0.6	6.4	7.7	6.4	2.1	2.6
Sweden	..	..	..	..	..	1.3	7.8	6.8	10.3	2.8	6.7
Switzerland	6.0	2.2	-13.2	10.2	3.3	-0.1	7.1	6.0	6.9	0.7	3.9
Turkey	11.2	22.7	11.1	25.3	8.4	-1.0	16.4	-0.8	14.2	2.2	10.8
United Kingdom	13.6	3.0	-13.3	16.7	15.3	12.9	11.8	7.5	5.7	4.9	..
United States	7.5	3.2	-26.5	12.5	7.1	-1.2	7.1	12.1	4.0	-1.5	4.1
Selected non-OECD jurisdictions											
Albania	..	..	7.0	8.4	9.5	4.6	5.7	5.6	5.0	5.3	5.0
Armenia	..	..	..	..	..	..	..	..	2.8	6.2	8.4
Bolivia	7.9	8.5	9.7	10.0	8.1	..	..	..	..	..	..
Brazil	..	..	..	..	..	..	..	3.4	7.0	5.6	13.2
Bulgaria	8.3	15.1	-23.9	8.5	5.0	-0.3	7.3	4.6	5.8	1.5	5.0
Colombia	9.1	9.8	5.0	26.8	25.4	-0.1	17.9	-0.3	10.4	2.9	9.4
Costa Rica	20.8	10.0	2.4	9.1	7.0	9.1	10.5	11.8	7.5	11.4	7.2
Croatia	..	..	..	..	..	..	..	..	9.4	10.6	7.8
Dominican Republic	11.5	8.5	12.1	14.0	10.8	12.5	14.3	13.2	7.9	9.8	9.4
Egypt	..	..	..	..	..	..	..	..	9.0	9.0	10.8
El Salvador	6.1	6.3	3.1	5.4	4.6	2.8	5.2	2.3	3.9	2.3	3.7
FYR of Macedonia	..	..	-10.6	14.2	7.0	1.8	7.9	7.9	6.6	5.5	5.8
Ghana	..	..	..	..	..	..	..	..	21.0	24.0	20.0
Gibraltar	..	..	..	..	..	..	2.1	2.5	0.9	..	..
Guyana	..	..	..	..	..	..	..	..	..	1.4	1.2
Hong Kong (China)	..	..	..	26.6	7.8	-11.3	12.4	7.4	1.5	-3.6	0.9
India	..	..	..	..	..	3.7	11.2	2.8	17.7	6.4	..
Indonesia	..	..	..	..	..	5.4	..	..	..	9.8	8.3
Kenya	..	..	8.6	6.4	17.5	-9.9	..	17.6	13.1	..	..
Kosovo	..	..	..	..	..	..	..	8.1	6.3	2.0	4.5
Liechtenstein	..	..	-7.8	9.8	3.3	-2.0	-2.0	6.8	4.7	6.2	3.3
Lithuania	..	..	..	..	..	-3.5	10.2	3.9	7.3	4.5	4.4
Malawi	..	..	..	..	..	..	..	36.0	24.2	15.2	14.2
Maldives	..	..	..	..	..	..	..	14.4	..	8.6	6.1
Malta	..	..	..	..	..	-0.2	0.6	0.8	0.4	-1.3	6.1
Mauritius	..	..	..	..	..	..	..	0.1	..	6.4	-0.1
Namibia	..	..	..	..	..	12.7	14.4	16.5	9.6	..	..
Nigeria	..	..	..	..	10.8	3.4	11.9	12.8	8.0	9.1	11.8
Pakistan	..	..	-9.3	10.9	11.5	8.5	18.5	21.4	20.2	12.8	..
Panama	..	..	..	..	..	6.7	6.0	5.8	3.7	4.5	5.7
Peru	26.9	21.2	-25.2	27.1	19.8	-10.0	12.0	0.5	7.1	4.2	9.9
Romania	..	..	19.5	16.4	15.1	2.9	10.4	10.6	8.7	4.1	4.5
Russia	..	..	..	..	..	..	..	6.2	3.1	10.6	11.0
Serbia	..	5.8	-6.3	13.9	7.4	5.6	11.6	11.0	10.7	15.2	7.4
South Africa	21.9	16.5	3.8	3.6	12.4	9.0	11.1	15.6	14.7	9.0	..
Suriname	..	..	..	..	..	..	..	..	..	..	26.4
Tanzania	..	..	..	..	..	..	..	..	..	13.5	5.1
Thailand	..	..	..	6.4	2.1	2.8	7.9	1.9	5.8	0.9	4.6
Trinidad and Tobago	..	8.8	..	7.5	..	8.2	10.8	..	..	..	..
Ukraine	..	..	..	..	17.2	10.4	..	..	..	..	..
Uruguay	16.5	9.0	-14.3	37.7	25.2	17.4	20.3	11.9	12.7	11.5	9.1
Zambia	..	..	..	..	..	..	..	..	14.0	14.7	..

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

Source: OECD Global Pension Statistics.

Table A.5. Annual real net rate of investment returns of funded and private pension arrangements in selected OECD and non-OECD countries (%), 2006-2016

