Annual Survey of Large Pension Funds and Public Pension Reserve Funds

REPORT ON PENSION FUNDS' LONG-TERM INVESTMENTS

2015

OECD

Published for the first time in 2012, this survey is based on a qualitative and quantitative questionnaire sent directly to Large Pension Funds and Public Pension Reserve Funds. The survey is part of the OECD Project on Institutional Investors and Long-term Investment, and helps to provide detailed investment information and insights which complement the administrative data gathered by the OECD at a national level through the Global Pension Statistics and Global Insurance Statistics projects.

Institutional Investors and Long-term Investment www.oecd.org/fin/lti

Global Pension Statistics www.oecd.org/daf/pensions/gps

Global Insurance Statistics www.oecd.org/daf/fin/insurance/oecdinsurancestatistics.htm

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BACKGROUND INFORMATION

The G20 Context

G20 Leaders, acting through the Australian presidency in 2014, the Turkish presidency in 2015, and more recently under the Chinese presidency in 2016, have made the issue of long-term financing for sustainable and durable growth a priority in charting the economic future of G20 and OECD countries. At the Antalya Summit on 15-16 November 2015, G20 Leaders called on Ministers to continue their work to improve the investment ecosystem. Promoting long-term financing, fostering institutional investors' involvement, and supporting the development of alternative capital market instruments for the financing of infrastructure are all key parts of implanting this agenda[1]. These initiatives, which have also been carried over as key initiatives under the G20 Chinese presidency in 2016, support the G20's long-term growth targets, job creation, and goals for inclusive economic prosperity.

The OECD continues to play an important role in this agenda through the G20/OECD Task Force on Long-term Investment Financing by Institutional Investors (the Task Force), supporting also the G20 Infrastructure Investment Working Group. Through the Task Force, several reports were submitted in 2015. Highlights include a report on the remaining Effective Approaches to Support Implementation of the High-Level Principles on Long-term Investment Financing by Institutional Investors (the Principles)[2], and Infrastructure Financing Instruments and Incentives: a Taxonomy[3]. The G20/OECD Report on G20 Investment Strategies[4] brings together concrete policies and actions to improve the private sector investment climate. OECD analysis indicates that implementation of these strategies could lift the aggregate G20 investment to GDP ratio by an estimated 1 percentage point by 2018. Four additional reports were delivered to the G20 in September, covering topics ranging from infrastructure investment and SME financing in low-income countries to addressing data gaps in long-term investment[5]. The reports encapsulate several years of work, stemming from the OECD Institutional Investors and Long-term Investment Project, and present a framework for policymakers to consider how institutions can play a larger role in long-term investment, and what steps can be taken to incorporate institutional investment into long-term financing goals.

In 2016, the OECD is leading in the development of guidance on diversified financing instruments for infrastructure and SMEs, also focusing on the role of institutional investors as sources of long-term finance. OECD research on Infrastructure as an Asset Class, and Equity Investment in Infrastructure Finance, presented to the G20/OECD Task Force in 2016, is part of this ongoing work.

This survey report complements research efforts. This survey was transmitted to the G20 Finance Ministers and Central Bank Governors meeting which took place in Washington D.C. on 13-14 April 2016.

[1] See G20 Leaders' Communiqué Antalya Summit, 15-16 November, 2015.

[2] See OECD contribution: *Summary Report on Effective Approaches to Support Implementation of the G20/OECD High-level Principles on Long-term Investment Financing by Institutional Investors.*

[3] See OECD contribution: *Infrastructure Financing Instruments and Incentives*.

[4] See OECD contribution: *G20/OECD Report on G20 Investment Strategies*: Volume I, Volume II, Highlights.

[5] See project website for full listing and documents.

About the Survey

Traditionally, institutional investors have been seen as sources of long-term capital with investment portfolios built around the two main asset classes (bonds and equities) and an investment horizon tied to the often long-term nature of their liabilities. Institutional investors have progressively diversified portfolios by adding allocations to alternative investments such as private equity, real estate, infrastructure and hedge funds[6]. However despite the increasing interest in alternative investments, official data on pension fund investment in alternatives –and in particular infrastructure– is scarce. National statistical agencies do not currently collect separate data on these investments and the different forms available to investors to gain exposure to these asset classes means that information is often buried under different headings[7].

