



Pension Markets in Focus

2015

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

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

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

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FOREWORD

Although pension fund assets have grown steadily since 2008, the current environment of low growth, low inflation, and low interest rates poses serious challenges to pension systems. The current environment of prolonged low interest rates affects both the assets and liabilities of pension funds. The impact of low interest rates is different for defined benefit (DB) and defined contribution (DC) pension plans. Low interest rates may deteriorate the solvency position of DB pension plans, as long-term government bond yields have an impact on assets, as well as on liabilities through the calculation of the present value of future promises. The impact of low interest rates on DC pension plans operates through a reduction in the amount of assets accumulated to finance retirement and an increase in annuity prices, which can affect the adequacy of plan members' retirement income.

The *OECD Business and Finance Outlook 2015* called for vigilance by regulators as pension funds may become involved in an excessive "search for yield" in trying to secure explicit or implicit benefit promises by increasing the risk-profile of their portfolio. The concern is that, as pension funds move into riskier investments, they may be seriously compromising their solvency situation (for DB plans) and their capacity to deliver adequate retirement income (for DC plans) in the event of a negative shock in financial markets.

The twelfth issue of *Pension Markets in Focus* starts by assessing pension funds' wealth and performance in OECD and non-OECD markets in 2014. The report shows that pension funds experienced strong performance during 2014, with total assets under management in the OECD topping USD 25 trillion for the first time. Traditional asset classes (bills and bonds, equities and cash and deposits) remain predominant in the portfolios of pension funds.

The special feature of the 2015 edition of *Pension Markets in Focus* examines the extent to which data available show whether pension funds are involved in a "search for yield". A shift in portfolio composition to equities, to alternative asset classes including derivatives, or to foreign investments, can be observed in some countries between 2004 and 2014.

Understanding how the underlying risk associated with each asset class contributes to the risk of the portfolio as a whole is essential for regulators and supervisors to monitor the extent to which "search for yield" may become a threat to pension systems. Even pension funds that are decreasing their exposure to alternative asset classes may actually increase the risk-profile of their portfolio if they invest in less secure forms of bonds or equities.

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HIGHLIGHTS

>> **Assets managed by pension funds grew for a sixth consecutive year in the OECD area**

Since the financial crisis in 2008, pension fund assets have been constantly increasing in the OECD. Pension fund assets have grown on average by 8.1% yearly since the end of 2008. Over the last decade, the average growth rate is lower but still positive, with a 5.5% yearly increase. The weighted average asset-to-GDP ratio for pension funds reached 84.4% in OECD countries and 36.4% in selected non-OECD countries at the end of 2014, with the Netherlands having the highest ratio at 159.3% of GDP. Pension funds remain the main financing vehicle for private pension plans, with USD 25.2 trillion of assets under management at the end of 2014, representing 66.8% of the total private pension assets in the OECD.

>> **Positive investment returns have contributed to the increase in the assets of pension fund**

The growth of assets in 2014 was underpinned by positive investment returns. All the reporting OECD countries recorded positive real investment returns, net of investment management costs, in 2014, ranging from 1.2% in the Czech Republic to 16.7% in Denmark, with an OECD weighted average of 5.0%. Outside the OECD area, pension funds also recorded positive returns, but lower than in the OECD area, on average 1.2%. The real net investment return of pension funds measured over the last five and ten years was also positive in most OECD and non-OECD countries.

>> **Pension funds mainly invest in traditional asset classes**

Pension funds in OECD countries invested 23.8% of their portfolio in equities, 51.3% in bills and bonds, and 9.6% in cash and deposits on average in 2014. The total allocation to these asset classes, considered as “traditional” in this publication, was therefore 84.7% on average. Pension funds in non-OECD countries tend to favour traditional asset classes slightly more than those in OECD countries, as they invested 89.6% of their portfolio in such asset classes in 2014.

>> **Pension funds have multiple ways to “search for yield”**

Against the backdrop of prolonged low-yield environment, the *OECD Business and Finance Outlook 2015* expressed the concern that pension funds may become involved in a “search for yield”, but did not identify such a trend at the OECD level. This newsletter complements the analysis in the *Outlook* and looks at different potential signs of a “search for yield” at the country level. These include a shift from bills and bonds to equities; shift from traditional to non-traditional investments; the evolution of the composition of non-traditional investments; and an increase in foreign investments. It also looks at the potential impact of regulation. While pension funds in small pension markets may tend to favour equities to get higher returns, pension funds in most of the largest pension markets have showed an increasing interest in alternative asset classes, such as private equity in Brazil, land and buildings in Canada, derivatives in the United Kingdom and other investments in the United States. Most of the countries put ceilings on pension funds’ exposure to alternative assets, except a few large markets. Investing abroad is another way for pension funds, like in Chile, to search for higher returns, though geographical diversification in some instances may reduce risk. Regulators and policy makers should therefore be vigilant about the various forms the potential “search for yield” can take to detect any move towards excessive risk exposure.

PENSION MARKETS IN FOCUS

Importance and Size of Pension Fund Assets

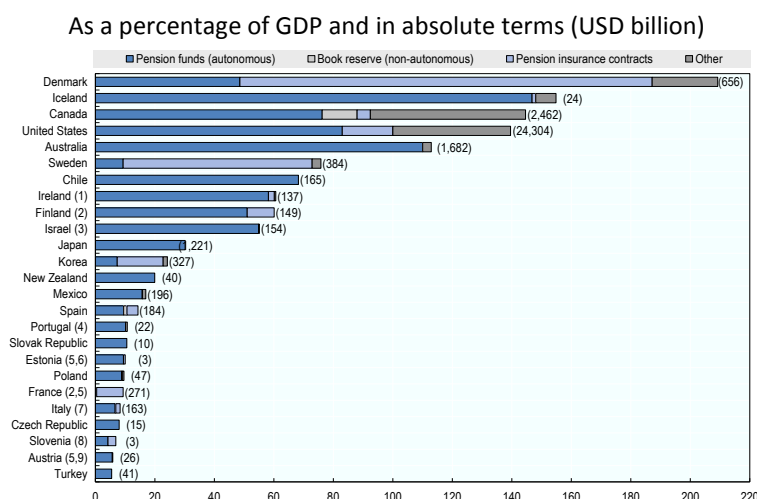
Total private pension assets in the OECD were valued at USD 38 trillion at the end of 2014 and managed mainly by pension funds.

Private pensions can be offered and managed by several types of financing vehicles. Pension funds, reserves in employers' books, pension insurance contracts (offered by insurance companies), and bank and investment companies' managed funds are, according to the OECD taxonomy, the main types of financing vehicles.¹

In OECD countries, pension funds are the main financing vehicle for private pension plans, with USD 25.2 trillion of assets under management, which represented 66.8% of total private pension assets at the end of 2014. Banks and investment companies' managed funds accounted for 21.0% of total private pension assets with USD 7.9 trillion, followed by pension insurance contracts managing USD 4.4 trillion (i.e. 11.6% of total private pension assets) and employers' book reserves (USD 0.2 trillion or 0.6% of total private pension assets).

In a few countries however, pension funds do not account for the largest share of private pension assets. In Denmark, France, Korea and Sweden for example, insurance companies hold more pension-related assets than pension funds (Figure 1). In Denmark, most of the occupational pension plans are managed by specialised life insurance companies. Overall, assets in pension insurance contracts in Denmark represented 138.6% of GDP at the end of 2014, while assets in pension funds were 48.6% of GDP.

Figure 1. Private pension assets under management by type of financing vehicle in selected OECD countries, 2014



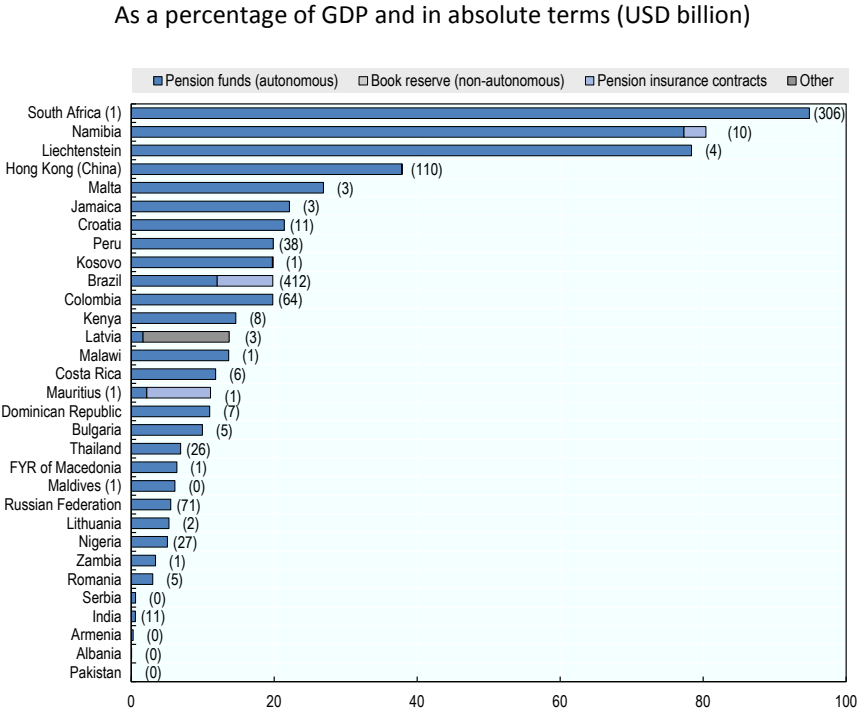
Note: Please see the section on methodological notes at the end of the report.

Source: OECD Global Pension Statistics.

¹ See the *Private Pensions: OECD Classification and Glossary*, available at <http://www.oecd.org/finance/private-pensions/38356329.pdf>.

Likewise, pension funds are the main vehicle for pension assets in most non-OECD countries for which information is available (Figure 2). Only Latvia and Mauritius use mainly other vehicles. In Latvia, investment management companies can manage the assets accumulated via the mandatory state funded pension scheme. In Mauritius, personal voluntary pension schemes are generally offered by insurance companies. Insurance companies in Mauritius can also manage occupational voluntary pension insurance contracts.

Figure 2. Private pension assets under management by type of financing vehicle in selected non-OECD countries, 2014



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

Source: OECD Global Pension Statistics.

The analysis hereafter focuses on autonomous pension funds, as more countries could provide information for this specific vehicle than for the others. The analysis considers all pension plan types managed by pension funds: occupational, personal, defined benefit and defined contribution plans.²

² Detailed definitions of the different financing vehicles and pension plan types, following the OECD classification, are available in the “Methodological notes” section.

The weighted average asset-to-GDP ratio for pension funds reached 84.4% in OECD countries and 36.4% in non-OECD countries at the end of 2014

There were only four countries at the end of 2014 with a ratio of assets under management to GDP higher than 100%, the Netherlands (159.3%), Iceland (146.8%), Switzerland (120.3%), and Australia (110%). In none of the selected non-OECD countries the assets managed by pension funds exceeded the size of their economy. Pension fund assets still remain below one fourth of the size of their economy in 21 OECD and 36 non-OECD countries (Figures 3 and 4). This can be explained in some countries by the maturity of the funded pension system, which it is still young. For example, in Armenia mandatory contributions to pension funds were only introduced at the beginning of 2014. However, in other countries this may be explained by the low level of contributions as a percentage of GDP (determined by low contribution rates and/or low coverage). Indeed, countries such as Austria, Belgium, Germany, Italy, Slovenia or Spain have contribution levels below 1% of GDP in contrast to contributions levels of 7.5% of GDP in Australia, 5% in the Netherlands, and 8.1% in Switzerland (see Table A.4).

Figure 3. Importance of pension funds relative to the size of the economy in the OECD, 2014

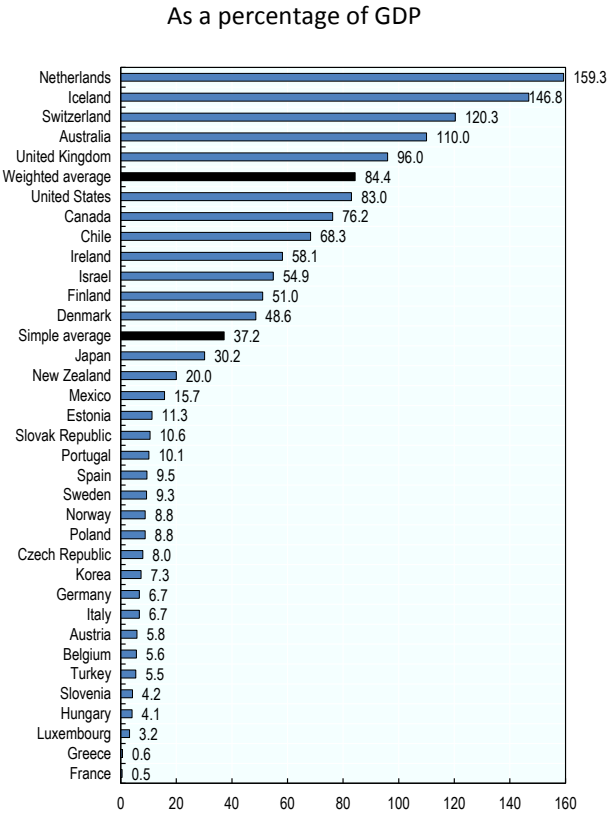
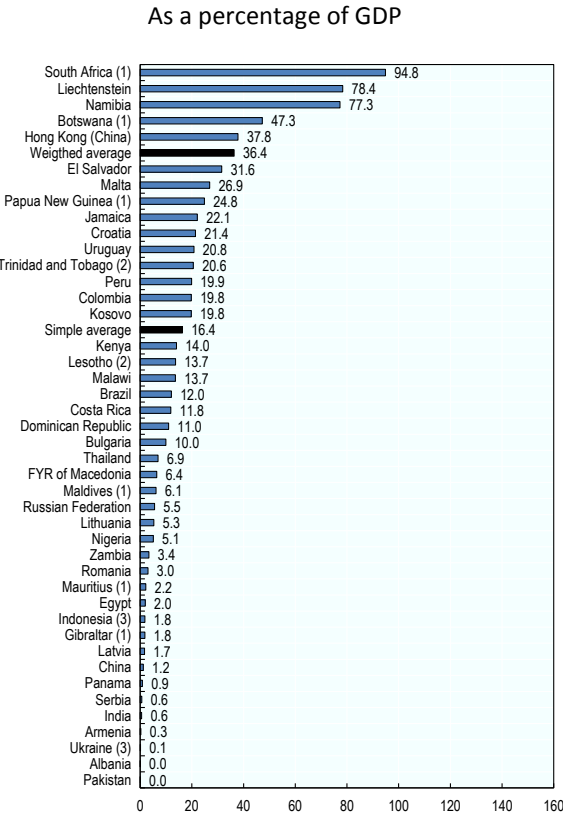


Figure 4. Importance of pension funds relative to the size of the economy outside the OECD, 2014



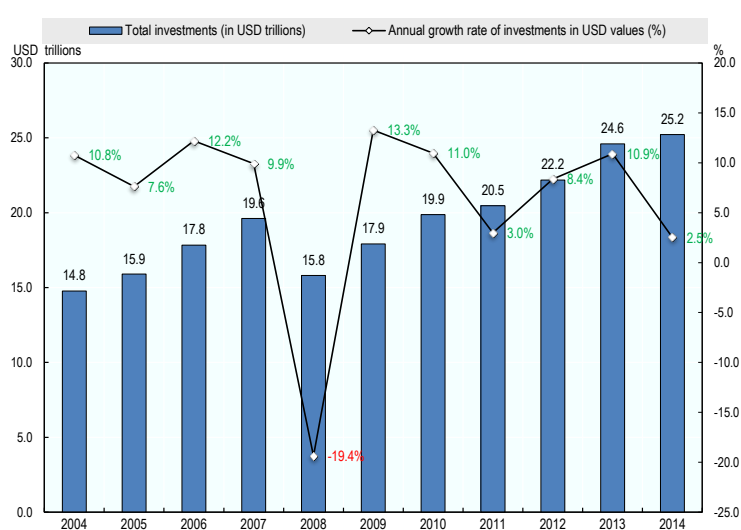
Note: Please see the section on methodological notes at the end of the report.