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Selected OECD countries											
Australia	8.9	12.9	-11.4	-10.2	5.6	5.3	0.6	10.3	8.9	7.8	1.9
Austria	3.8	-1.8	-14.4	7.3	3.7	-6.0	5.5	2.9	6.2	1.2	2.6
Belgium	10.3	7.7	-22.3	13.4	4.4	-4.6	9.2	5.8	10.7	3.2	3.7
Canada	10.8	1.0	-16.9	10.3	7.6	1.8	7.9	9.8	7.8	5.1	4.0
Chile	14.4	4.4	-24.1	22.0	8.3	-6.0	5.1	3.5	8.1	1.5	1.5
Czech Republic	1.3	-2.0	-1.6	-0.6	0.7	0.6	0.2	0.2	1.2	1.0	-1.2
Denmark	2.0	-1.9	-3.1	4.5	6.4	6.6	6.4	0.6	11.3	1.8	5.9
Estonia	2.2	-5.4	-32.4	17.0	3.6	-8.0	5.2	1.6	5.0	2.9	1.0
Finland	..	..	..	..	..	..	..	5.2	6.0	6.2	5.3
Germany	3.2	1.0	0.5	3.9	3.6	1.0	2.7	2.8	4.4	3.0	..
Greece	..	..	2.3	0.3	-7.8	-5.6	5.0	..	6.5	4.7	4.3
Hungary	1.2	-3.9	-21.7	12.8	4.2	..	7.8	7.0	9.6	3.7	4.8
Iceland	9.0	0.5	-23.2	0.9	1.2	2.1	6.9	4.8	7.1	7.5	-0.3
Ireland	..	-7.3	-35.7	..	..	..	..	..	..	4.5	8.1
Israel	5.7	3.5	-16.3	20.1	7.0	-4.3	7.8	8.4	5.8	4.3	3.7
Italy	2.1	0.3	-5.3	5.3	1.2	-2.8	4.0	3.9	5.7	1.7	2.0
Japan	..	..	..	..	..	..	..	..	..	..	2.3
Korea	0.6	1.7	-1.5	5.2	2.0	-0.6	2.0	2.0	3.2	2.5	2.0
Latvia	-2.6	-9.5	-21.1	14.3	5.2	-5.9	6.6	2.7	5.1	1.4	0.0
Luxembourg	4.9	-2.5	-11.4	6.5	0.7	-2.3	6.0	1.7	8.3	0.6	3.0
Mexico	5.6	-0.1	-7.8	7.5	6.6	1.2	9.7	-1.5	4.7	-0.8	-0.4
Netherlands	6.8	0.6	-17.3	11.5	8.9	4.3	9.5	1.6	15.1	0.9	7.2
New Zealand	8.8	5.0	-5.5	-9.5	10.5	3.1	1.6	9.5	7.2	..	..
Norway	7.4	3.1	-10.6	9.7	5.5	-0.1	6.0	7.9	5.1	1.9	2.0
Poland	13.4	1.5	-17.3	8.9	7.2	-9.1	1.6	2.7	..	-6.1	8.3
Portugal	7.1	5.5	-13.2	11.6	-3.0	-7.3	5.8	4.9	6.9	2.1	0.6
Slovak Republic	..	-0.1	-8.9	1.0	0.0	-3.8	0.4	1.1	3.9	0.8	2.5
Slovenia	..	8.2	4.0	7.3	3.3	-0.4	4.4	2.7	9.7	6.2	6.9
Spain	..	..	-7.9	6.3	-1.7	-1.7	3.4	7.4	7.6	2.1	1.0
Sweden	..	..	..	..	..	-1.0	7.9	6.7	10.6	2.7	4.9
Switzerland	5.3	0.2	-13.8	9.9	2.8	0.6	7.5	5.9	7.2	2.1	3.9
Turkey	1.4	13.2	0.9	17.6	1.9	-10.4	9.6	-7.6	5.6	-6.1	2.1
United Kingdom	10.3	0.9	-15.9	13.4	11.2	8.3	9.0	5.4	5.2	4.7	..
United States	4.8	-0.8	-26.6	9.5	5.5	-4.1	5.2	10.4	3.2	-2.2	2.0
Selected non-OECD jurisdictions											
Albania	..	..	4.7	4.5	5.9	2.8	3.2	3.7	4.3	3.3	2.7
Armenia	..	..	..	..	..	..	..	..	-0.2	6.2	9.0
Bolivia	2.8	-2.9	-1.9	9.7	0.8	..	..	..	..	..	..
Brazil	..	..	..	..	..	..	..	-2.4	0.6	-4.6	6.5
Bulgaria	1.7	2.4	-29.4	7.9	0.5	-3.0	2.9	6.3	6.8	1.9	4.9
Colombia	4.4	3.9	-2.5	24.3	21.5	-3.7	15.1	-2.2	6.5	-3.7	3.5
Costa Rica	10.3	-0.7	-10.1	4.9	1.1	4.1	5.7	7.8	2.3	12.3	6.4
Croatia	..	..	..	..	..	..	..	..	9.9	11.3	7.6
Dominican Republic	6.2	-0.4	7.2	7.8	4.3	4.4	10.0	9.0	6.3	7.3	7.6
Egypt	..	..	..	..	..	..	..	..	0.7	-2.2	-2.7
El Salvador	1.2	1.4	-2.2	5.6	2.4	-2.1	4.4	1.5	3.4	1.3	4.7
FYR of Macedonia	..	..	-15.0	16.1	3.9	-1.0	3.0	6.5	7.2	5.8	6.1
Ghana	..	..	..	..	..	..	..	..	3.4	5.4	4.0
Gibraltar	..	..	..	..	..	..	-0.6	0.4	-0.9	..	..
Guyana	..	..	..	..	..	..	..	..	..	3.2	-0.2
Hong Kong (China)	..	..	..	24.6	4.8	-16.1	8.4	3.0	-3.3	-5.8	-0.3
India	..	..	..	..	..	-2.6	0.0	-6.8	12.8	0.7	..
Indonesia	..	..	..	..	..	1.5	..	..	..	6.2	5.1
Kenya	..	..	-14.3	1.0	12.4	-24.2	..	9.8	6.6	..	..
Kosovo	..	..	..	..	..	..	..	7.5	6.8	2.2	3.1
Liechtenstein	..	..	-7.8	9.8	3.3	-2.0	-2.0	6.8	4.7	6.2	3.3
Lithuania	..	..	..	..	..	-6.6	7.2	3.5	7.5	4.6	2.6
Malawi	..	..	..	..	..	..	..	13.3	0.1	-7.8	-4.8
Maldives	..	..	..	..	..	..	..	10.8	..	7.7	3.7
Malta	..	..	..	..	..	-2.3	-2.1	-0.2	0.3	-2.4	5.1
Mauritius	..	..	..	..	..	..	..	-3.8	..	5.1	-2.4
Namibia	..	..	..	..	..	5.0	7.5	11.0	4.7	..	..
Nigeria	..	..	..	..	-0.8	-6.3	0.0	4.5	0.0	-0.5	-5.7
Pakistan	..	..	-26.4	0.3	-3.2	-1.2	9.8	11.2	15.3	9.3	..
Panama	..	..	..	..	..	0.3	1.3	2.0	2.7	4.2	4.2
Peru	25.5	16.6	-29.8	26.8	17.3	-14.1	9.1	-2.3	3.7	-0.3	6.5
Romania	..	..	12.4	11.1	6.6	-0.3	5.2	8.9	7.8	5.0	5.0
Russia	..	..	..	..	..	..	..	-0.3	-7.4	-2.1	5.4
Serbia	..	-4.9	-13.7	6.8	-2.6	-1.3	-0.5	8.6	8.8	13.5	5.8
South Africa	15.2	6.9	-5.7	-2.6	8.6	2.8	5.1	9.7	9.0	3.6	..
Suriname	..	..	..	..	..	..	..	..	..	..	-17.0
Tanzania	..	..	..	..	..	..	..	..	..	6.2	0.1
Thailand	..	..	..	2.8	-0.9	-0.7	4.1	0.2	5.2	1.8	3.4
Trinidad and Tobago	..	1.1	..	6.0	..	2.7	3.4	..	..	..	..
Ukraine	..	..	..	..	7.4	5.6	..	..	..	..	..
Uruguay	9.5	0.5	-21.4	29.8	17.0	8.1	11.9	3.1	4.1	1.9	1.0
Zambia	..	..	..	..	..	..	..	..	5.7	-5.3	..