In order to identify the flows and to better capture the underlying trends in asset allocation and investment strategies of institutional investors, the OECD first launched surveys in 2011 of individual pension funds both within and outside of the OECD that are amongst the largest in their respective country, and comparatively, amongst the largest in the world. Data gathered complements insights and detailed administrative data gathered at the national level[8]. 2015 now marks the fifth year of the survey and following the G20 mandate, the scope of this report will cover selected OECD countries, IOPS[9] countries, and member countries of the G20, based on data gathered from 2014 and 2015.

The purpose of this exercise is to monitor and compare the investment behaviours and performance of the largest institutional investors in each region or country, analysing in greater depth the general trends observed at a national level. Results will highlight the depth and breadth of institutional investors, elucidating the importance of long-term capital and the role that professionally managed investment programs can play in an economy, consistent with the objectives and directions as set forth by the Task Force. While the report helps in identifies investment trends and reports on the general state of long-term pension savings which will be of prime value to the ultimate investors, it can also be used to inform regulators and other policymakers in order to help them better understand the operation of institutional investors in different countries. By analysing pools of long-term savings in domestic markets, and also in foreign markets where funds may invest a large portion of assets outside of their home country, policymakers can gain insights into the drivers behind asset allocation decisions and the conditions needed to attract long-term savings.

The survey reviews trends in assets and asset allocation by 99 Large Pension Funds (LPFs) and Public Pension Reserve Funds (PPRFs)[10], which in total managed USD 10.3 trillion in assets in 2014, one third of

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[6] As noted in the IOPS 'Good Practices in the Risk Management of Alternative Investments by Pension Funds' (IOPS Good Practices), there is no precise definition of alternative investments. The nature of alternative investments is dynamic and ever-evolving, and closely linked to the development of financial markets. While there is no official definition of alternative assets, the term is usually applied to instruments other than listed equities, bonds, and cash. For the purposes of this survey, "alternative" investments comprise the following types of investments: hedge funds, private equity, real estate, infrastructure, commodities and "other" (other includes: timber and currency/interest rate overlays).

[7] For example, infrastructure investment may not occupy a separate allocation, appearing instead as part of the private equity or real estate allocation. Pension fund investment in listed infrastructure vehicles is reported by national statistics agencies as national or foreign equities and infrastructure lending is reported as fixed income, while direct investment or participation in private equity vehicles is sometimes reported within the category "other".

[8] See OECD Pensions Outlook 2015.

[9] IOPS: International Organisation of Pension Supervisors, www.iopsweb.org/.

[10] PPRFs are reserves/buffers to support otherwise PAYG financed public pension systems as opposed to pension funds which support funded pension plans in both public and private sectors. See Annex for definitions of the types of sovereign and public pension reserve funds. The survey included some SWFs such as Norway's Government Pension Fund – Global that have at least a partial pension objective.

the total worldwide assets held by this class of institutional investor[11]. Information was provided through the survey for 77 out of the 99 investors[12]. Data for the 22 remaining funds came from publicly available sources.

68 retirement schemes comprise the section on LPFs, consisting of a mix of defined benefit (DB) and defined contribution (DC) pension plans (mainly public sector funds, but also corporate funds) that together total USD 3.7 trillion in assets under management. Data for 54 schemes were provided by the large pension funds directly, the other 14 coming from publicly available sources. This information is presented in combination with the PPRF survey carried out at the same time. 23 PPRFs or Sovereign Wealth Funds (SWFs) with a pension focus completed the survey, 8 were added from publicly available sources. Total amounts of PPRF assets were equivalent to USD 6.6 trillion at the end of 2014 for the countries in which we received or looked for data. Altogether, data was compiled from funds representing 36 countries around the world including some non-OECD countries such as Brazil, India, Indonesia, Nigeria, and South Africa.