Source: OECD Global Pension Statistics.

Pension fund assets in the OECD grew for a sixth consecutive year

Pension fund assets in the OECD grew in 2014, and reached a record high exceeding USD 25 trillion at the end of the year (see blue bars in Figure 5). Pension fund assets have been constantly increasing in the OECD since the end of 2008. They have grown in USD by 8.1% yearly on average over the last six years (Dec 2008 – Dec 2014). As a result of the financial crisis which led to a decrease of 19.4% in pension fund assets in USD values between end-2007 and end-2008 (see black lines in Figure 5), the average growth of pension fund assets in USD values over the last decade (Dec 2004 – Dec 2014) is lower than the average over the last six years, but is still positive with a yearly increase of 5.5%.

Figure 5. Level and annual growth rate of total assets of pension funds in the OECD, 2004-2014

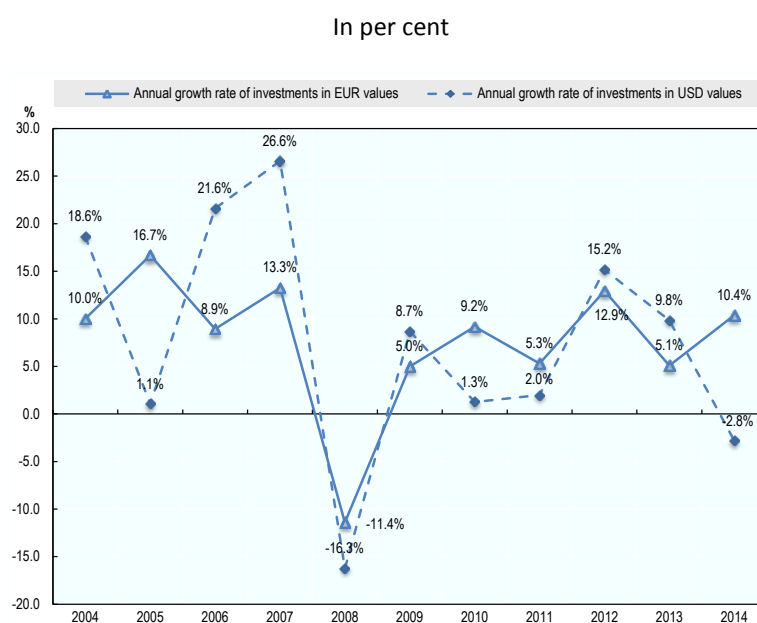


Note: Please see the section on methodological notes at the end of the report.

Source: OECD Global Pension Statistics.

The pace of the increase of OECD pension fund assets, measured in USD, slowed down between 2013 and 2014. Pension fund assets in the OECD grew in USD values by 2.5% in 2014 compared to 8.4% in 2012 and 10.9% in 2013. This slower growth of assets in USD in 2014 is mainly due to the appreciation of the dollar against other currencies, in particular the euro. Indeed, pension fund assets of an aggregate of ten countries from the euro area, for which information is available, increased by 10.4% in 2014 when expressed in euro, while they decreased by 2.8% when expressed in US dollars (Figure 6).

Figure 6. Annual growth rates of pension fund total investments expressed in USD and in EUR in the euro area, 2004-2014



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

Source: OECD Global Pension Statistics.

In national currency, pension fund assets increased in 2014 in all OECD countries except Poland (see Table A.1). In the case of Poland, the decrease in pension fund assets comes from the partial reversal of the 1999 pension reform. In February 2014, government debt in open pension funds' portfolio was cancelled. Contributions to these funds became voluntary, and by default individuals' contributions were diverted to the pay-as-you go notional account system.

Performance of Pension Funds

Positive investment returns in 2014 and also over the last 5 and 10 years partly explain the increase in pension fund assets

The growth of pension fund assets in 2014 was underpinned by positive investment returns. All the reporting OECD countries recorded positive real net³ investment returns in 2014, ranging from 1.2% in the Czech Republic to 16.7% in Denmark, with an OECD weighted average of 5.0% (Figure 7). The simple average is higher, at 6.8%. Twenty-one OECD countries experienced real returns higher than 5%.

Outside the OECD area, the performance of pension funds in terms of real net investment returns was also positive, but returns were lower than in the OECD area on average: 1.2% for the weighted

³ Returns net of investment management costs.

average and 4.6% for the simple average (Figure 8). India experienced the highest level of investment returns among non-OECD countries at 19.1%. Only four non-OECD jurisdictions had real negative investment returns in 2014: Armenia (-1.7%), Nigeria (-1.7%), Hong Kong (China) (-3.2%) and the Russian Federation (-7.4%). The existence of management costs reduces nominal returns which combined with high inflation may lead to negative real returns.

Figure 7. Pension funds' real net rate of return on investment in selected OECD countries, Dec 2013 - Dec 2014

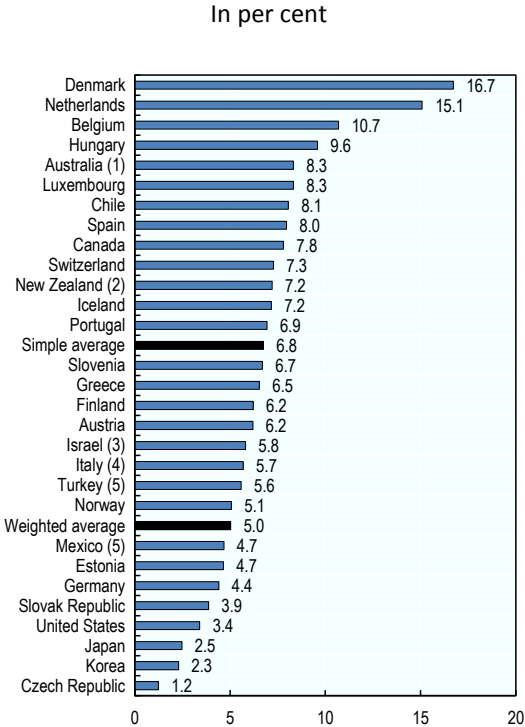
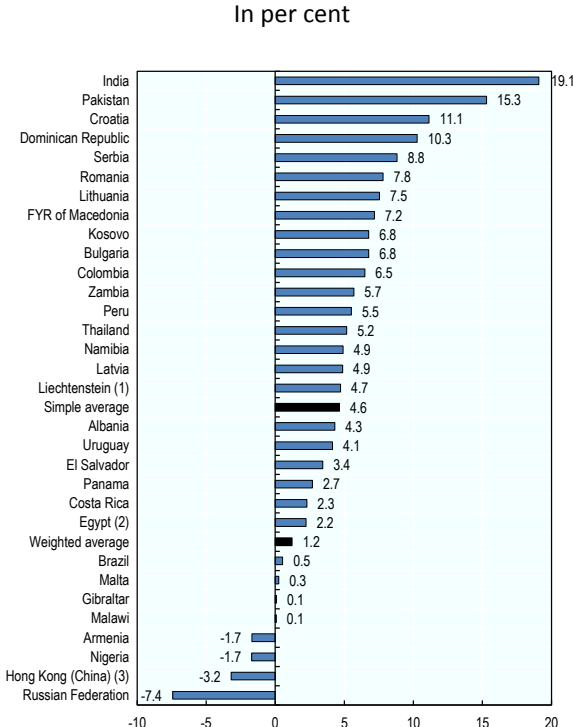


Figure 8. Pension funds' real net rate of return on investment in selected non-OECD countries, Dec 2013 - Dec 2014



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

Source: OECD Global Pension Statistics.

The investment performance of pension funds measured over the last five years was positive in real terms in most reporting OECD and non-OECD countries (Tables 1 and 2), except in Hong Kong, China (-1.0%) and Nigeria (-3.1%). Pension funds in Malta had a negative 4-year geometric average annual return over the period Dec 2010 – Dec 2014. Despite the weak returns and sharp drop in pension fund assets during the financial crisis, the 10-year average annual returns remain positive in most countries, except in Estonia (-1.7%) and Bulgaria (-0.8%).

Table 1. Pension fund nominal and real 5-year and 10-year geometric average annual returns in selected OECD countries

In per cent

Country	5 year-average		10 year-average	
	Nominal	Real	Nominal	Real
United Kingdom (1)	11.8	8.4	9.5	6.5
Netherlands	9.8	7.8	6.6	4.8
Denmark	8.9	7.1	7.3	5.4
Australia (2)	8.8	6.0	6.6	3.7
Canada	8.7	6.9	6.5	4.7
New Zealand (3)	8.6	6.3	5.9	3.3
Mexico (4)	8.2	4.1	7.2	2.9
Iceland	8.0	4.5	7.6	1.7
Chile	7.1	3.7	7.1	3.5
Belgium	6.9	5.0	6.0	4.0
Norway	6.6	4.9	6.2	4.2
Israel (5)	6.5	4.8	6.3	4.1
United States	5.7	3.9	2.6	0.5
Luxembourg	4.7	2.8	..	..
Austria	4.6	2.4	3.4	1.4
Switzerland	4.6	4.8	3.6	3.3
Spain	4.4	2.9	..	..
Germany	4.3	2.9	4.2	2.6
Slovenia	4.2	2.7	..	..
Korea	4.2	2.1	3.8	1.2
Italy (6)	4.0	2.4	3.8	2.0
Estonia	3.6	0.9	1.9	-1.7
Portugal	2.9	1.3	3.9	2.3
Japan	2.5	1.8	0.6	0.3
Czech Republic	2.3	0.6	2.5	0.3
Slovak Republic	2.1	0.3	..	..

Table 2. Pension fund nominal and real 5-year and 10-year geometric average annual returns in selected non-OECD countries

In per cent

Country	5 year-average		10 year-average	
	Nominal	Real	Nominal	Real
Uruguay	17.4	8.8	13.9	6.0
Pakistan	15.9	6.1	..	..
Namibia (1)	13.4	7.2	..	..
Dominican Republic	12.6	7.6	12.6	6.7
South Africa (2)	12.0	6.5	10.8	4.4
Colombia	10.2	7.0	12.0	7.7
Romania	9.5	5.6	..	..
Serbia	9.2	2.5	..	..
Costa Rica	9.2	4.2	10.6	2.8
Nigeria	6.5	-3.1	..	..
Former Yug. Rep. of Macedonia	6.2	3.9	..	..
Albania	6.1	4.0	..	..
Peru	6.0	2.8	6.7	3.7
Panama (1)	5.5	1.6	..	..
Bulgaria	4.4	2.6	3.3	-0.8
Latvia	4.3	2.7	..	..
Thailand	4.1	1.6	..	..
El Salvador	3.8	1.9	4.6	1.7
Hong Kong (China) (3)	3.2	-1.0	..	..
Liechtenstein	2.1	..	..	..
Malta (1)	0.4	-1.1	..	..

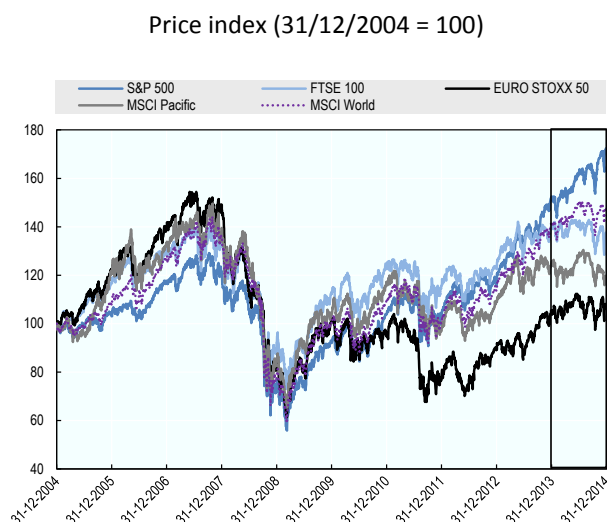
Note: Please see the section on methodological notes at the end of the report.

Source: OECD Global Pension Statistics.

Returns and stock market indices followed a similar trend in 2014. For example, the MSCI World index, which represents the large and mid-cap equity performance across 23 developed countries, increased by 2.9% between the end of 2013 and the end of 2014 (Figure 9). The S&P 500 index climbed by 11.4% over the same period. Stock markets in the Pacific area did not experience this upward trend between the end of 2013 and the end of 2014, as the MSCI Pacific Index (expressed in USD values) slightly decreased during 2014. This weak development in the Pacific market, together with a 4.8% increase in the consumer price index, had a negative impact on the real return of the mandatory provident funds of Hong Kong, China in 2014.

Overall, the development of the selected stock markets was positive over the last 5 and 10 years. All the indices showed in Figure 9, i.e. S&P 500, FTSE 100, EURO STOXX 50, MSCI Pacific and MSCI World, exhibited higher levels at the end of 2014 than 5 years and 10 years ago. Prices at the end of 2004 were taken as a reference (base= 100). While some of the indices, such as the S&P 500, were below the 2004 reference at the end of 2009, the prices of all the selected indices were all above 100 at the end of 2014. Two indices though, the EURO STOXX 50 and the MSCI Pacific, had not returned to their pre-crisis levels at the end of 2014.

Figure 9. Evolution of a selection of stock market indices, 2004-2014



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

Source: Datastream.