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

Source: OECD Global Pension Statistics.

**Table A.6. Variation of end-of-year consumer price index in selected OECD and non-OECD countries
(%), 2006-2016**

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Selected OECD countries											
Australia	4.0	2.1	4.4	1.4	3.1	3.5	1.2	2.4	3.0	1.5	1.0
Austria	1.5	3.6	1.3	1.0	2.3	3.2	2.8	1.9	1.0	1.0	1.4
Belgium	1.6	3.1	2.6	0.3	3.1	3.5	2.2	1.0	-0.4	1.5	2.0
Canada	1.7	2.4	1.2	1.3	2.4	2.3	0.8	1.2	1.5	1.6	1.5
Chile	2.6	7.8	7.1	-1.4	3.0	4.4	1.5	3.0	4.6	4.4	2.7
Czech Republic	1.7	5.4	3.7	1.0	2.3	2.4	2.4	1.4	0.1	0.0	2.0
Denmark	1.8	2.3	2.4	1.4	2.8	2.4	2.1	0.7	0.4	0.4	0.5
Estonia	5.1	9.6	6.9	-1.7	5.7	3.7	3.4	1.4	-0.5	-0.9	2.2
Finland	2.2	2.6	3.4	-0.6	2.9	2.9	2.4	1.6	0.5	-0.2	1.0
Germany	1.4	3.2	1.1	0.8	1.3	2.0	2.0	1.4	0.2	0.3	1.7
Greece	2.9	3.9	2.0	2.6	5.2	2.4	0.8	-1.7	-2.6	-0.2	0.0
Hungary	6.5	7.4	3.4	5.6	4.7	4.1	5.0	0.4	-0.9	0.9	1.7
Iceland	7.0	5.8	18.1	7.5	2.5	5.2	4.2	4.1	0.8	2.0	1.9
Ireland	5.0	4.6	1.1	-5.0	1.4	2.4	1.2	0.2	-0.3	0.1	0.0
Israel	-0.1	3.4	3.8	3.9	2.7	2.2	1.6	1.8	-0.2	-1.0	-0.2
Italy	1.9	2.6	2.2	1.0	1.9	3.3	2.3	0.7	0.0	0.1	0.5
Japan	0.3	0.7	0.4	-1.7	-0.3	-0.2	-0.2	1.7	2.4	0.1	0.3
Korea	2.1	3.6	4.1	2.8	3.0	4.2	1.4	1.1	0.8	1.1	1.3
Latvia	6.8	14.1	10.5	-1.2	2.5	4.0	1.6	-0.4	0.2	0.3	2.2
Luxembourg	2.3	3.4	1.1	1.8	2.8	3.2	2.3	1.5	-0.6	1.1	1.1
Mexico	4.1	3.8	6.5	3.6	4.4	3.8	3.6	4.0	4.1	2.1	3.4
Netherlands	1.0	1.9	1.9	1.1	1.9	2.4	2.9	1.7	0.7	0.7	1.0
New Zealand	3.3	2.5	3.4	3.0	2.0	4.5	1.6	0.9	1.5	0.3	0.4
Norway	2.2	2.8	2.2	2.0	2.8	0.1	1.4	2.0	2.1	2.3	3.5
Poland	1.4	3.9	3.2	3.7	3.1	4.6	2.3	0.7	-0.9	-0.7	0.9
Portugal	2.5	2.7	0.8	0.0	2.5	3.6	1.9	0.2	-0.4	0.4	0.9
Slovak Republic	4.2	3.4	4.4	0.5	1.3	4.4	3.2	0.4	-0.1	-0.5	0.2
Slovenia	2.8	5.7	2.1	1.8	1.9	2.0	2.7	0.7	0.1	-0.4	0.5
Spain	2.7	4.2	1.4	0.8	3.0	2.4	2.9	0.3	-1.0	0.0	1.6
Sweden	1.6	3.5	0.9	0.6	2.3	2.3	-0.1	0.1	-0.3	0.1	1.7
Switzerland	0.6	2.0	0.7	0.3	0.5	-0.7	-0.4	0.1	-0.3	-1.3	0.0
Turkey	9.7	8.4	10.1	6.5	6.4	10.4	6.2	7.4	8.2	8.8	8.5
United Kingdom	3.0	2.1	3.0	2.9	3.6	4.3	2.6	2.0	0.5	0.2	1.6
United States	2.5	4.1	0.1	2.7	1.5	3.0	1.7	1.5	0.8	0.7	2.1
Selected non-OECD jurisdictions											
Albania	2.5	3.0	2.2	3.7	3.4	1.7	2.4	1.9	0.7	1.9	2.2
Armenia	5.2	6.6	5.2	6.5	9.5	4.7	3.2	5.6	3.0	0.1	-0.5
Bolivia	4.9	11.7	11.8	0.3	7.2	6.1	5.3	6.5	5.2	3.0	4.0