The survey is divided into three sections: an introduction, a general overview of the largest institutional investors taken into consideration, and a section specifically on infrastructure investment. *The Introduction* looks at key trends affecting asset allocation of LPFs and PPRFs; *Part A – General Overview* focuses on institutional investors' size and growth, asset allocation, international exposure, and investment performance, and is divided into two sets of investors: Large Pension Funds and Public Pension Reserve Funds. *Part B – Infrastructure Investment* focuses on capital flows in infrastructure, investment structures, sector and geographies. This part of the report – the infrastructure investment survey – includes data from 41 funds[13] out of the total 77 funds that returned completed questionnaires.

The OECD plans a report on the evolving Investment Strategies of Insurance Companies and Long-term Investment, which involved the development of a survey of large insurance companies, based on the same framework used in the pension fund survey presented in this report.

[11] 54 large pension schemes and 25 public pension reserve funds returned completed surveys. The supplemental data of large pension funds and public pension reserve funds, included in some tables and figures, are gathered from publicly available sources.

[12] For a full listing of funds that submitted questionnaires, and for a listing of those that were included in this report from publicly available sources, please refer to the annex at the end of this document.

[13] 41 funds reported their exposure to infrastructure investments. The remaining 36 funds did not report their infrastructure investments or did not have infrastructure investments to report.

Table 1. Large Pension Funds surveyed

Country head office	Name of the fund or institution	Total investments or assets in 2014 in USD bn. (1)	Total investments or assets in 2015 in USD bn. (1)
Netherlands	Stichting Pensioenfonds ABP (2)	473.6	473.6
United States	CalPERS (3)	295.8	301.9
Singapore	Central Provident Fund (2,3)	210.2	210.2
Netherlands	PFZW	196.3	186.0
United States	CalSTRS (3)	190.5	188.0
United States	New York State Combined Retirement System (3,4)	176.8	184.5
United States	New York City Combined Retirement System (2)	159.2	159.2
United States	Florida Retirement System Pension Plan (2,3,5)	149.1	149.1
South Africa	GEPF	133.5	131.7
Canada	OTPP (2)	131.4	131.4
Denmark	ATP (3)	115.0	103.6
Japan	Pension Fund Association	105.0	105.8
United States	State of Wisconsin Investment Board (2,3)	88.8	88.8
Sweden	Alecta	88.3	87.5
Canada	Alberta Investment Management Company (AIMCO) (2,3)	72.3	72.3
Germany	Bayerische Versorgungskammer (2,3)	72.2	72.2
Netherlands	PMT	71.1	67.2
United Kingdom	BT Pension Scheme (2,3,5)	68.7	68.7
Australia	AustralianSuper (3,6)	64.4	70.5
United Kingdom	USS	63.0	74.1
Canada	OMERS (2)	62.9	62.9
Brazil	Previ	62.7	55.6
United States	Massachusetts PRIM Board (3)	60.7	61.0
	United Nations Joint Staff Pension Fund	52.8	53.6
United States	Los Angeles County Employees Retirement Association	47.2	48.4
Denmark	PFA Pension	46.1	40.8
Chile	AFP Provida	46.0	42.6
Finland	Ilmarinen	41.5	40.7
Mexico	Afore XXI Banorte	41.1	36.6
Chile	AFP Cuprum	35.0	33.4
United Kingdom	Railways Pension Scheme (2,3)	33.8	33.8
United Kingdom	BP Pension Scheme (2,3)	31.8	31.8
France	ERAFP	25.6	25.4
Australia	Health Employees Superannuation Trust Australia	25.0	25.4
Brazil	FUNCEF (2,3)	20.0	20.0
Australia	Sunsuper (6)	18.1	16.7
United States	State Universities Retirement System of Illinois (2,5,7)	17.4	17.4
Israel	Menora-Mivtachim	17.0	19.0
Australia	Telstra Superannuation Scheme (3,5)	15.1	13.3
Indonesia	BPJS Ketenagakerjaan	15.0	14.6
Italy	Cometa	11.4	10.8
Israel	Makefet	11.0	12.2
Germany	Bayer-Pensionskasse (2,3)	10.1	10.1
Turkey	OYAK (2)	9.3	9.3
Nigeria	RSA Fund (8)	8.1	7.7
Italy	FONCHIM	5.9	5.7
Spain	Fonditel (9)	4.0	3.8
South Africa	Sentinel Retirement Fund (2,10)	3.6	3.6
Italy	Fonte	3.4	3.3
Croatia	Raiffeisen Mandatory Pension Funds	3.2	3.2
Brazil	FAPES - BNDES	3.2	2.8
Portugal	Pension funds managed by CGD (2,11)	2.8	2.8
Romania	ING Mandatory pension fund	1.9	2.1
Spain	Endesa	1.9	1.8
Nigeria	CPFA Fund (8)	1.9	1.8
Croatia	PBZ CO	1.7	1.7
Portugal	Banco BPI Pension Fund	1.4	1.4
Russia	VTB	1.3	1.9
Romania	Azt Viitorul Tau (12)	1.2	1.3
Nigeria	AES Fund (2,8)	0.8	0.8
Spain	Santander	0.2	0.2
Romania	ING ACTIV and ING OPTIM Voluntary Pension Funds	0.1	0.1
Spain	CCOO	0.0	0.0
Romania	Raiffeisen Acumulare	0.0	0.0
Total		**3,728.8**	**3,708.0**