Pension Fund Investments

Pension funds mainly invest in bills and bonds, equities, and cash and deposits – traditional asset classes – in most reporting OECD and non-OECD countries

Investments in bills and bonds, equities and cash and deposits are considered in this publication as “traditional” investments. Investments in other asset classes than the ones previously listed are considered as “non-traditional” or “alternative” investments.⁴

Pension funds in the OECD invested on average in 2014 23.8% of their portfolio in equities, 51.3% in bills and bonds, and 9.6% in cash and deposits. The total allocation in these traditional asset classes was therefore 84.7%. Pension funds in non-OECD countries tend to favour traditional asset classes slightly more than in OECD countries, as they invested 27.3% of their portfolio in equities, 51.9% in bills and bonds and 10.3% in cash and deposits on average (89.6% in total).

Pension funds invest more than 50% of their portfolio in equities in only six reporting countries. Equities represented 92.5% of pension fund investments in Kosovo, 81.9% in Poland, 68.9% in Namibia, 61.1% in Hong Kong (China), and just above 50% in Australia and Botswana at the end of 2014 (Figures 10 and 11). In contrast, bonds accounted for more than half of the portfolio of pension fund in 15 OECD countries and 17 non-OECD countries.

⁴ The way alternative investments are defined in this newsletter may differ from other existing definitions.

Figure 10. Pension fund asset allocation for selected investment categories in selected OECD countries, 2014

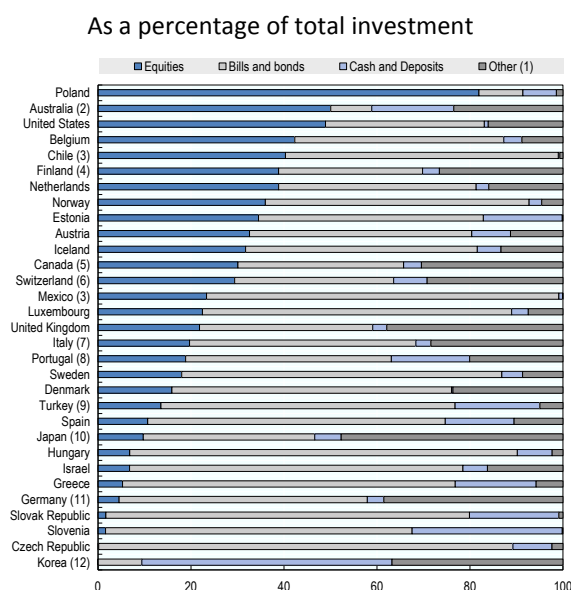
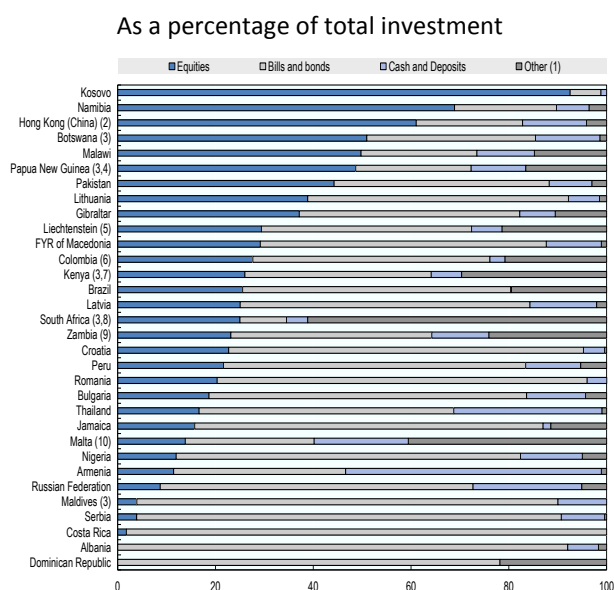


Figure 11. Pension fund asset allocation for selected investment categories in selected non-OECD countries, 2014



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

Source: OECD Global Pension Statistics.

Traditional asset classes still make up most of pension fund portfolios. However, given the backdrop of falling interest rates and the current environment of low interest rates, has the allocation of pension fund assets changed over time? The special feature section below looks at this issue.

Special feature: To what extent might pension funds be already engaged in a “search for yield” in the context of prolonged low interest rates?

The current backdrop of falling interest rates generates challenges for pension providers, as highlighted in the Chapter 4 of the first edition of the *OECD Business and Finance Outlook*.⁵ Low and declining interest rates can affect the adequacy of individuals’ retirement income in the case of DC plans by reducing the amount of assets accumulated in the plans and increasing annuity prices. Falling rates may also jeopardise the solvency of DB plans. The sponsors of DB plans or the funds themselves are committed to pay the benefits guaranteed to the plans’ members and may have to contribute or pay more if the accumulated assets are not sufficient to fulfil these promises.

The *OECD Business and Finance Outlook* therefore expressed a concern that pension funds and insurance companies may become involved in an excessive “search for yield”. “Search for yield” to get higher returns to meet their promises for DB plans and provide adequate retirement income for

⁵ More information about this publication can be found at www.oecd.org/finance/oecd-business-and-finance-outlook-2015-9789264234291-en.htm.

DC plans could also lead to a higher risk profile of the investment portfolio. The concern here is whether managers are well placed to manage these additional risks and whether the type of exposure is appropriate for the beneficiaries. The analysis in the *OECD Business and Finance Outlook* did not detect any substantive evidence of a “search for yield” at the OECD aggregated level. These results at the OECD level may however hide disparities across countries, and the “search for yield” may already be happening in some countries through different reallocation of the portfolios of pension fund. Data in the *OECD Business and Finance Outlook* suggested that pension funds in the United Kingdom may already be in search of higher returns, in particular through derivatives. To what extent are pension funds in the other reporting OECD and non-OECD countries already engaged in a “search for yield”?

This section of the newsletter intends to complement the analysis presented in the *OECD Business and Finance Outlook* by using more disaggregated data to look at the change in the asset allocation of pension funds over the past decade. This complementary analysis will develop four points and investigate the following changes over the last ten years in all reporting OECD and non-OECD countries: i) any shift from bills and bonds to equities; ii) any shift from traditional to non-traditional investments; iii) the evolution of the composition of non-traditional investments; and iv) any increase in foreign investments. For each of these points, the section also analyses the potential impact of quantitative investment regulation limits on observed trends in the asset allocation.

The analysis hereafter reveals that in a limited number of countries, but including some of the largest pension markets around the world (in particular Brazil, Canada, the United Kingdom and the United States), pension funds have diverted part of their traditional investments in bills and bonds or equities towards alternative investments which could potentially bring higher returns, but also higher risks. In some other smaller markets, equities appear to be preferred to seek higher returns. Pension funds in large markets invest in a relatively broad range of alternative products, including land and buildings, real estate investment trusts (REITS), unallocated insurance contracts, various mutual funds, private equity funds, hedge funds, structured products and other investments (including derivatives). Pension funds in some countries have an increasing interest in investing in private equity and hedge funds, although their exposure to these instruments is still limited. In other countries, the largest increases in alternative investments were observed in specific mutual funds or in derivatives. Most of the countries put investment ceilings on pension funds’ investments in real estate, retail or private investment funds and loans, except a few large pension fund markets such as Australia, Canada, the Netherlands, the United Kingdom and the United States. Pension funds may also seek opportunities abroad and possibly expect higher returns while potentially facing higher risks at the same time.

Equities may be the preferred instrument by pension funds to “search for yield” in small markets

The first indication of a “search for yield” could be if pension funds move away from bills and bonds, because of declining yields, leaning towards equities, which usually present a higher risk-return profile. Over the last ten years, this trend can be observed in ten OECD and six non-OECD countries, often in small pension markets.

As showed in Figures 12 and 13, pension funds increased their allocation in equities by more than 5 percentage points over the last decade in five OECD and seven non-OECD countries. In Mexico, Norway and Poland, this trend could be partially explained by the loosening of the regulatory limit for equities that took place over the same period. Out of these 12 countries, the increased allocation in equities coincided with a decreased allocation in bills and bonds in ten countries (Austria, Bulgaria, Colombia, the Former Yugoslav Republic of Macedonia, Hong Kong (China), Luxembourg, Mexico, Norway, Poland and Romania), suggesting a shift, at least partial, from bills and bonds to equities in these countries. In Romania and Liechtenstein, where pension funds' investments in equities increased by 18.4 percentage points between 2008 and 2014 and by 7.2 percentage points between 2007 and 2014 respectively, the supervisory authorities confirmed that the recent increased interest in equities was a consequence of the low-yield environment.

The number of countries in which pension funds reduced the proportion of their investments in equities over the last ten years is higher. It can be observed in 16 OECD and 5 non-OECD countries. This reduction has sometimes been accompanied by an increase in investment in bills and bonds investment, such as in Jamaica, Peru, Serbia, the Slovak Republic and Sweden. This could be the legacy of the financial crisis, which led to large drops in the market value of equities, thereby diminishing the relative importance of equities in pension funds' portfolios.

Figure 12. Variation of investments in equities and bills and bonds over 2004-2014 (or longest time period available), in selected OECD countries

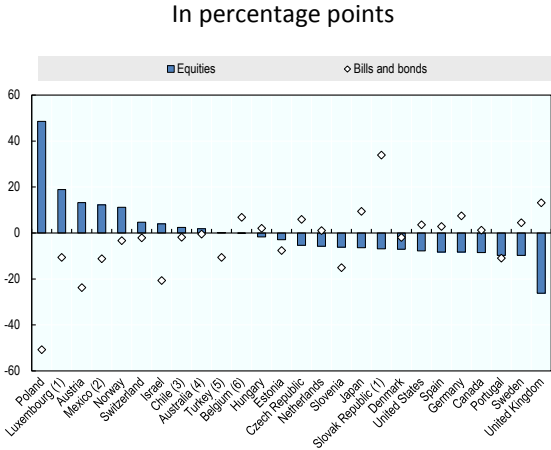
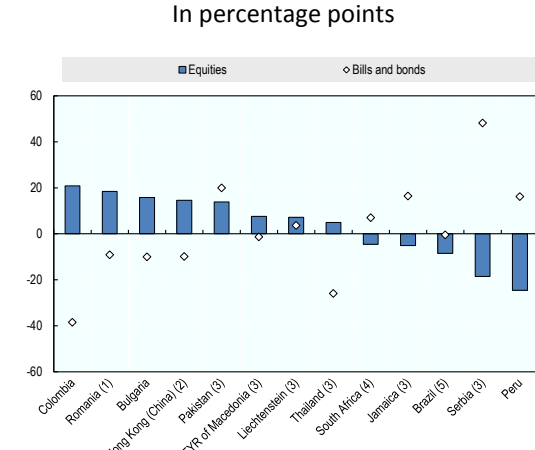


Figure 13. Variation of investments in equities and bills and bonds over 2004-2014 (or longest time period available), in selected non-OECD countries



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

Source: OECD Global Pension Statistics.

It is interesting to note that pension funds in some countries have moved away from both bills and bonds and equities (e.g. Denmark, Portugal), while in others, the decline in bills and bonds (respectively equities) has not been fully compensated by the increase in equities (respectively bills and bonds). For example, in the United Kingdom, the allocation of pension funds to equities declined by 26.2 pp. while their allocation to bills and bonds only increased by 13.1 pp. between 2004 and

2014. In both cases, this could be the sign that pension funds expanded their allocation to alternative investments.

Pension funds in large pension markets may have expanded their allocation to alternative investments in a “search for yield”

As a second indicator of the extent to which pension funds may be engaged in a “search for yield”, this section looks at the evolution of pension funds’ investments in alternative asset classes (i.e. investments other than bills and bonds, equities and cash and deposits). Alternative asset classes include here loans, land and buildings, other mutual funds, unallocated insurance contracts, hedge funds, private equity funds, structured products and other investments. The underlying assumption here is that some of the alternative asset classes may yield better returns, but that they may also require that managers of pension funds be more knowledgeable in order to invest in them and expose pension funds to additional investment risk compared to traditional asset classes. However, the implications of the increase of alternative or non-traditional investments in terms of risk should be assessed in the framework of the portfolio as a whole. If these investments contribute to portfolio diversification, they may help the control of risk of the entire portfolio.

There are a limited number of countries where pension funds have increased their allocation in alternative investments, but these count amongst the largest pension fund markets around the world. In five OECD and two non-OECD countries, pension funds increased their exposure to alternative investments by more than 5 percentage points between 2004 and 2014 or the longest available period (see Figures 14 and 15). These countries include some of the largest pension fund markets worldwide in term of assets, such as the United Kingdom (alternative investments grew by 12.8 pp. over the last decade), Canada (8.0 pp.) and Brazil (8.9 pp.). Pension funds in the United States also increased their investments in alternative asset classes by 4.5 pp. between 2004 and 2014.

It is interesting to note that pension funds in the two countries that experienced among the highest returns in 2014, over the last five years and over the last ten years, have also moved towards alternative asset classes over the last ten years. Pension funds in Denmark and the Netherlands had returns above 15% in 2014. Pension funds in these two countries had on average real returns over 7% over the last five years. Over the last ten years and despite the financial crisis, real returns of pension funds in these two countries were still close to 5%, one of the best performances among OECD countries. Over the last decade, pension funds in Denmark and the Netherlands diverted a significant share of their portfolio from traditional investments to alternative asset classes (respectively 11.0 and 4.6 percentage points). The shift towards alternative investments seems therefore to have resulted in higher returns so far in these two countries.

Figure 14. Variation of investments in alternative asset classes over 2004-2014 (or longest time period available), in selected OECD countries

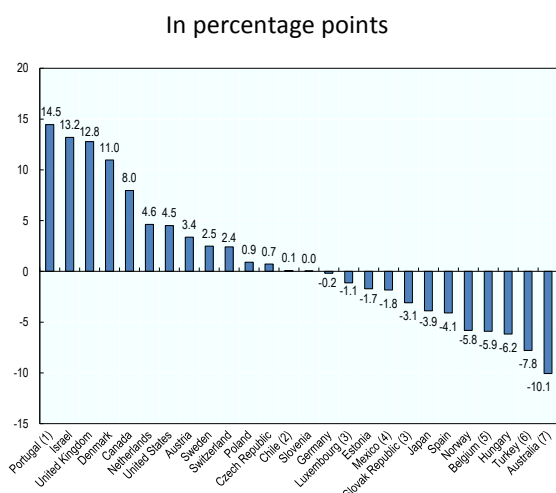
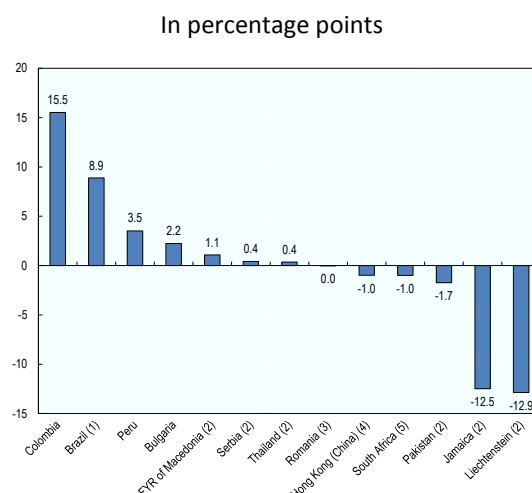


Figure 15. Variation of investments in alternative asset classes over 2004-2014 (or longest time period available), in selected non-OECD countries



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

Source: OECD Global Pension Statistics.