Brazil	3.1	4.4	5.9	4.3	5.9	6.5	5.8	5.9	6.4	10.7	6.3
Bulgaria	6.5	12.5	7.8	0.6	4.5	2.8	4.2	-1.6	-0.9	-0.4	0.1
Colombia	4.5	5.7	7.7	2.0	3.1	3.8	2.4	2.0	3.7	6.8	5.7
Costa Rica	9.4	10.8	13.9	4.0	5.8	4.8	4.5	3.7	5.1	-0.8	0.8
Croatia	2.1	5.8	2.9	1.9	1.8	2.1	4.6	0.3	-0.5	-0.6	0.2
Dominican Republic	5.0	8.9	4.5	5.8	6.2	7.8	3.9	3.9	1.6	2.3	1.7
Egypt	7.3	8.4	20.2	10.0	10.2	11.8	7.2	9.8	8.2	11.4	14.0
El Salvador	4.9	4.9	5.5	-0.2	2.1	5.1	0.8	0.8	0.5	1.0	-0.9
FYR of Macedonia	3.0	5.7	5.2	-1.6	3.0	2.8	4.8	1.4	-0.6	-0.3	-0.3
Ghana	11.7	12.7	18.1	16.0	8.6	8.6	8.8	15.3	17.0	17.7	15.4
Gibraltar	..	..	..	..	..	3.7	2.7	2.1	1.8	..	..
Guyana	3.6	14.6	6.4	2.0	4.5	3.2	3.5	0.9	1.2	-1.8	1.4
Hong Kong (China)	2.3	3.8	2.0	1.6	2.8	5.7	3.7	4.3	4.9	2.3	1.2
India	6.9	5.5	9.7	15.0	9.5	6.5	11.2	10.3	4.3	5.6	3.4
Indonesia	6.6	5.8	11.1	2.8	7.0	3.8	4.0	8.1	8.4	3.4	3.0
Kenya	15.6	12.0	26.8	5.3	4.5	18.9	3.2	7.2	6.0	8.0	6.4
Kosovo	1.0	10.5	0.5	0.1	6.5	3.5	3.7	0.5	-0.4	-0.2	1.3
Liechtenstein	..	..	..	..	..	..	..	..	..	..	..
Lithuania	4.4	8.1	8.5	1.3	3.8	3.4	2.8	0.4	-0.3	-0.1	1.7
Malawi	10.1	7.5	9.9	7.6	6.3	9.8	34.6	20.0	24.1	24.9	20.0
Maldives	4.0	8.9	8.9	5.4	6.9	16.7	5.1	3.3	0.5	0.9	2.3
Malta	0.8	3.3	4.9	-0.6	3.2	2.1	2.8	1.0	0.2	1.0	1.0
Mauritius	11.9	8.7	6.7	1.5	6.1	4.8	3.2	4.0	0.2	1.3	2.3
Namibia	6.0	5.5	11.2	7.9	3.1	7.4	6.4	4.9	4.6	3.7	7.3
Nigeria	8.6	6.6	15.1	12.9	11.7	10.3	12.0	7.9	7.9	9.6	18.6
Pakistan	8.9	8.8	23.3	10.5	15.2	9.7	7.9	9.2	4.3	3.2	3.7
Panama	1.8	6.4	6.8	1.9	4.9	6.3	4.6	3.7	1.0	0.3	1.5
Peru	1.1	4.0	6.6	0.2	2.1	4.7	2.6	2.9	3.2	4.4	3.2
Romania	4.9	6.6	6.3	4.7	8.0	3.1	4.9	1.6	0.8	-0.9	-0.5
Russia	9.0	11.9	13.3	8.8	8.8	6.0	6.6	6.5	11.3	12.9	5.4
Serbia	6.0	11.2	8.6	6.6	10.2	7.0	12.2	2.2	1.8	1.6	1.5
South Africa	5.8	9.0	10.1	6.3	3.5	6.1	5.7	5.4	5.3	5.2	6.8
Suriname	4.8	8.3	9.4	1.3	10.3	15.3	4.4	0.6	3.9	6.1	52.3
Tanzania	6.7	6.4	13.5	8.7	5.6	19.8	12.1	5.6	4.8	6.8	5.0
Thailand	3.5	3.2	0.4	3.5	3.1	3.5	3.6	1.7	0.6	-0.9	1.1
Trinidad and Tobago	9.1	7.6	14.5	1.3	13.4	5.3	7.2	5.6	8.5	1.5	3.1
Ukraine	11.6	16.6	22.3	12.3	9.1	4.5	-0.2	0.5	25.0	43.3	12.4
Uruguay	6.4	8.5	9.0	6.1	6.9	8.6	7.5	8.5	8.3	9.4	8.1
Zambia	8.2	8.9	16.6	9.9	6.8	5.9	7.3	7.1	7.9	21.1	7.5

Source: OECD Main Economic Indicators database; IMF International Financial Statistics database; Statistics Office of Gibraltar, Abstract of Statistics 2014.