Pension funds in some of the largest pension markets showed an increasing interest in several alternative instruments

As the category of alternative investments is very heterogeneous, this section disaggregates the investment of pension funds in alternative asset classes for some of the countries with the largest pension markets in the world. These countries have not necessarily increased their allocation in alternative investments. The breakdown of alternative investments and the pace of change of this breakdown vary by country and by instruments. The highest increases in alternative investments were observed in specific mutual funds or other investments (such as derivatives).

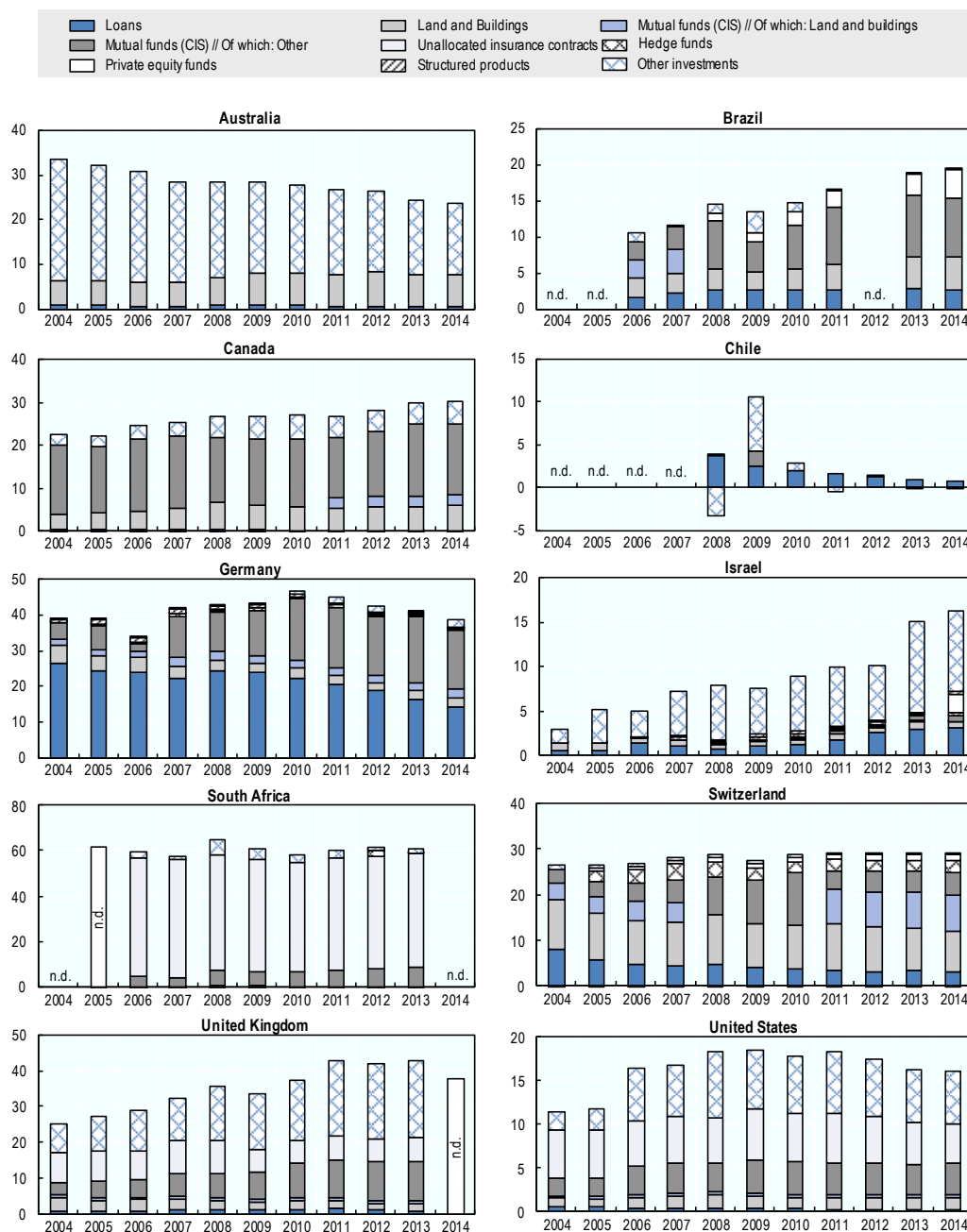
Figure 16 shows the evolution of pension funds' alternative investments, disaggregated as much as possible, in ten of the largest pension fund markets in the world by total assets under management. Alternative asset classes are broken down between loans, land and buildings, REITs, other mutual funds, unallocated insurance contracts, hedge funds, private equity funds, structured products and other investments.

Among the ten selected largest markets, pension funds have increased their allocation in alternative investments over the last ten years or over the longest period available in seven countries. In five countries, pension funds' assets in alternative investments increased by close to or more than 5 percentage points: the United States (from 11.5% of total investment in 2004 to 16% in 2014), Canada (from 22.5% in 2004 to 30.4% in 2014), Brazil (from 10.6% in 2006 to 19.4% in 2014), the United Kingdom (from 25.1% in 2004 and 37.9% in 2014) and Israel (from 3.1% in 2004 to 16.2% in 2014). In Switzerland, investments in alternative assets also increased, but at a slower pace (2.4 pp. in a decade, from 26.8% in 2004 to 29.2% in 2014). At the other extreme, the proportion of

alternative investments in pension funds' portfolio decreased by 10.1 pp. in Australia (from 33.5% in 2004 to 23.5% in 2014) and 1.0 pp. in South Africa (from 62.1% in 2005 to 61.1% in 2013).

Figure 16. Pension funds' investments in alternative asset classes in countries with the largest amount of pension fund assets, 2004-2014

As a percentage of total investment



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

Source: OECD Global Pension Statistics.

The alternative asset classes which increased the most rapidly over the last ten years are the asset classes called “other mutual funds”, and “other investments”. “Other mutual funds” refers here to investments by collective investment schemes that are not allocated to bills and bonds, equities, cash and deposits, or land and buildings. “Other investments” include financial instruments such as derivatives, commodities, trade credits and advances and other accounts receivables and payables. The highest increase of the share of investments in “other mutual funds” was observed in Germany (11.7 pp of increase between 2004 and 2014). As part of the OECD Global Pension Statistics data collection, the German supervisor explained that “other mutual funds” include both funds with a mixed asset allocation strategy and non-transparent funds, but specified that these funds generally invest in traditional investment categories. The largest increases for the asset class “other investments” occurred in the United Kingdom (13.6 pp between 2004 and 2013)⁶, Israel (7.5 pp. between 2004 and 2014) and the United States (3.8 pp. between 2004 and 2014).

While derivatives are usually used as hedging instruments, some pension funds may use them to obtain higher returns, but this may also come with higher risk. When used for hedging purposes, derivatives intend to reduce the risk profile of pension funds’ portfolios. On the contrary, non-hedging derivatives may increase the risk profile.

Negative amounts for an asset class may come from negative market values of derivatives pension funds hold. This is the case of Chile, where “other investments” of pension funds were negative in 2008, 2011, 2013 and 2014, as showed in Figure 16, because of negative market values of derivatives. In Chile, pension funds are allowed to have both hedging and non-hedging derivatives. Pension funds cannot however invest more than 3% of the total assets in non-hedging derivatives.

In some countries, pension funds also showed an increasing interest in the asset class “land and buildings”, either directly or through collective investment schemes, between 2004 and 2014. This trend was detected in four countries among the largest pension markets: Canada, Switzerland, the United States, and Australia (even though in Australia the overall share of alternative investments decreased over the last ten years). The largest increase in the exposure of pension funds to land and buildings, through direct investments or indirect investments through mutual funds, was observed in Canada (4.8 pp.), followed by Switzerland (2.5 pp.), Australia (1.9 pp.) and the United States (0.6 pp.). The highest exposure to land and buildings is held by Swiss pension funds (16.9% of total portfolio in 2014).

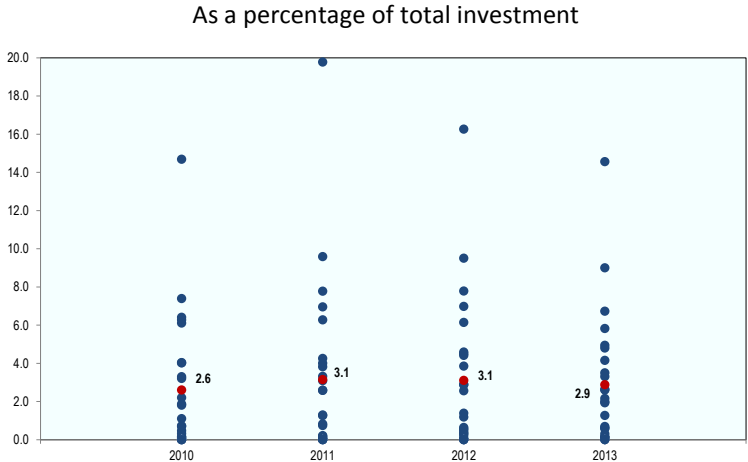
Investments in private equity also kept on increasing over the last ten years in four of the selected countries (Brazil, Germany, Israel and Switzerland) but remain below 5% of pension funds’ portfolio in all the countries in Figure 16. In Brazil, pension funds allocated 4.0% of their portfolio to private equity in 2014, which is 2.8 pp more than in 2008. This 2.8 pp. increase represents the biggest increase in this asset class among all the selected countries.

⁶ The increase in “other investments” is driven by an increased investment in derivatives, as explained in the *OECD Business and Finance Outlook*.

The proportion of loans in some countries' pension fund portfolios tends to diminish. Germany and Switzerland were the two countries showed in Figure 16 with the highest share of loans in 2004, accounting respectively for 26.2% and 8.1% of their pension fund portfolios. German and Swiss pension funds' allocation to loans decreased by 12 pp. and 5 pp. respectively between 2004 and 2014. In Chile, the share of loans in pension funds' portfolio shrank from 3.6% in 2008 to 0.7% of their portfolio in 2014.

Evidence at the pension fund level of a trend towards alternative assets also exists. The 2014 Annual Survey of Large Pension Funds and Public Pension Reserve Funds reviewed trends in asset and asset allocation in a sample of large pension funds and public pension reserve funds.⁷ It revealed an increase in alternative investments between 2010 and 2013. The ten largest pension funds, whose combined assets totalled USD 1.5 trillion in 2013, increased alternative asset allocations from 17.6% to 19.5%. Average allocations by reserve funds in alternative assets increased from 10.5% to 14.7%. Figure 17 provides an illustration of the hedge fund investment of 25 large pension funds and public pension reserve funds. It shows that investments in hedge funds vary significantly across the funds, but generally represent less than 4% of the portfolio. The average proportion allocated by pension funds in the sample to hedge funds has increased slightly, from 2.6% of the portfolio in 2010 to 2.9% of the portfolio in 2013 (Figure 17).

Figure 17. Investments in hedge funds in selected large pension funds and public pension reserve funds, 2010-2013



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

Source: OECD Annual Survey of Large Pension Funds and Public Pension Reserve Funds 2014.

⁷ More information about this report can be found at <http://www.oecd.org/finance/private-pensions/survey-large-pension-funds.htm>.

Most countries limit pension funds' investments in alternative investments, except for a few large pension fund markets

By defining investment restrictions on asset classes, regulation may set a limit to the extent to which pension funds can “search for yield” in a specific instrument. Most countries impose ceilings for investments in alternative asset classes, but some of the largest pension fund markets do not. In addition, there seems to be a trend towards a greater flexibility regarding these asset classes, as more reporting countries loosened their restrictions on alternative asset classes than tightened them over the last ten years.

In most reporting OECD and non-OECD countries, regulations are in place to limit the investment of pension funds in real estate, retail investment funds, private investment funds or loans. In 25 OECD countries and 32 non-OECD countries (out of 34 reporting countries), pension funds' investments are restricted in at least one of the instruments listed above (Table 3). Most of the countries limit investments in real estate (23 OECD and 31 non-OECD reporting countries) and loans (25 OECD and 26 non-OECD reporting countries).

Few countries do not put restrictions on alternative investments. Pension funds can invest in real estate, retail investment funds, private investment funds or loans without any limit in nine OECD countries (Australia, Austria, Belgium, Canada, Ireland, Netherlands, New Zealand, the United Kingdom and the United States), which include some of the largest pension fund markets, and in two non-OECD reporting countries (Malawi and Malta).

The way pension funds use derivatives is often supervised. Some countries, such as Costa Rica, Iceland and Luxembourg, do not restrict the share of pension funds' portfolio allocated to derivatives if these are used for hedging purposes, to reduce investment risks. However, the use of derivatives is limited or even prohibited, when utilised for investment purposes. By contrast, some other countries, such as Denmark, do not limit the use or the share invested in derivatives by pension funds, whatever their purpose.

Table 3. Restrictions on pension funds' investments in real estate, retail and private investment funds and loans in 2014

	Real estate	Retail investment funds	Private investment funds	Loans
OECD countries				
Australia (1)	No	No	No	No
Austria (2)	No	No	No	No
Belgium	No	No	No	No
Canada	No	No	No	No
Chile	Yes	Yes	Yes	Yes
Czech Republic	Yes	Yes	Yes	Yes
Denmark	Yes	Yes	Yes	Yes
Estonia	Yes	No	No	Yes
Finland (Voluntary pension)	Yes	No	Yes	Yes
Finland (Statutory pension)	No	No	Yes	Yes
France	Yes	Yes	Yes	Yes
Germany (Pensionskassen) (3)	Yes	Yes	Yes	Yes
Germany (Pensionsfonds)	No	No	No	No
Greece	No	Yes	Yes	Yes
Hungary	Yes	No	Yes	Yes
Iceland (2)	Yes	No	Yes	Yes
Ireland (4)	No	No	No	No
Israel	Yes	No	No	Yes
Italy	Yes	No	Yes	Yes
Japan	Yes	No	No	Yes
Korea	Yes	Yes	Yes	Yes
Luxembourg (SEPCAVs and ASSEPs)	No	No	No	No
Luxembourg (DB CAA supervised pension funds)	Yes	No	No	Yes
Mexico	Yes	Yes	Yes	Yes
Netherlands	No	No	No	No
New Zealand	No	No	No	No
Norway	No	No	Yes	Yes
Poland (Open pension funds)	Yes	Yes	Yes	Yes
Poland (Employee pension funds)	Yes	No	Yes	Yes
Portugal (Closed and open pension funds) (5)	No	Yes	Yes	No
Portugal (PPR pension funds) (5)	Yes	Yes	Yes	Yes
Slovak Republic	Yes	Yes	Yes	Yes
Slovenia	Yes	Yes	Yes	Yes
Spain (6)	Yes	Yes	Yes	Yes
Sweden (Friendly societies)	Yes	Yes	Yes	Yes
Sweden (Occupational pension plans' providers)	No	No	No	Yes
Switzerland (2)	Yes	No	No	Yes
Turkey	Yes	Yes	Yes	Yes
United Kingdom (7)	No	No	No	No
United States (7)	No	No	No	No
Selected non-OECD countries				
Albania	Yes	Yes	Yes	Yes
Armenia	Yes	Yes	Yes	Yes
Brazil (2)	Yes	No	No	Yes
Bulgaria	Yes	Yes	Yes	Yes
Colombia	Yes	Yes	Yes	Yes
Costa Rica	Yes	Yes	Yes	Yes
Dominican Republic	Yes	..	..	Yes
Egypt	Yes	Yes	..	Yes
Former Yugoslav Republic of Macedonia	Yes	Yes	Yes	Yes
Gibraltar	Yes	No	No	No
Hong Kong (China) (8)	Yes	Yes	Yes	Yes
Jamaica (9)	Yes	No	No	No
Jordan	Yes	Yes	Yes	No
Kenya	Yes	No	Yes	Yes
Kosovo	Yes	No	Yes	Yes
Liechtenstein	Yes	Yes	Yes	No
Lithuania	Yes	No	Yes	Yes
Malawi (1)	No	No	No	No
Maldives	Yes	Yes	Yes	Yes
Malta (Personal Retirement Schemes)	No	No	No	No
Mauritius (2)	No	No	No	Yes
Namibia	Yes	No	No	Yes
Nigeria	Yes	Yes	Yes	Yes
Pakistan	Yes	Yes	Yes	Yes
Peru	Yes	Yes	Yes	Yes
Romania	Yes	Yes	Yes	Yes
Russian Federation	Yes	Yes	Yes	Yes
Serbia	Yes	Yes	Yes	Yes
South Africa (2)	Yes	No	Yes	Yes
Thailand	Yes	Yes	Yes	Yes
Trinidad and Tobago	Yes	Yes	Yes	Yes
Uganda	Yes	Yes	Yes	Yes
Ukraine	Yes	..	..	..
Zambia	Yes	Yes	Yes	..

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

Source: OECD Annual Survey of Investment Regulation of Pension Funds.

Countries that gave more room for pension funds to invest in alternative investments over the period 2004-2014 outnumber those that did the opposite. Overall, 15 reporting countries (12 in the OECD and three outside the OECD) reported less stringent limits on some non-traditional asset classes since 2004 (Table 4). Seven countries raised the limit on pension funds' investments in real estate: Austria, Canada, Estonia, Greece, Namibia, Portugal and Spain. Austria, for instance, introduced the "prudent person principle" and replaced many of the previous quantitative restrictions with qualitative requirements in September 2005, following the 2003 IORP Directive. In 2010, Canada removed the existing quantitative limits on real estate and resource property investments by pension funds. The elimination of this limit may explain the increase of investments in real estate by Canadian pension funds observed in Figure 16.

New opportunities to invest in alternative classes may become available for pension funds in some countries, like Croatia and Namibia. The New Mandatory Pension Act in 2014 expanded the investment possibilities in Croatia by enabling pension funds to invest directly in infrastructure projects, invest in alternative assets and use derivatives in a broader way. In Namibia, since 2015, pension funds are obliged to invest at least 1.75% of their assets in unlisted investments. They are however not allowed to invest more than 3.5% of their assets in unlisted investments.

More restrictive limits do not necessarily prevent pension funds from increasing their exposure to alternative investments if the limits are not binding. In Switzerland, the legal ceiling for pension funds' investments in real estate was reduced from 50% to 30% in 2009. However, Swiss pension funds' investment in land and buildings (directly and through mutual funds) was always below 15% of their total investments before 2009, far from both limits. Swiss pension funds' investments in land and buildings had therefore room to increase and accounted for 17% of their portfolio in 2014.

Table 4. Variation of limits on pension funds' investments in alternative asset classes in selected OECD and non-OECD countries, since 2004

	Real estate	Retail investment funds	Private investment funds	Loans
OECD countries				
Austria	↗		↗	
Belgium			↗	
Canada	↗			
Czech Republic (1)	↘	↘	↘	
Estonia	↗			
Greece	↗	↗		
Hungary		↗		
Israel	↘			
Japan	↘			↘
Korea		↗	↗	
Mexico			↗	
Norway			↗	
Portugal (2)	↗	↗		↗
Slovak Republic		↘		
Spain	↗			↗
Switzerland	↘			↘
Turkey				↗
Selected non-OECD countries				
Armenia (3)		↗		
Brazil (4)	↘			
Namibia (5)	↗			
Romania (mandatory pension funds) (6)			↘	
Romania (voluntary pension funds) (6)			↗	
South Africa (4)			↗	
Uganda (5)			↘	

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

Source: OECD Annual Survey of Investment Regulation of Pension Funds.

Foreign investments may also be a way to “search for yield”

Investments abroad allow pension funds to diversify their portfolio allocation, but may not necessarily reduce their risk. When domestic stock markets are small, it is natural for pension funds to invest abroad, and this may not bring additional risk when it is done in mature capital markets. However, some investments abroad may have a potentially higher risk-return profile and may be the sign of a “search for yield”, depending on the amount of investment allocated abroad, the destination of these investments and the currency in which the instrument is denominated.

In European countries and countries with small or no domestic capital markets, pension funds have a high share of investments abroad. In nine reporting OECD countries and eight reporting non-OECD countries, pension funds had more than 30% of their portfolio invested abroad at the end of 2014 (Figures 18 and 19). Among these countries, 11 were European countries: Bulgaria, Estonia, Italy, Kosovo, Latvia, Lithuania, the Netherlands, Portugal, the Slovak Republic, Slovenia and Switzerland. In seven additional European countries, pension funds invested between 10% and 30% of their portfolio abroad. The three countries which invested the most abroad in 2014 were Kosovo, with 94.1% of the pension portfolio invested abroad, the Netherlands with 81.7% and Estonia with 77.7%.

Figure 18. Foreign investments of pension funds in selected OECD countries, 2014

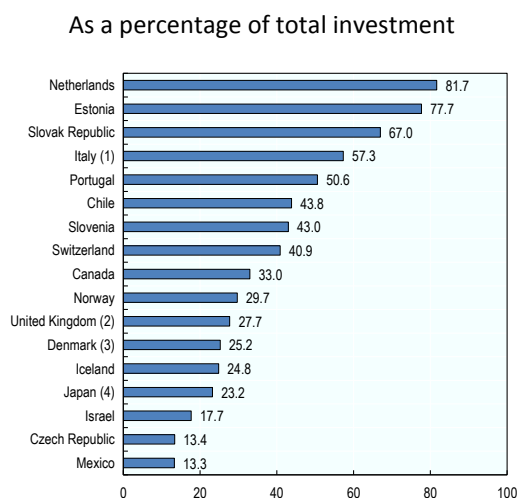
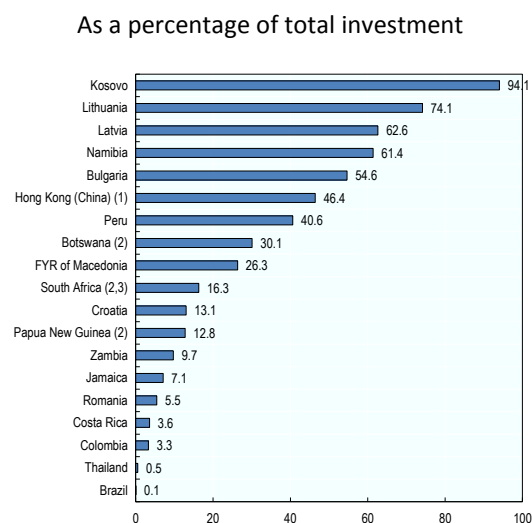


Figure 19. Foreign investments of pension funds in selected non-OECD countries, 2014



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

Source: OECD Global Pension Statistics.

While information on the destination of foreign investments is not available for many countries, it is interesting to note that European pension funds invest mostly in the United States and in Europe. In addition, pension funds in Chile are investing significantly in emerging markets: at the end of 2014, they had approximately 5% of their portfolio invested in China and India combined.

Pension funds in nine OECD and four non-OECD countries have increased their allocation to foreign investments over the last decade (Figures 20 and 21). The highest increases in the share of foreign investments among OECD countries took place in the Slovak Republic (21.3 pp.), Israel (17.6 pp.) and Chile (17.0 pp.), while the highest increases among non-OECD countries were reported by Bulgaria (54.2 pp.), Peru (30.5 pp.) and the Former Yugoslav Republic of Macedonia (23.5 pp.). The trend in Chile and Peru is probably partly due to the loosening of the regulatory limit for foreign investments that took place in 2007 and 2010 in Chile and in 2011 in Peru.

Conversely, pension funds in four OECD countries and three non-OECD countries have decreased their share of foreign investments in favour of domestic markets over the last decade. DC pension funds in Denmark decreased their exposure to foreign investments, but still held 25.2% of their portfolio in assets issued by entities located abroad in 2014.

Figure 20. Variation of pension fund foreign investments over 2004-2014, in selected OECD countries

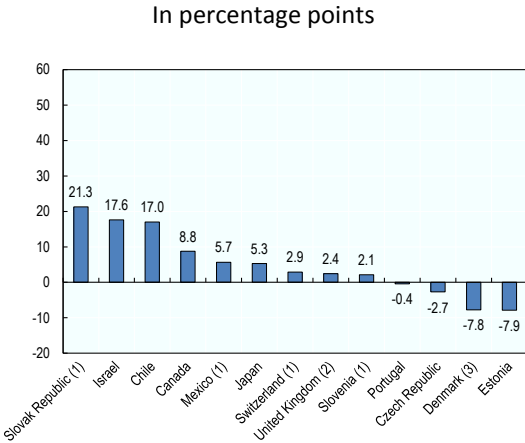
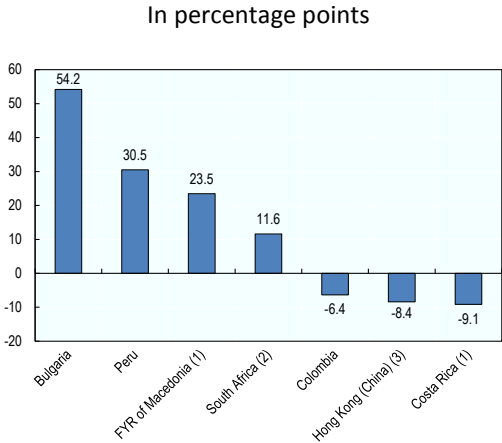


Figure 21. Variation of pension fund foreign investments over 2004-2014, in selected non-OECD countries



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

Source: OECD Global Pension Statistics.

By investing abroad, pension funds can also be exposed to the exchange rate risk when assets are denominated in another currency and when this risk is not hedged. Bulgaria, Croatia, the Former Yugoslav Republic of Macedonia and Lithuania had more than 50% of their total investments expressed in foreign currency in 2014. The proportion of investment in foreign currencies account for more than 20% of pension funds’ portfolio in three Latin American countries: Chile (36.3%), Colombia (24.8%) and Peru (40.6%).

Table A.2. Total investment of pension funds in OECD and selected non-OECD countries, 2004-2014