Methodological notes

The primary source material for this report is provided by national pension authorities as part of the OECD Global Pension Statistics' framework (GPS). Within this project, the data are sourced from official national administrative sources and revised on an on-going basis so as to better reflect the most recent figures for every past year. Given possible divergences in national reporting standards and different methods for compiling certain data for the Global Pension Statistics exercise, caution should be exercised when interpreting some statistics. For this reason, countries 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: "n.d.", "..": not available; "n.a.": not applicable.
- The GPS exercise covers all pension plans (occupational and personal, mandatory and voluntary) irrespective of the pension provider and manager, as long as these plans are funded. Plans can cover public and private sector workers. 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.
- This report uses three main additional reference series: exchange rates to convert values in US dollars, GDP and the variation of the consumer price index (CPI). Exchange rates used are end-of-period exchange rates for all variables valued at the end of the year, and period-average rates for variables representing a flow during the year. They come from the IMF International Financial Statistics database. GDP values for OECD countries are extracted from the OECD Annual National Accounts. Consumer price indices for OECD countries are from the OECD Main Economic Indicators database. Reference series for non-OECD countries are from the IMF International Financial Statistics database or the IMF *World Economic Outlook* published in April 2017, except the 2016 GDP value of Bulgaria (final value from the National Statistical Institute of Bulgaria), the GDP and CPI variation of Gibraltar (which are from *Abstract of Statistics 2014* by the Statistics Office of Gibraltar), and the GDP of Liechtenstein (from the National Accounts Main Aggregates Database of the United Nations).
- Data for Australia and Egypt refer to the end of June of each year.
- Data for Austria refer to Pensionskassen only.
- Data for Belgium refer to institutions for occupational retirement provision (IORPs) only.
- Data for Finland do not include book reserves.
- Data for Germany only refer to Pensionsfonds and Pensionskassen supervised by BaFin. Data for 2016 are preliminary.
- Data for Greece refer to occupational pension plans only.
- Data for Hungary refer to pension funds only.
- Pension fund investments for Ireland come from the IAPF Pension Investment Survey. Data for retirement annuity contracts are not available.
- 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.
- Data for Japan are from the Bank of Japan.
- Data for Luxembourg refer to pension funds under the supervision of the Luxembourg Financial Supervisory Authority (CSSF) or the Insurance Commission (CAA) only.
- Data for the Netherlands are preliminary and refer to pension funds only.
- Data for New Zealand refer to the end of March until 2014. From 2015 onwards, data refer to the end of December.
- Data for Norway refer to pension funds only.
- Data for the year 2016 on occupational pension plans in Switzerland refer to the first trend calculations. Data for personal plans come from the publication *Statistique des assurances sociales suisses 2016*, and are available up to 2015.
- Data for the United Kingdom refer to occupational pension plans only. The figure of pension fund investment in the United Kingdom at the end of 2016 is an early estimate based on the 2015 level of assets and the flow of

transactions in 2016. It does not take into account value changes. A 2016 final estimate will be available in January 2018.

- Data for Armenia only refer to mandatory pension funds.
- Data for Bolivia, the Dominican Republic (up to 2013), El Salvador (up to 2015) and Uruguay (up to 2015) come from the International Association of Pension Funds Supervision.
- Data for China are from the Ministry of Human Resources and Social Security (MOHRSS) and refer to enterprise annuity schemes for employees.
- Data before 2014 for Croatia are from the Croatian Financial Services Supervisory Agency (HANFA) website.
- Data for Gibraltar and Guyana refer to occupational pension plans.
- Data for Hong Kong, China refer to Mandatory Provident Fund (MPF) schemes and occupational retirement schemes registered under the Occupational Retirement Schemes Ordinance (ORSO registered schemes), unless specified otherwise in specific notes.
- Data for India refer to the National Pension System (NPS) Schemes and the contributory scheme Atal Pension Yojana (APY).
- Data for Indonesia refer to the voluntary funded pension system only.
- Data for Malaysia refer to Private Retirement Schemes only.
- Data for Malta from 2015 onwards include both occupational and personal retirement schemes. Figures attributed to previous years do not include occupational schemes as these schemes have been authorised to operate since 1st January 2015.
- Data for Mauritius refer to pension funds only.
- Data for Pakistan only refer to voluntary pension funds, authorised under the Voluntary Pension System Rules.
- Data for Singapore refer to the Central Provident Fund (CPF).
- Data for Suriname refer to company pension funds only.
- Data for Tanzania cover mandatory schemes and voluntary schemes administered by approved administrators.
- Data for Thailand only refer to Thai provident funds and do not include the Government Pension Fund.
- Data for Zambia only include private occupational pension schemes.

Specific notes

Figure 1:

Data for Lesotho and Trinidad and Tobago refer to 2012. Data for Botswana and Gibraltar refer to 2013. Data for Liechtenstein, Malaysia, South Africa and Zambia refer to 2015.

Figure 2:

The charts show the evolution of assets in funded and private pension arrangements between 2006 and 2016, except for Finland (2011-2016), Greece (2007-2016) among OECD countries; Albania (2007-2016), Armenia (2014-2016), Egypt (2013-2016), FYR of Macedonia (2007-2016), Ghana (2014-2016), India (2010-2016), Kosovo (2012-2016), Liechtenstein (2007-2015), Lithuania (2010-2016), Malawi (2013-2016), Maldives (2011-2016), Malta (2011-2016), Mauritius (2012-2016), Namibia (2010-2016), Nigeria (2007-2016), Pakistan (2007-2015), Panama (2008-2016), Romania (2007-2016), Russia (2013-2016), Singapore (2011-2016), South Africa (2006-2015) and Tanzania (2013-2016) outside the OECD area. Data for Ireland refer to pension funds only. Data for Switzerland cover occupational pension plans only, and refer to the first trend calculations for the year 2016. Data for Brazil refer to closed pension funds only. Data for Costa Rica refer to personal plans only. The weighted averages in and outside the OECD area are calculated by using as weights the share that pension assets in a given country represent relative to the overall amount of pension assets in the area considered.