In millions of USD

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
OECD countries											
Australia	415,174	549,125	645,869	977,970	1,058,376	839,275	986,839	1,397,418	1,383,456	1,440,898	1,639,230
Austria	14,125	13,833	16,783	19,359	17,460	20,259	20,333	19,103	21,514	25,173	23,276
Belgium	15,737	15,708	17,601	21,775	15,875	19,879	17,783	20,225	22,753	27,213	27,561
Canada	578,234	686,689	786,329	966,116	673,333	879,373	1,047,504	1,072,056	1,199,201	1,260,157	1,297,732
Chile	60,535	74,508	88,293	111,277	74,313	118,052	148,437	134,962	162,021	162,988	165,432
Czech Republic	4,462	5,019	6,991	9,249	9,909	11,753	12,395	12,413	14,337	14,951	14,854
Denmark	82,492	82,518	94,025	108,167	155,961	138,351	154,612	154,535	161,358	146,700	152,349
Estonia	234	351	632	1,043	1,023	1,372	1,431	1,467	1,953	2,443	2,676
Finland (1)	128,328	127,350	156,919	186,957	156,896	191,702	197,832	107,936	119,601	135,651	126,446
France	...	388	1,002	2,064	2,587	4,322	5,345	6,470	8,840	11,860	12,505
Germany	116,973	112,275	132,659	170,371	165,634	187,938	187,280	192,912	221,112	236,932	236,204
Greece (2)	...	...	...	36	47	65	71	95	113	1,350	1,322
Hungary (3)	7,854	8,724	12,055	16,026	13,662	18,142	19,001	4,406	5,029	5,506	5,043
Iceland	16,218	19,485	21,139	27,711	13,857	14,302	16,579	17,096	18,567	22,986	23,060
Ireland	84,905	91,937	115,559	127,487	88,399	104,011	100,883	93,549	106,212	126,188	130,880
Israel	34,371	40,935	47,603	58,100	80,594	94,426	112,071	112,463	129,591	152,679	153,547
Italy	48,414	47,005	58,730	73,812	74,722	90,050	94,617	99,441	115,637	132,168	130,658
Japan	1,206,025	1,158,814	1,114,159	1,153,782	1,276,613	1,365,806	1,498,821	1,525,866	1,447,172	1,331,231	1,221,491
Korea	12,741	14,835	27,255	29,574	24,290	32,442	40,876	47,822	63,642	81,555	98,784
Luxembourg (4)	127	378	467	550	542	1,215	1,067	1,076	1,190	1,323	1,801
Mexico (5)	42,779	77,203	96,665	103,622	90,799	107,811	134,749	132,381	168,563	181,255	181,881
Netherlands	723,380	730,883	884,866	1,137,127	932,779	979,401	1,015,666	1,055,652	1,229,054	1,335,092	1,282,009
New Zealand	11,053	12,532	12,406	14,100	15,384	12,371	19,275	23,929	28,406	33,831	39,788
Norway	18,901	19,282	23,441	29,655	21,934	30,310	33,135	33,627	39,454	40,908	37,380
Poland (6)	20,926	26,292	40,475	58,048	47,137	63,626	75,238	67,017	88,464	100,563	43,126
Portugal (7)	20,685	22,393	27,901	32,910	28,226	31,575	26,356	17,127	19,093	20,904	21,254
Slovak Republic (8)	...	283	1,743	3,366	4,417	5,713	6,523	7,503	8,994	9,926	9,645
Slovenia	333	429	647	924	991	1,313	1,450	1,550	1,727	1,954	1,912
Spain	75,806	77,410	97,121	127,306	108,734	122,558	112,225	108,247	114,228	127,478	121,585
Sweden	29,289	31,183	39,094	41,569	29,821	35,954	47,127	46,714	57,406	53,767	47,036
Switzerland	427,752	412,865	477,970	537,946	506,274	581,203	661,168	664,571	734,001	807,893	788,249
Turkey	1,639	3,233	4,024	8,794	9,309	14,543	16,769	28,284	30,200	35,543	41,119
United Kingdom	1,571,945	1,713,463	2,195,133	2,266,070	1,412,247	1,820,742	2,018,041	2,232,598	2,529,995	2,810,564	2,684,613
United States	9,001,353	9,722,497	10,595,526	11,188,697	8,700,800	9,973,450	11,045,638	11,028,726	11,929,757	13,723,573	14,460,340
Selected non-OECD countries											
Albania (9)	...	...	...	1	1	2	2	1	3	4	5
Argentina (10)	18,306	22,055	28,902	29,283	0	0	0	0	0	0	0
Armenia	...	...	...	...	...	...	...	...	...	...	26
Bolivia	1,716	2,025	2,256	2,876	3,740	4,456	5,387	...	...	...	...
Botswana	...	...	...	...	...	...	...	...	...	6,731	...
Brazil	...	...	198,285	246,577	176,571	279,061	319,785	308,273	315,153	273,965	250,528
Bulgaria	553	674	1,025	1,749	1,660	2,326	2,714	3,042	3,848	4,807	5,089
China	5,957	8,426	11,654	20,809	27,961	37,096	42,413	56,659	76,650	98,896	125,658
Colombia	10,965	17,018	19,474	32,633	31,403	32,783	44,179	54,006	68,221	66,911	63,742
Costa Rica	828	1,110	1,496	1,691	2,018	2,369	2,833	3,507	4,355	5,453	5,846
Croatia	1,556	1,872	2,936	4,375	4,566	6,018	6,840	7,395	9,353	10,982	11,157
Dominican Republic	194	374	646	966	1,371	1,897	2,408	3,055	3,829	4,543	6,892
Egypt (11)	...	...	...	...	3,969	...	...	...	...	5,031	5,550
El Salvador	2,148	2,902	3,352	3,958	4,471	5,015	5,474	6,093	6,835	7,321	7,993
Former Yug. Rep. of Macedonia	...	...	...	75	116	205	270	340	457	608	664
Gibraltar (12)	...	...	...	...	...	...	...	35	39	42	11
Hong Kong (China)	38,291	44,193	52,697	64,404	60,323	67,365	78,068	79,465	90,330	102,871	110,053
India	...	...	...	...	...	...	3,347	2,848	5,450	6,819	11,465
Indonesia	5,960	6,195	8,310	9,333	...	...	...	15,058	...	...	...
Jamaica	1,603	0	1,968	2,470	2,448	2,490	3,026	3,276	3,137	2,864	2,958
Kenya	1,833	2,365	3,228	...	3,504	4,033	5,346	5,419	6,380	8,072	8,559
Kosovo	...	...	...	...	...	...	...	...	940	1,260	1,321
Latvia	49	61	96	135	147	189	208	209	261	325	342
Lesotho	...	...	...	...	...	...	...	272	308	...	...
Liechtenstein	...	...	...	1,986	2,131	2,647	3,696	3,748	3,925	4,434	4,275
Lithuania	...	...	...	...	...	...	...	...	...	2,221	2,330
Malawi	...	...	...	...	...	...	...	...	...	409	525
Maldives	...	...	...	...	...	...	...	53	108	165	...
Malta (13)	...	...	...	...	...	...	...	45	759	1,692	2,599
Mauritius	...	...	...	...	...	...	...	...	227	265	...
Namibia	...	...	...	...	...	...	9,145	8,134	9,670	9,130	9,733
Nigeria	...	...	...	7,278	8,290	9,242	13,481	15,435	20,023	25,462	26,885
Pakistan (14)	...	...	...	11	9	12	16	20	33	58	102
Panama	...	...	...	...	108	...	161	216	142	333	384
Papua New Guinea	...	...	...	...	...	...	...	...	...	3,549	...
Peru	7,933	9,526	14,442	20,454	16,162	24,322	31,324	30,371	37,982	36,630	38,360
Romania (15)	...	...	...	6	330	842	1,455	2,053	3,051	4,513	5,471
Russian Federation	...	...	...	...	...	...	...	...	...	117,179	70,850
Serbia	...	...	4	57	74	108	125	154	190	238	238
South Africa	193,927	202,991	232,554	284,670	211,966	253,943	331,501	298,395	323,385	306,107	...
Suriname	217	234	263	...	...	...	...	...	...	...	...
Thailand	7,820	8,430	10,845	13,100	13,333	15,506	19,165	19,532	22,847	22,965	25,529
Trinidad and Tobago	...	...	3,353	3,690	4,103	4,735	5,374	4,290	4,776	...	...
Ukraine	...	...	...	...	80	...	144	174	...	...	...
Uruguay	1,678	2,153	2,586	3,384	2,872	5,104	6,694	7,765	10,146	10,508	10,957
Zambia	222	344	...	...	...	...	...	...	...	...	876
Regional indicators											
Total OECD	14,772,787	15,899,823	17,841,082	19,611,561	15,812,946	17,913,305	19,877,134	20,469,234	22,182,640	24,603,200	25,224,786
Total selected non-OECD	301,757	332,950	600,372	755,969	583,727	761,767	944,583	939,340	1,032,813	1,153,364	816,972
Total G20 (16)	13,219,427	14,325,193	16,137,056	17,531,544	13,905,207	15,885,852	17,773,524	18,445,205	19,818,212	22,048,701	22,463,057
Euro area (17)	1,229,095	1,240,684	1,512,725	1,905,222	1,598,480	1,761,561	1,789,068	1,732,605	1,993,039	2,197,671	2,132,676
BRICS	199,883	211,418	442,492	552,056	416,498	570,100	697,047	666,175	720,638	802,966	458,500
Latin America and the Caribbean	148,902	209,108	461,982	562,881	410,271	588,095	709,671	687,981	785,018	752,439	734,587
Asia (18)	1,311,165	1,281,829	1,272,524	1,349,113	1,483,123	1,612,654	1,794,779	1,859,786	1,835,824	1,797,238	1,746,629
Total World	15,074,544	16,232,773	18,441,454	20,367,530	16,396,673	18,675,072	20,821,717	21,408,574	23,215,453	25,756,564	26,041,759

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

Source: OECD Global Pension Statistics.

Table A.3. Total investment of pension funds in OECD and selected non-OECD countries, 2004-2014

As a percentage of GDP

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
OECD countries											
Australia	69.9	78.0	87.1	106.0	93.3	82.2	89.4	92.4	91.2	102.2	110.0
Austria	4.3	4.6	4.8	4.7	4.3	4.9	5.2	4.8	5.1	5.7	5.8
Belgium	3.9	4.3	4.1	4.3	3.2	3.9	3.6	4.1	4.4	5.0	5.6
Canada	52.5	56.7	61.6	61.0	50.1	58.7	63.1	61.8	65.2	70.8	76.2
Chile	56.0	55.6	57.5	61.0	49.8	62.0	62.6	58.0	60.1	62.3	68.3
Czech Republic	3.3	3.8	4.2	4.4	4.8	5.5	5.9	6.2	6.8	7.3	8.0
Denmark	30.0	32.9	31.6	31.6	45.9	41.9	48.3	48.4	48.9	42.1	48.6
Estonia	1.8	2.6	3.5	4.4	4.5	6.7	7.3	6.9	8.4	9.5	11.3
Finland (1)	59.4	65.7	69.0	68.1	58.2	73.5	79.1	42.4	45.4	48.7	51.0
France	..	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.4	0.5
Germany	3.8	4.1	4.2	4.6	4.7	5.3	5.4	5.5	6.1	6.1	6.7
Greece (2)	..	..	..	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.6
Hungary (3)	6.8	8.3	9.6	10.9	9.5	13.0	14.7	3.8	3.9	4.0	4.1
Iceland	102.7	116.0	126.2	124.8	107.9	112.7	117.7	123.2	134.5	141.2	146.8
Ireland	40.1	46.1	47.7	44.0	34.0	42.9	45.8	42.3	46.6	52.3	58.1
Israel	24.7	29.7	29.7	30.8	39.9	43.9	45.7	46.5	48.8	50.5	54.9
Italy	2.5	2.7	2.9	3.1	3.3	4.0	4.4	4.7	5.4	6.0	6.7
Japan	24.9	27.1	26.2	25.6	23.1	26.7	25.3	25.2	26.4	29.2	30.2
Korea	1.5	1.6	2.6	2.7	2.8	3.3	3.7	4.1	4.9	6.0	7.3
Luxembourg (4)	0.3	1.1	1.1	1.0	1.0	2.3	2.0	2.0	2.1	2.1	3.2
Mexico (5)	5.5	8.8	10.0	9.9	10.0	11.7	12.6	12.7	14.1	14.7	15.7
Netherlands	101.4	113.6	116.0	126.0	104.9	110.1	120.4	126.9	144.4	148.7	159.3
New Zealand	11.6	11.4	12.4	11.5	10.4	11.7	14.1	15.6	16.5	18.8	20.0
Norway	6.4	6.6	6.6	6.8	5.9	7.2	7.5	7.2	7.4	8.1	8.8
Poland (6)	6.7	8.7	11.1	11.9	10.9	13.3	15.5	14.7	17.0	18.2	8.8
Portugal (7)	10.0	12.0	12.7	12.7	11.3	12.5	11.0	7.5	8.6	8.9	10.1
Slovak Republic (8)	..	0.5	2.4	3.6	4.7	6.2	7.3	8.3	9.4	9.8	10.6
Slovenia	0.9	1.2	1.6	1.8	1.9	2.5	3.0	3.2	3.6	3.9	4.2
Spain	6.5	7.1	7.3	8.0	7.0	7.9	7.8	7.8	8.2	8.8	9.5
Sweden	6.9	8.5	8.7	8.1	6.9	7.8	9.0	8.8	10.1	9.1	9.3
Switzerland	98.9	106.9	108.4	105.6	90.1	102.0	102.5	101.1	107.7	113.4	120.3
Turkey	0.4	0.7	0.7	1.2	1.5	2.3	2.4	4.1	3.8	4.8	5.5
United Kingdom	64.8	75.0	79.7	76.4	63.8	75.9	82.7	89.3	96.9	99.6	96.0
United States	73.3	74.3	76.5	77.3	59.1	69.2	73.8	71.1	73.8	81.8	83.0
Selected non-OECD countries											
Albania (9)	..	..	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina (10)	12.1	12.5	13.4	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Armenia	..	..	..	..	..	..	..	..	..	..	0.3
Bolivia	19.8	21.1	19.6	21.3	21.8	25.7	27.3	..	..	..	..
Botswana	..	..	..	..	..	..	..	..	..	47.3	..
Brazil	..	..	17.9	16.4	13.6	15.0	14.3	13.8	14.7	13.3	12.0
Bulgaria	2.0	2.5	2.9	3.9	3.3	4.6	5.7	6.1	7.3	8.7	10.0
China	0.3	0.4	0.4	0.6	0.6	0.7	0.7	0.8	0.9	1.0	1.2
Colombia	9.4	11.4	11.3	15.0	14.4	13.3	16.1	16.9	18.2	18.2	19.8
Costa Rica	4.7	5.8	6.7	6.2	7.1	8.0	7.6	8.7	9.8	11.0	11.8
Croatia	3.5	4.3	5.6	6.8	6.8	9.3	11.6	12.9	16.2	18.5	21.4
Dominican Republic	0.7	1.3	1.8	2.3	3.0	4.0	4.6	5.3	6.5	7.6	11.0
Egypt (11)	..	..	..	..	2.4	..	..	..	..	1.9	2.0
El Salvador	13.6	17.0	18.1	19.7	20.9	24.3	25.6	26.3	28.7	30.2	31.6
Former Yug. Rep. of Macedonia	..	..	..	0.9	1.2	2.1	2.9	3.5	4.7	5.7	6.4
Gibraltar (12)	..	..	..	..	..	..	..	1.9	1.9	1.8	..
Hong Kong (China)	22.6	24.3	27.3	30.4	27.4	31.5	34.2	31.9	34.4	37.3	37.8
India	..	..	..	..	..	..	0.2	0.2	0.3	0.4	0.6
Indonesia	2.4	2.2	2.2	2.2	..	..	..	1.8	..	..	..
Jamaica	15.8	0.0	16.8	19.6	19.7	20.9	22.4	22.8	22.1	21.2	22.1
Kenya	11.1	12.1	13.8	..	12.9	12.9	16.9	15.2	12.9	14.6	14.0
Kosovo	..	..	..	..	..	..	..	..	14.1	17.2	19.8
Latvia	0.5	0.5	0.6	0.6	0.6	1.0	1.2	1.1	1.3	1.4	1.7
Lesotho	..	..	..	..	..	..	..	12.3	13.7	..	..
Liechtenstein	..	..	..	40.5	41.2	55.7	65.5	69.2	69.9	75.2	78.4
Lithuania	..	..	..	..	..	..	..	..	..	4.6	5.3
Malawi	..	..	..	..	..	..	..	..	..	9.5	13.7
Maldives	..	..	..	..	..	..	..	2.3	4.3	6.1	..
Malta (13)	..	..	..	..	..	..	..	0.5	8.0	16.2	26.9
Mauritius	..	..	..	..	..	..	..	..	2.0	2.2	..
Namibia	..	..	..	..	..	..	73.5	73.5	76.9	76.7	77.3
Nigeria	..	..	..	4.2	4.5	5.6	3.7	3.8	4.3	4.9	5.1
Pakistan (14)	..	..	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Panama	..	..	..	..	0.5	..	0.6	0.7	0.4	0.8	0.9
Papua New Guinea	..	..	..	..	..	..	..	..	..	24.8	..
Peru	11.4	13.2	16.0	19.2	14.3	19.3	21.0	17.4	19.1	18.7	19.9
Romania (15)	..	..	..	0.0	0.2	0.5	0.9	1.2	1.7	2.3	3.0
Russian Federation	..	..	..	..	..	..	..	..	..	5.7	5.5
Serbia	..	..	0.0	0.1	0.2	0.3	0.3	0.4	0.5	0.5	0.6
South Africa	78.2	81.7	91.7	96.2	86.7	78.2	82.5	82.0	87.1	94.8	..
Suriname	14.5	13.1	10.0	..	..	..	..	..	..	..	..
Thailand	4.7	4.9	5.0	5.2	5.1	5.7	5.7	5.9	6.2	6.3	6.9
Trinidad and Tobago	..	..	18.3	17.1	14.7	24.9	26.3	18.2	20.6	..	..
Ukraine	..	..	..	..	0.1	..	0.1	0.1	..	..	..
Uruguay	11.3	12.2	13.4	13.2	11.0	14.6	17.2	16.9	19.4	19.7	20.8
Zambia	3.8	3.6	..	..	..	..	..	..	..	..	3.4

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

Source: OECD Global Pension Statistics.

Table A.4. Contributions in pension funds in selected OECD and selected non-OECD countries, 2004-2014

As a percentage of GDP

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
OECD countries											
Australia (1)	7.1	7.6	8.5	15.4	10.0	8.4	7.7	7.6	8.0	7.3	7.5
Austria	0.3	0.3	0.3	0.4	0.4	0.4	0.4	..	..	0.5	0.6
Belgium	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Canada	2.2	2.2	2.5	2.2	2.2	3.0	2.7	2.8	3.0	2.9	2.6
Chile	3.3	3.3	3.1	3.3	3.3	3.7	3.7	3.6	3.7	3.9	4.0
Czech Republic	0.5	..	..	0.9	0.8	0.8	0.8	0.8	0.9	1.0	1.0
Denmark	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5
Estonia	0.9	1.0	1.1	1.2	1.4	0.8	0.3	0.8	1.3	1.4	1.8
Finland	..	..	..	..	..	..	..	1.0	1.0	1.0	1.0
France	..	..	..	..	..	0.0	0.0	0.0	0.0	0.1	..
Germany (2)	0.2	0.3	0.3	0.7	0.3	0.4	0.5	0.3	0.3	0.3	0.3
Greece (3)	..	..	..	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Hungary (4)	1.4	1.5	1.6	1.1	1.4	1.7	1.3	0.3	0.3	0.3	0.3
Iceland	7.5	8.2	8.0	10.6	6.8	6.2	6.7	6.1	6.1	6.2	6.1
Israel	1.3	1.8	1.8	1.7	1.9	1.9	2.1	2.3	2.4	2.7	2.9
Italy	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Korea	0.1	0.1	1.5	0.7	0.3	0.3	..	0.8	1.9	2.3	3.2
Luxembourg (5)	0.0	0.2	0.1	0.1	0.2	1.2	0.9	0.2	0.3	0.3	1.0
Mexico (6)	0.7	0.7	0.9	0.8	1.2	0.9	1.0	0.9	0.9	0.9	1.0
Netherlands	4.3	4.6	4.1	3.9	4.3	4.9	4.5	4.8	5.0	5.3	5.0
New Zealand	1.3	1.3	1.3	1.5	1.5	1.9	2.3	2.2	2.4	2.3	2.7
Norway	0.5	0.5	0.5	0.5	0.6	0.5	0.4	0.4	0.5	0.4	0.5
Poland	1.2	1.4	1.5	1.5	1.6	1.6	1.6	1.0	0.5	0.7	0.5
Portugal (7)	1.1	2.1	1.0	0.6	1.4	0.5	0.5	0.7	0.5	0.4	1.1
Slovak Republic	..	0.1	0.5	3.6	4.6	6.2	1.5	1.4	1.3	0.8	0.8
Slovenia	..	..	..	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.3
Spain	0.8	0.8	0.8	0.7	0.5	0.5	0.5	0.5	0.4	0.4	0.4
Switzerland	6.9	7.2	7.1	7.7	7.8	7.6	7.7	7.7	7.7	8.5	8.1
Turkey	..	..	0.3	..	..	..	0.9	1.0	..	..	..
United Kingdom	2.4	2.8	2.9	2.6	2.3	2.5	2.9	2.7	2.9	2.8	..
United States	3.4	3.3	3.3	3.3	3.7	3.7	3.8	3.9	3.9	3.8	..
Selected non-OECD countries											
Albania	..	..	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Armenia	..	..	..	..	..	..	..	..	..	..	0.3
Botswana	..	..	..	..	..	..	..	..	..	2.0	..
Brazil	..	..	1.2	0.5	0.3	0.4	0.4	0.4	..	0.4	0.4
Bulgaria	0.6	0.7	0.8	1.0	1.1	1.1	1.0	1.1	1.1	1.2	1.3
Colombia	1.9	..	..	..	..	..	..	..	..	..	..
Costa Rica	..	..	..	..	1.2	1.3	1.2	1.2	1.2	1.2	1.2
Croatia	..	..	..	..	..	..	..	..	..	..	1.6
Egypt	..	..	..	..	0.3	..	..	..	..	..	..
Former Yug. Rep. of Macedonia	..	..	..	0.5	0.6	0.7	0.7	0.8	0.8	0.9	0.9
Gibraltar	..	..	..	..	..	..	..	0.2	0.2	0.3	..
Hong Kong (China)	3.2	3.0	2.9	2.8	2.9	3.6	3.1	3.0	3.2	3.4	3.4
India	..	..	..	..	..	..	..	0.2	0.1	..	..
Indonesia	0.3	0.2	0.2	..	..	..	..	0.1	..	..	..
Kenya	..	..	..	..	1.3	1.2	1.5	1.4	..	1.3	..
Kosovo	..	..	..	..	..	..	..	..	2.2	2.2	2.3
Latvia	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
Liechtenstein	..	..	..	3.7	3.9	4.3	6.1	6.8	6.9	7.3	6.7
Lithuania	..	..	..	..	..	..	..	..	..	..	0.5
Malawi	..	..	..	..	..	..	..	..	..	..	1.7
Maldives	..	..	..	..	..	..	..	1.6	1.8	1.8	..
Mauritius	..	..	..	..	..	..	..	..	0.0	0.0	..
Namibia	..	..	..	..	..	..	2.9	3.0	3.2	2.9	3.6
Nigeria	..	..	..	1.0	1.3	1.3	1.6	0.6	0.7	0.6	..
Pakistan	..	..	..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Papua New Guinea	..	..	..	..	..	..	..	..	..	2.6	..
Peru	1.0	1.0	1.3	1.6	1.4	1.3	1.2	1.2	1.3	1.4	1.4
Romania	..	..	..	0.0	0.2	0.3	0.3	0.4	0.5	0.5	0.6
Russian Federation	..	0.2	0.2	..	..	..	..	0.1	..	0.1	..
Serbia	..	..	..	0.1	..	0.1	0.1	0.1	0.1	0.1	0.1
South Africa	2.1	4.8	4.6	3.3	4.5	4.7	4.8	3.4	3.2	3.3	..
Suriname	0.8	0.8	0.5	..	..	..	..	..	..	..	..
Thailand	..	..	..	0.9	1.0	0.7	0.7	0.7	0.7	0.8	0.9
Trinidad and Tobago	..	..	0.4	0.2	..	0.6	..	0.4	0.5	..	..
Ukraine	..	..	..	..	0.1	..	0.1	0.0	..	..	..
Zambia	..	..	..	..	..	..	..	..	..	..	0.4

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

Source: OECD Global Pension Statistics.

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 reflect better 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, some cautious needs to be exercised in 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.
- Data include pension funds as per the OECD classification (Private Pensions: OECD Classification and Glossary, available at www.oecd.org/daf/pensions). All types of plans are included (occupational and personal, mandatory and voluntary) covering both public and private sector workers.
- Exchange rates used are end-of-period exchange rates for all variables valued at the end of the year, and period-average for variables representing a flow during the year. They come from the IMF International Financial Statistics database.
- Data for Australia refer to the end of June of each year.
- Data for pension funds in Estonia only refer to the mandatory funded pension system.
- Data for 2014 for France come from the French Asset Management Association.
- Data for Germany only refer to Pensionsfonds and Pensionskassen. Data for 2014 are preliminary.
- Data for Ireland come from the IAPF Pension Investment Survey.
- 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.
- Data for Japan come from the Bank of Japan.
- Data for the Netherlands are preliminary.
- Pension funds' assets in New Zealand represent an aggregate of assets in KiwiSaver plans (at the end of March of each year) and in employer superannuation schemes (at the end of March of each year for most of them).
- Data for pension funds in Slovenia only refer to the Slovenian mutual pension funds.
- Data for Switzerland refer to the first trend calculations for the year 2014.
- The figure for total assets of pension funds in the United Kingdom at the end of 2014 is an early estimate based on the 2013 level of assets and the flow of transactions in 2014. It does not take into account value changes. A 2014 final estimate will be available in January 2016.
- Data from Argentina, Bolivia, the Dominican Republic (up to 2013), El Salvador, Panama and Uruguay come from the International Association of Pension Funds Supervision (AIOS).
- Data for China come from the Ministry of Human Resources and Social Security (MOHRSS).

- Data before 2014 for Croatia come from the website of the Croatian Financial Services Supervisory Agency (HANFA).
- Data for Hong Kong, China refer to Mandatory Provident Fund (MPF) schemes and occupational retirement schemes registered under Occupational Retirement Schemes Ordinance (ORSO registered schemes), unless specified otherwise in specific notes.
- Data for India refer to the National Pension System (NPS) Schemes pertaining to Government employees and private sector employees.
- Data for Liechtenstein are preliminary.
- Data for Malta only refer to Personal Retirement Schemes.
- Data for Pakistan refer to voluntary pension funds, authorised under the Voluntary Pension System Rules.
- Data for Thailand do not include the Government Pension Fund.

Specific notes

Figure 1:

This Figure only includes countries for which the breakdown by type of financing vehicles is available. For example, the Netherlands is not included because assets for pension insurance contracts are not available.

1. The size of pension insurance contracts in the Irish system is underestimated as data are not available for retirement annuity contracts and not included in the chart.
2. Data about book reserves are not available.
3. Data refer to old, new and general pension funds only.
4. Data for pension insurance contracts are not available.
5. Data refer to 2013.
6. Data for the III pillar (including voluntary pension insurance contracts, but also voluntary pension funds) are classified under pension insurance contracts.
7. Technical provisions are considered as a proxy for the total assets of book reserve schemes.
8. All the companies managed by the Slovenian Insurance Supervision Agency are classified under pension insurance contracts.
9. Data only refer to Pensionskassen and occupational pension plans provided by insurance companies.

Figure 2:

This Figure only includes countries for which the breakdown by type of financing vehicles is available.

1. Data refer to 2013.

Figure 4:

1. Data refer to 2013.
2. Data refer to 2012.
3. Data refer to 2011.

Figure 5:

Total investments in USD in the OECD are calculated on all the countries which reported at least one value between 2004 and 2014, including the few countries with a methodological break in series (Finland, Luxembourg, Mexico and Slovak Republic). Missing values are not imputed.

The annual growth rate is calculated as the variation of total investments in USD in the OECD (as described above) between one year and the previous one. Annual growth rates above 0% are showed in green while annual growth rates below 0% are showed in red.

Figure 6:

The annual growth rate is calculated as the variation of total pension funds' assets (in USD and in EUR respectively) in the area between one year and the previous one. The aggregate of pension funds' assets in the euro area only includes reporting countries with complete and consistent time series of pension funds' assets between 2003 and 2014, i.e.: Austria, Belgium, Estonia, Germany, Ireland, Italy, Netherlands, Portugal, Slovenia and Spain.

Figure 7:

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 countries, except for Israel, Korea and Turkey for which values have been provided by the countries or come from national official publications. The net investment income which is used in the formula is reported before tax and after deduction of investment management costs.

Average real net investment returns have been calculated using the nominal investment rate of return (as described above) and the variation of the end-of-period consumer price index between 2013 and 2014.

The 2013-Q2 and 2014-Q2 consumer price indices have been used for Australia, while the 2013-Q1 and 2014-Q1 indices have been used for New Zealand.

1. The investment rate of return was calculated over June 2013-June 2014.
2. The investment rate of return was calculated over March 2013-March 2014.
3. Data refer to new pension funds only.
4. Investment return is net of taxes.
5. Data refer to personal plans only.

Figure 8:

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 countries, except for:

- Armenia, Croatia, Hong Kong (China), and Zambia for which values have been provided by the countries;
- Dominican Republic, El Salvador, Panama, Peru and Uruguay where the source is AIOS.

The net investment income which is used in the formula is reported before tax and after deduction of investment management costs.

Average real net investment returns have been calculated using the nominal investment rate of return (as described above) and the variation of the end-of-period consumer price index between 2013 and 2014.

The 2013-Q2 and 2014-Q2 consumer price indices have been used for Egypt.

1. The investment rate of return is nominal.
2. The investment rate of return was calculated over June 2013-June 2014.
3. Data refer to MPF schemes only.

Table 1:

1. Data refer to the 4-year and 9-year average annual returns, calculated over the period Dec 2009 - Dec 2013 and Dec 2004 - Dec 2013 respectively.
2. The 5-year average and the 10-year average returns have been calculated over the period June 2009 - June 2014 and June 2004 - June 2014 respectively.
3. The 5-year average and the 10-year average returns have been calculated over the period March 2009 - March 2014 and March 2004 - March 2014 respectively.
4. Data refer to personal plans only.
5. Data refer to new pension plans only.
6. Investment returns are net of taxes.

Table 2:

1. The result in the table is a 4-year average annual return, calculated over the period Dec 2010 - Dec 2014.
2. Data refer to the 4-year and 9-year average annual returns, calculated over the period Dec 2009 - Dec 2013 and Dec 2004 - Dec 2013 respectively.
3. Data refer to MPF schemes only.

Figure 9:

The variation of MSCI Pacific index was calculated on a price expressed in USD. The evolution of this index also includes the effect of the exchange rates between US dollars and Asian currencies.

Figure 10:

The GPS database provides information about investments in Collective Investment Schemes and the look-through of Collective Investment Schemes in cash and deposits, bills and bonds, equities and other. When the look-through was not provided by the countries, estimates were made assuming that mutual funds' investment allocation in cash and deposits, bills and bonds, equities and other was the same as pension funds' direct investments in these categories. Therefore, asset allocation data in this Figure include both direct investment in equities, bills and bonds, cash and deposits and indirect investment through Collective Investment Schemes.