Figure 3:

Data for Switzerland cover personal plans in addition to occupational plans from 2013 onwards. The amount of assets in personal plans in 2016 is assumed to be the same as in 2015 (OECD estimate).

Figure 4:

In Chile, AFPs manage Collective Voluntary Pension Savings that are occupational plans. Germany has recently adopted a law introducing occupational DC plans. This law will come into effect in early 2018.

Figure 5:

For Chile, data about Collective Voluntary Pension Savings that are managed by the AFPs are classified together with personal plans, although these plans are occupational. Data under personal plans for Denmark cover ATP, LD and individual plans in banks. In Hungary, there is one institution for occupational retirement provision operating in Hungary, but its market share is negligible compared to voluntary privately managed pension funds and voluntary private pension funds (the last two types of funds administer personal pension plans).

Data refer to 2015 for Finland, France and Switzerland. Data refer to 2014 for New Zealand. Data refer to 2013 for Australia.

Figure 6:

Data have been calculated using a common formula for the average nominal net investment return (ratio between the net investment income at the end of the year and the average level of assets during the year) for all the jurisdictions except for: Ireland; Israel; Sweden; Turkey; the United States; Brazil; Ghana; Hong Kong, China; Maldives; Peru; and Suriname for which values have been provided by the jurisdictions or are from national official publications. The value for Japan comes from Pensions & Investments. The value for El Salvador is derived from AIOS. Returns are calculated over the period end-December 2015 and end-December 2016 for all countries, except: Australia and Egypt (end-June 2015 - end-June 2016). The average real net investment returns are calculated using the nominal rates of return (as described above) and the variation of the consumer price index over the relevant period. The return for Liechtenstein is nominal. The amounts of assets in funded and private pension arrangements in USD terms are used to build the weights to calculate the weighted average.

Values show the overall investment performance of: ATP, LD, company pensions, life insurance companies and pension funds held in life insurance companies for Denmark; pension insurance contracts in Korea; state funded pension scheme and voluntary plans in Latvia; mutual pension funds, pension companies and insurance companies in Slovenia; pension funds and non-autonomous funds in Spain; pension funds (only) in all the other reporting OECD and non-OECD jurisdictions. Data for Estonia refer to pension funds managing mandatory plans only. Data for Israel refer to new pension funds only. Data for Mexico, Turkey and Costa Rica refer to personal plans only. Data for Switzerland refer to occupational plans only. Data for Hong Kong, China refer to MPF schemes only. Data for Maldives refer to the investment fund of the Maldives Retirement Pension Scheme. The investment return for Italy is net of taxes.

National authorities may produce their own estimates of annual investment returns that may differ from OECD estimates (due to different methodologies or scopes for instance).

Table 1:

This table is based on the annual nominal and real net rates of investment return reported in the statistical annexes of this publication.

Table 2:

This table shows the way assets in funded and private pension arrangements are invested. Data cover: superannuation funds for Australia (source: Australian Bureau of Statistics (ABS), domestic asset allocation only); pension funds only for Canada, Italy, Poland and Spain; ATP, LD, company pensions, life insurance companies and pension funds held in life insurance companies for Denmark; pension funds managing mandatory plans only for Estonia; DB plans only for Ireland; occupational plans only for Switzerland; pension funds and pension insurance contracts for Korea; personal plans only for Turkey; MPF schemes and MPF exempted ORSO registered schemes for Hong Kong, China; pension funds regulated under the Pension Funds Act for South Africa. Data refer to 2015 in the case of Germany, the United Kingdom, Guyana, Malaysia, Pakistan, Singapore, South Africa and Zambia; to 2014 in the case of Gibraltar and Kenya; to 2013 in the case of Papua New Guinea; and to 2012 in the case of Trinidad and Tobago. Claims of pension funds on pension managers have been excluded from the calculation of pension fund asset allocation for Japan. The high value of "other investments" of Japan's pension funds is mainly driven by outward investments in securities (27% of total portfolio). The asset category 'other investments', which was reported as negative, was excluded from the calculations of the asset allocation for Mexico.

Figure 7:

These charts show the way pension providers' assets in collective investment schemes are invested. Data cover: pension funds only for Canada, Italy; pension funds managing mandatory plans only for Estonia; occupational plans only for Switzerland. Data refer to 2015 in the case of Germany.

Figure 8:

Data cover: pension funds only for Canada, Italy, Switzerland and Trinidad and Tobago; ATP, LD, life insurance companies and pension funds held in life insurance companies for Denmark; pension funds managing mandatory plans only for Estonia; pension insurance companies administering TyEL plans only for Finland; pension insurance contracts only for Korea and Sweden; open pension funds only for Poland; closed pension funds only for Brazil; personal plans only for Costa Rica;

MPF schemes and MPF exempted ORSO registered schemes for Hong Kong, China; DB schemes only for Nigeria; funds regulated under the Pension Funds Act only for South Africa.

The value for Australia is based on ABS. The value for Japan refers to the proportion of outward investments in securities in pension fund assets (excluding claims of pension funds on pension managers). Data for Italy do not include unallocated insurance contracts. For Bulgaria, only direct investments abroad were taken into account. For Jamaica, assets overseas are classified based on the currency of the issue as opposed to the jurisdiction of the issuer. Data refer to overseas investments by providers of private retirement schemes for Malaysia.

Data refer to 2015 for the Netherlands and the United Kingdom among OECD countries, and Guyana and Malaysia among non-OECD jurisdictions. Data refer to 2014 for South Africa and Zambia. Data refer to 2013 for Botswana and Papua New Guinea. Data refer to 2012 for Trinidad and Tobago.

Figure 9:

The "European Union" area includes the member countries at the end of 2016. The list of countries for the other geographical areas can be found in the website of Internet World Statistics based on United Nations Country Grouping.

Data cover: pension funds managing mandatory pension plans only for Estonia; voluntary plans only for Latvia; open pension funds only for Poland; pension funds only for Portugal.