1. The "Other" category includes loans, land and buildings, unallocated insurance contracts, hedge funds, private equity funds, structured products, other mutual funds (i.e. not invested in cash, bills and bonds, or equities) and other investments.
2. Source: Australian Bureau of Statistics (ABS). The high value for the "Other" category is driven mainly by net equity of pension funds in life office reserves (14% of total investment).
3. Market of fair values of derivatives held are negative in 2014 and are excluded from the asset allocation.
4. The high value for the "Other" category is driven mainly by land and buildings (12% of total investment).
5. The high value for the "Other" category is driven mainly by other investments of collective investment schemes (17% of total investment).
6. The high value for the "Other" category is driven mainly by land and buildings (direct and indirect investments in this category account for 17% of total investment).
7. The high value for the "Other" category is driven mainly by unallocated insurance contracts (22% of total investment) and by real estate (3% of total investment).
8. The high value for the "Other" category is driven mainly by land and buildings (direct and indirect investments in this category account for 14% of total investment).
9. Data refer to personal plans.
10. The high value for the "Other" category is driven mainly by outward investments in securities (23% of total investment) and accounts payable and receivable (18% of total investment).
11. The high value for the "Other" category is driven mainly by loans (14% of total investment) and other investments of collective investment schemes (16% of total investment).
12. The high value for the "Other" category is driven mainly by unallocated insurance contracts (34% of total investment).

Figure 11:

The GPS database provides information about investments in Collective Investment Schemes and the look-through of Collective Investment Schemes in cash and deposits, bills and bonds, equities and other. When the look-through was not provided by the countries, estimates were made assuming that mutual funds' investment allocation in cash and deposits, bills and bonds, equities and other was the same as pension funds' direct investments in these categories. Therefore, asset allocation data in this Figure include both direct investment in equities, bills and bonds, cash and deposits and indirect investment through Collective Investment Schemes.

1. The "Other" category includes loans, land and buildings, unallocated insurance contracts, hedge funds, private equity funds, structured products, other mutual funds (i.e. not invested in cash, bills and bonds, or equities) and other investments.

2. Data only refer to MPF schemes and MPF-exempted ORSO registered schemes.
3. Data refer to 2013.
4. The high value for the "Other" category is driven mainly by land and buildings (11% of total investment).
5. The high value for the "Other" category is driven mainly by land and buildings (12% of total investment).
6. The high value for the "Other" category is driven mainly by other investments of collective investment schemes (14% of total investment).
7. The high value for the "Other" category is driven mainly by land and buildings (17% of total investment) and unallocated insurance contracts (10% of total investment).
8. Data only refer to the funds supervised by the Pension Funds Act. The high value for the "Other" category is driven mainly by unallocated insurance contracts (50% of total investment).
9. The high value for the "Other" category is driven mainly by land and buildings (14% of total investment).
10. The high value for the "Other" category is driven mainly by unallocated insurance contracts (26% of total investment).

Figure 12:

Korea was not showed in the chart, as the huge variation in Korean pension schemes' asset allocation partly comes from the development of the retirement pension schemes and the declining retirement insurance and retirement schemes, and not only from a change of strategy of pension schemes.

1. The variation in the asset allocation has been calculated over the period 2006-2014.
2. The variation in the asset allocation has been calculated over the period 2005-2014.
3. The variation in the asset allocation has been calculated over the period 2008-2014.
4. The variation in the asset allocation has been calculated over the period June 2004 - June 2014 (source: ABS).
5. Data refer to personal plans only.
6. The variation in the asset allocation has been calculated over the period 2007-2014.

Figure 13:

1. The variation in the asset allocation has been calculated over the period 2008-2014.
2. Data for Hong-Kong, China only refer to MPF schemes and MPF-exempted ORSO registered schemes.
3. The variation in the asset allocation has been calculated over the period 2007-2014.
4. The variation in the asset allocation has been calculated over the period 2005-2013.
5. The variation in the asset allocation has been calculated over the period 2006-2014.

Figure 14:

Korea was not showed in the chart, as the huge variation in Korean pension schemes' asset allocation partly comes from the development of the retirement pension schemes and the declining retirement insurance and retirement schemes, and not only from a change of strategy of pension schemes.

1. Almost half of this increase is due to the change in the values of short-term payable and receivable accounts between 2004 and 2014.
2. The variation in the asset allocation has been calculated over the period 2008-2014. Alternative asset classes include mortgage notes that are considered as traditional fixed income by the Chilean Pensions Supervisor.
3. The variation in the asset allocation has been calculated over the period 2006-2014.
4. The variation in the asset allocation has been calculated over the period 2005-2014.
5. The variation in the asset allocation has been calculated over the period 2007-2014.
6. Data refer to personal plans only.
7. The variation in the asset allocation has been calculated over the period June 2004 - June 2014 (source: ABS).

Figure 15:

1. The variation in the asset allocation has been calculated over the period 2006-2014.
2. The variation in the asset allocation has been calculated over the period 2007-2014.
3. The variation in the asset allocation has been calculated over the period 2008-2014.
4. Data for Hong-Kong, China only refer to MPF schemes and MPF-exempted ORSO registered schemes.
5. The variation in the asset allocation has been calculated over the period 2005-2013.

Figure 16:

Data come from the OECD Global Pension Statistics survey, and may include methodological breaks in series, as the asset classes "Mutual funds (CIS) // Of which: Land and buildings" and "structured products" were included in the questionnaire from 2011 onwards. These two asset classes may have been respectively included under "Mutual funds (CIS) // Of which: Other" and "Other investments" before 2011.

Data for Australia come from the website of the Australian Bureau of Statistics.

In the case of Chile, loans refer to mortgage notes that are considered as traditional fixed income by the Chilean Pensions Supervisor.

Figure 17:

Note: The sample includes: i) selected large pension funds from Australia (AustralianSuper), Brazil (FAPES-BNDES, FUNCEF), Canada (OTPP), Denmark (PFA Pension), Finland (Ilmarinen), Israel (Menora-Mivtachim), Japan (Pension Fund Association), Netherlands (ABP, PFZW, PMT), Portugal (Banco BPI Pension Fund, Pension funds managed by CGD), Spain (Endesa, Fonditel), United Kingdom (USS), United States (Massachusetts PRIM Board, New York City Combined Retirement System, Ohio Public Employees Retirement System); and ii) selected public pension reserve funds from Argentina (Sustainability Guarantee Fund), Australia (Future Fund), Canada (Quebec Pension Plan), New Zealand (New Zealand Superannuation Fund) and Sweden (AP3 and AP4).

Red circles represent the simple average of the share allocated the funds in the sample in hedge funds every year between 2010 and 2013. This simple average may hide disparities across funds.

Table 3:

1. Loans or financial assistance to members and their relatives are not permitted.
2. There is no limit of investments in retail investment funds. However, the underlying investments by these investment funds must comply with the general restrictions on pension funds' investments in these specific asset classes.
3. There is no limit as such on investments on retail funds. These latter are subject to the limits for equity and bonds. There is a 15% limit of investment for close-end funds.
4. In Ireland, regulation however limits aggregate unquoted investments, investments in loans and private investment funds of schemes with more than 100 members to 50% of their total assets.
5. There is 10% limit for investment in non-harmonized investment funds (that do not comply with Directive 85/611/CEE) by closed and open pension funds, and a 5% limit for PPR pension funds (personal retirement saving schemes financed through pension funds).
6. There is no investment limit when UCITS satisfy legal requirements.
7. Employer-related loans are not allowed.
8. Information in the Table refers to MPF schemes only.
9. Investments in real estate are not restricted in the case of the production of income or leasing. All other investments in real property are subject to an aggregate limit of 5%. There is no limit for loans, provided that the loan is not greater than 80% of the remaining value of collateral.

Table 4:

Only countries that reported a change in their investment regulation are reported in this table. A green upward arrow indicates that the rule was loosened and the investment ceiling was raised. On the contrary, a red downward arrow indicates that the rule became more stringent and the investment ceiling became lower.

1. Most of the new funds which appeared in 2013 had stricter rules than the previously existing pension funds regarding investments in real estate, retail and private investment funds.
2. Data only refer to the changes in the investment limits applicable to closed and open pension funds.
3. The starting point for the identification of any change in the regulation is the end of 2012.
4. The starting point for the identification of any change in the regulation is the end of 2006.
5. The starting point for the identification of any change in the regulation is the end of 2013.
6. The starting point for the identification of any change in the regulation is the end of 2011.

Figure 18:

1. Unallocated insurance contracts are considered as domestic securities since their underlying assets are mainly made of domestic debt securities.
2. Data refer to 2013.
3. Data refer to DC plans only.
4. Foreign investments refer to outward investments in securities.

Figure 19:

1. Data only refer to MPF schemes and MPF-exempted ORSO registered schemes.
2. Data refer to 2013.
3. Data only refer to the funds supervised by the Pension Funds Act.

Figure 20:

1. The variation of pension fund foreign investments has been calculated over the period 2007-2014.
2. The variation of pension fund foreign investments has been calculated over the period 2004-2013.
3. Data refer to DC plans only.

Figure 21:

1. The variation of pension fund foreign investments has been calculated over the period 2007-2014.
2. The variation of pension fund foreign investments has been calculated over the period 2004-2013. Data refer to funds under the supervision of the Pension Fund Act only.
3. Data refer to MPF schemes and MPF-exempted ORSO registered schemes.

Tables A.1 – A.3:

1. The break in series in 2011 is due to the exclusion of public buffer funds which were included before 2011. In addition, only the funded part of mandatory private pensions is included.
2. 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.
3. The drop in the assets in 2011 comes from a pension reform which suspended payments to the mandatory funded 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.
4. The break in series in 2005 is due to the inclusion of the pension funds supervised by the CSSF, not included in the previous years.
5. The break in series in 2005 is due to the inclusion of occupational pension plans registered by the National Commission for the Retirement Savings System (CONSAR) since 2005, not included in the previous years.
6. The drop in the assets in 2014 comes from the reversal of the mandatory funded pension system that led to a transfer of domestic sovereign bonds held by open pension funds into the social security system.
7. In 2011, the assets 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.
8. The break in series in 2006 is due to the inclusion of voluntary pension plans, not included in the previous years.
9. The drop in total investment in 2011 is due to three factors: change in legislation, withdrawals and the unavailability of data from one of the three funds, which has been operating under the old framework.
10. The drop in 2008 is due to a pension reform transferring pension funds' assets to the National Social Security Administration.
11. Data for 2013 and 2014 refer to the end of June.
12. Data for one DB pension scheme in 2014 are missing, which hampers the comparability of 2014 data with data for the previous years.
13. The marked increase in the value of pension funds' 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.

14. The increase in value of pension assets in 2012 is due to favourable market conditions (the stock market), positive changes in the tax law (regarding tax credit to individuals who contribute to a pension fund) and increased awareness about private pension funds.

15. The increase of pension funds' assets between 2011 and 2012 is due to the increase of pension funds' members, contributions and positive returns.

16. Excluding Saudi Arabia.

17. This includes the list of countries that are members of the Euro Area at the end of 2014.

18. This includes: Israel, Japan and Korea among OECD countries, and China, Hong Kong (China), India, Indonesia, Maldives, Pakistan and Thailand among selected non-OECD countries.

Table A.4:

1. The increase in 2007 is due to a change in the legislation, which introduced simplified superannuation from 1 July 2007.

2. The increase in 2007 is due to a shift from a few large industrial companies to IORP schemes. In subsequent years similar shifts turned out to be smaller.

3. 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.

4. The drop in the contributions in 2011 comes from a pension reform which suspended payments to the mandatory funded 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.

5. The increase in 2009 is due to the fact that a new pension fund was authorized by the CSSF.

6. The break in series in 2006 is due to the inclusion of occupational pension plans registered by CONSAR since 2005, not included in previous years. Total contributions include mandatory contributions for retirement from employees, employers, and government, and voluntary contributions and transfers from the previous pension system (valid until 1997).

7. The increase in 2008 is mainly due to additional contributions made by plans sponsors, largely to minimise the effects of the financial crisis (mainly in funds that finance defined benefit plans).

OECD classification of pension plans by financing vehicles

FINANCING TYPES	
Pension funds (autonomous)	The pool of assets forming an independent legal entity that are bought with the contributions to a pension plan for the exclusive purpose of financing pension plan benefits. The plan/fund members have a legal or beneficial right or some other contractual claim against the assets of the pension fund. Pension funds take the form of either a special purpose entity with legal personality (such as a trust, foundation, or corporate entity) or a legally separated fund without legal personality managed by a dedicated provider (pension fund management company) or other financial institution on behalf of the plan/fund members.
Book reserves (non-autonomous)	Book reserves are sums entered in the balance sheet of the plan sponsor as reserves or provisions for pension benefits. Some assets may be held in separate accounts for the purpose of financing benefits, but are not legally or contractually pension plan assets.
Pension insurance contracts	An insurance contract that specifies pension plan contributions to an insurance undertaking in exchange for which the pension plan benefits will be paid when the members reach a specified retirement age or on earlier exit of members from the plan.
Other	Other type of financing vehicle not included in the above categories.
PENSION PLAN TYPES	
Occupational pension plans	Access to such plans is linked to an employment or professional relationship between the plan member and the entity that establishes the plan (the plan sponsor). Occupational plans may be established by employers or groups thereof (e.g. industry associations) and labour or professional associations, jointly or separately. The plan may be administered directly by the plan sponsor or by an independent entity (a pension fund or a financial institution acting as pension provider). In the latter case, the plan sponsor may still have oversight responsibilities over the operation of the plan.
Personal pension plans	Access to these plans does not have to be linked to an employment relationship. The plans are established and administered directly by a pension fund or a financial institution acting as pension provider without any intervention of employers. Individuals independently purchase and select material aspects of the arrangements. The employer may nonetheless make contributions to personal pension plans. Some personal plans may have restricted membership.
Defined benefit (traditional)	Occupational plans other than defined contributions plans. • 'Traditional' DB plan: a DB plan where benefits are linked through a formula to the members' wages or salaries, length of employment, or other factors.
Defined benefit (hybrid / mixed)	Occupational plans other than defined contributions plans. • 'Hybrid' DB plan: a DB plan where benefits depend on a rate of return credited to contributions, where this rate of return is either specified in the plan rules, independently of the actual return on any supporting assets (e.g. fixed, indexed to a market benchmark, tied to salary or profit growth, etc), or is calculated with reference to the actual return of any supporting assets and a minimum return guarantee specified in the plan rules. • 'Mixed' DB plan: A DB plan that has two separate DB and DC components but which are treated as part of the same plan.
Defined contribution (protected)	A personal pension plan or occupational defined contribution pension plan other than an unprotected pension plan. The guarantees or promises may be offered by the pension plan/fund itself or the plan provider (e.g. deferred annuity, guaranteed rate of return).
Defined contribution (unprotected)	A personal pension plan or occupational defined contribution pension plan where the pension plan/fund itself or the pension provider does not offer any investment return or benefit guarantees or promises covering the whole plan/fund.

Source: OECD (2005), Private Pensions: OECD Classification and Glossary.

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