Data for the Netherlands only include direct investment abroad by pension funds and do not include the look-through of their investments in collective investment schemes. Investments by Uruguay's pension funds in securities issued by the IADB were classified as investments in the United States (where the head office of the IADB is).

Data refer to 2015 for Estonia and the Netherlands among OECD countries, and Malaysia and Thailand among non-OECD jurisdictions.

Figure 10:

This chart shows the five main destination countries of pension providers' foreign investments. These pension providers come from a sample of 23 countries: Chile, the Czech Republic, Estonia, Israel, Latvia, Mexico, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Armenia, Bulgaria, Costa Rica, Croatia, FYR of Macedonia, Lithuania, Malaysia, Peru, Romania and Uruguay. The origin countries of pension providers giving their ranking of countries where they invest abroad are identified by their ISO codes. ISO codes are available on the United Nation Statistics Division internet page, 'Countries and areas, codes and abbreviations' at <http://unstats.un.org/unsd/methods/m49/m49alpha.htm>.

Data only cover: pension funds managing mandatory pension plans for Estonia, voluntary plans only for Latvia; open pension funds only for Poland; pension funds only for Portugal.

The ranking is the one for 2015 for Estonia, the Netherlands (direct investments only) and Malaysia.

Figure 11:

Data cover: pension funds only for Canada, Switzerland, Trinidad and Tobago; ATP, LD, life insurance companies and pension funds held in life insurance companies only for Denmark; open pension funds only for Poland; personal plans only for Costa Rica; DB schemes only for Nigeria; funds regulated under the Pension Funds Act only for South Africa.

The "other" category for the Czech Republic includes investment certificates and structured products. The "foreign shares" category includes ETFs and collective investment schemes investing in shares for Israel. For Italy, data do not include unallocated insurance contracts; and the "other" category mainly consists of collective investment schemes. For Bulgaria, data only cover direct investments overseas. Data for Colombia include index funds and mutual funds. For Jamaica, assets overseas are classified based on the currency of the issue as opposed to the jurisdiction of the issuer. The "other" category for Romania includes private equity and Exchange Traded Commodities.

Data refer to 2015 for the Netherlands and Guyana. Data refer to 2014 for South Africa and Zambia. Data refer to 2013 for Botswana and Papua New Guinea. Data refer to 2012 for Trinidad and Tobago.

Figure 12:

The x-axis represents the proportion of investments of pension providers in assets overseas issued by entities located abroad. The y-axis represents the proportion of investments of pension providers in assets overseas issued in foreign currency for most countries (as this is the item collected in the statistical exercise). However, for some countries such as the FYR of Macedonia, it may also include investments in assets issued domestically denominated in a foreign currency.

The countries pension providers belong to are labelled with their ISO codes. ISO codes are available on the UN Statistics Division internet page, 'Countries and areas, codes and abbreviations' at <http://unstats.un.org/unsd/methods/m49/m49alpha.htm>.

Data cover: pension funds managing mandatory plans only for Estonia; DC protected pension insurance contracts for Korea; personal plans only for Mexico and Costa Rica; open pension funds for Poland; pension insurance contracts for Sweden; pension funds only for Switzerland and Trinidad and Tobago; DB plans only for Nigeria.

For Bulgaria, only direct investments abroad were taken into account.

Data refer to 2014 for Namibia. Data refer to 2013 for Botswana. Data refer to 2012 for Trinidad and Tobago.

Table A.1 – Table A.3:

Slovenia adopted the euro in 2007, the Slovak Republic in 2009, Estonia in 2011, Latvia in 2014 and Lithuania in 2015. The whole time series of investments (in millions of national currency) are expressed in millions of euro for these countries (even before their adoption of the euro). (1) The break in series in 2011 is due to the exclusion of public buffer funds which were included before 2011. (2) The amount of assets in PERCO plans at the end of 2016 comes from the French Asset Management Association. (3) Data only refer to Pensionsfonds and Pensionskassen supervised by BaFin. (4) There is a break in series in 2013, as four new occupational funds are included. These funds were converted in March 2013, from a public redistributing system (PAYG) into a private law capital-accumulating system. Data only refer to occupational plans. (5) The drop in investments in 2011 comes from a pension reform which suspended payments to the mandatory individual schemes and redirected all the contributions to pay-as-you-go public pension schemes, unless workers chose to keep these individual schemes by the end of January 2011. (6) The break in series in 2014 is due to personal retirement savings accounts, not included before. (7) The drop in investments in 2014 comes from the reversal of the mandatory private pension system that led to a transfer of domestic sovereign bonds held by open pension funds into the social security system. (8) In 2011, the investments of the pension funds under the ISP supervision decreased by about 33%, reflecting the transfer of bank pension funds (i.e. pension funds sponsored by banks, which have as beneficiaries the employees of their banks) to the Public Retirement System. (9) Data cover personal plans in addition to occupational plans from 2013 onwards. The amount of assets in personal plans in 2016 is assumed to be the same as in 2015 (OECD estimate). (10) The drop in investments in 2011 is due to three factors: change in legislation, withdrawals and the unavailability of data from one of the three funds that was operating under the old framework. (11) The break in series in 2014 is due to open pension funds supervised by SUSEP, not included before. (12) The break in series in 2015 is due to occupational plans, not included in the previous years. (13) Data for one DB pension scheme in 2014 are missing, which hampers the comparability of 2014 data with data for the previous years. (14) The marked increase in the value of pension fund investments in 2012 is due to an increase in the number of schemes and a substantial increase in the number of members of the schemes. (15) Source: CPF Board Annual Reports. (16) Excluding Argentina and Saudi Arabia. (17) This includes the list of countries that are members of the Euro Area at the end of 2016. (18) This includes: Israel, Japan and Korea among OECD countries, and China, Hong Kong (China), India, Indonesia, Malaysia, Maldives, Pakistan, Singapore and Thailand among selected non-OECD jurisdictions.

Table A.4 – Table A.5:

Data have been calculated using a common formula for the average nominal net investment return (ratio between the net investment income at the end of the year and the average level of assets during the year) for all the jurisdictions except for: Austria (2011-2012); Finland (2015); Ireland; Israel; Sweden; Turkey (2011; 2013-2014; 2016); the United States; Armenia (2014); Brazil; Egypt (2014-2015); Ghana; Guyana (2015); Hong Kong, China; India (2011, 2013-2014); Kenya (2011); Malawi (2013); Maldives (2015-2016); Malta (2011); Mauritius (2015); Peru (2016); Romania (2010); Russia (2013); Suriname (2016); Tanzania (2015); Ukraine (2010) and Zambia (2014) for which values have been provided by the jurisdictions or are from national official publications. Data for Japan come from Pensions & Investments. Data for Bolivia, Costa Rica (2006-2007), Dominican Republic (2006-2013), El Salvador, Panama (2011-2015) and Uruguay (2006-2015) are from AIOS. Returns for the year N are calculated over the period end-December of year N-1 and end-December of year N for all countries, except: Australia (over end-June N-1 and end-June N); New Zealand (over end-March N-1 and end-March N) and Egypt (over end-June N-1 and end-June N). The average real net investment returns are calculated using the nominal rates of return (as described above) and the variation of the consumer price index over the relevant period. Only nominal returns are available for Liechtenstein.

Values in the tables show the overall investment performance of: ATP, LD, company pensions, life insurance companies and pension funds held in life insurance companies for Denmark; pension insurance contracts in Korea; state funded pension scheme and voluntary plans in Latvia; mutual pension funds, pension companies and insurance companies in Slovenia; pension funds and non-autonomous funds in Spain; pension funds and pension insurance contracts in Namibia and Trinidad and Tobago; pension funds (only) in all the other reporting OECD and non-OECD jurisdictions. Data for Estonia refer to pension funds managing mandatory plans only. Data for Germany refer to Pensionsfonds and Pensionskassen supervised by BaFin. Data for Israel refer to new pension funds only. Data for Mexico, Turkey and Costa Rica refer to personal plans only. Data for Switzerland refer to occupational plans only. Data for Hong Kong, China refer to MPF schemes only. Data for 2015 and 2016 for Maldives refer to the investment fund of the Maldives Retirement Pension Scheme. Data for South Africa refer to pension funds regulated under the Pension Funds Act. Investment returns for Italy are net of taxes.

National authorities may produce their own estimates of annual investment returns that may differ from OECD estimates (due to different methodologies or scopes for instance).

Bibliography

- Armstrong, J. and J. Selody (2005), "Strengthening Defined-Benefit Pension Plans", Bank of Canada Financial System Review, pp. 29-36.
- Better Finance (2016), *Pension Savings: the Real Return 2016 Edition*
- Chen, D.H.J. and R.M.W.J. Beetsma (2015), "Mandatory Participation in Occupational Pension Schemes in the Netherlands and Other Countries. An update", Netspar Discussion Paper No. 10/2015-032.
- Cheung, J. (2014), "How we invest", Guardians of the New Zealand Superannuation, *White Paper*, September 2014.
- Davis, E. (2005), "Pension fund management and international investment – A global perspective", *Pensions: an International Journal*, Volume 10, Issue 3, pp 236-261.
- De Dreu, J. and J.A. Bikker (2012), "Investor sophistication and risk taking", *Journal of Banking & Finance*, Vol. 36/7, pp. 2145-2156.
- Employee Benefits Research Institute (2005), *The U.S. Retirement Income System*.
- Freudenberg C., T. Berki and A. Reiff (2016), "A Long-Term Evaluation of Recent Hungarian Pension Reforms", MNB Working Papers 2, Central Bank of Hungary, Budapest.
- Gale, W.G., J.B. Shoven and M.J. Warshawsky (2006), *The Evolving Pension System: Trends, Effects, and Proposals for Reform*.
- IMF (2016), *Suriname: Request for Stand-By Arrangement-Press Release; Staff Report; and Statement by the Executive Director for Suriname*, Country Report No. 16/197
- LaBarge, K. P. (2008), *Diversification by Country and Global Sector: Considerations for Portfolio Construction*, the Vanguard Group.
- Levy, S. (2017), "Money in funded pensions and insurance in the UK National Accounts: 1957 to 2015", Office for National Statistics (ONS)
- National Conference on Public Employee Retirement Systems (2008), *The Evolution of Public Pension Plans: Past, Present and Future*.
- OECD (forthcoming), *OECD Pensions at a Glance 2017*, OECD publishing, Paris.
- OECD (2017a), *OECD Employment Outlook, 2017*, OECD publishing, Paris.
- OECD (2017b), *OECD Business and Finance Outlook, 2017*, OECD publishing, Paris.
- OECD (2017c), *Annual Survey of Investment Regulations 2017*.
- OECD (2016a), *OECD Pensions Outlook 2016*, OECD publishing.
- OECD (2016b), *OECD Core Principles of Private Pension Regulation*, OECD publishing.
- OECD (2014), *OECD Pensions Outlook 2014*, OECD publishing.
- OECD (2005), *Private Pensions: OECD Classification and Glossary*, OECD, Paris.
- Philips, C. B. (2014), *Global Equities: Balancing home bias and diversification*, the Vanguard Group.
- PwC (2015), *Beyond their Borders: Evolution of foreign investment by pension funds*
- Steward, F., R. Despalins and I. Remizova (2017), "Pension Funds, Capital Markets and the Power of Diversification", Policy Research Working Paper No. 8136, World Bank, Washington DC.

Pension Markets in Focus 2017

Published annually, Pension Markets in Focus reports on the role and functioning of private pension arrangements.

It identifies trends in private pension financial indicators such as asset growth, investment strategies and rates of returns. It provides accurate, comprehensive, comparable and up-to-date statistics to help policy makers, regulators and market participants to measure, compare and evaluate programme developments and country experiences globally.

www.oecd.org/daf/pensions/pensionmarkets