(1) Data correspond to all forms of investment with a value associated with a pension fund/plan. 2014 valuations are for year-end 2014, unless otherwise noted. For a schedule of 2015 reported valuation dates, see Annex. (2) The 2015 asset levels reflect reported 2014 values which were the most recently available figures. (3) Data for 2014 and/or 2015 have been gathered from publicly available reports. (4) Data refer to the end of March. (5) Data refer to the end of June. (6) Data refer to the Balanced option only. (7) Data only refer to DB pension plans. (8) In Nigeria, there are three types of pension schemes, namely, the Retirement Savings Account (RSA) Fund, which is contributory; the Closed Pension Funds; and the Approved Existing Schemes (AES). The largest pension fund from each of these three schemes has been selected. (9) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. (10) Data only refer to the Pensioner Portfolio. (11) Data cover the CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança, and Mundial Confiança. (12) Data refer to the biggest pension plan managed by Azt Viitorul Tau.
Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

Table 2. Public Pension Reserve Funds and Sovereign Wealth Funds with a pension focus surveyed

Country head office	Name of the fund or institution	Total investments or assets in 2014 in USD bn. (1)	Total investments or assets in 2015 in USD bn. (1,2)
United States	Social Security Trust Fund	2,789.5	2,837.6
Japan	Government Pension Investment Fund (3)	1,135.9	1,103.4
Norway	Government Pension Fund - Global (GPFG) (4)	872.6	899.7
Korea	National Pension Service (3)	427.4	418.8
China (People's Republic of)	National Social Security Fund (3,5)	251.0	251.0
Canada	Canada Pension Plan Investment Board	205.8	216.9
Sweden	National Pension Funds (AP1-AP4 and AP6) (6)	153.2	151.0
India	Employee Provident Fund (3,5,7)	123.0	123.0
Australia	Future Fund	89.6	90.0
Canada	PSP Investments (3,8)	84.8	88.3
Russia	National Wealth Fund (3,9)	78.0	75.7
Finland	Keva and Valtion Eläkerahasto	71.8	70.7
France	AGIRC - ARRCO (3,5)	70.1	70.1
Argentina	Sustainability Guarantee Fund	55.5	58.9
Spain	Social Security Reserve Fund	50.5	48.4
Canada	Quebec Pension Plan	44.7	45.0
Norway	Government Pension Fund - Norway (GPFN)	27.4	26.7
Belgium	Zilverfonds	25.2	23.9
New Zealand	New Zealand Superannuation Fund (3)	21.5	20.2
Portugal	Social Security Financial Stabilisation Fund	16.4	15.2
Chile	Pension Reserve Fund	7.9	7.8
Poland	Demographic Reserve Fund	5.1	5.0
Mexico	IMSS Reserve (10)	1.6	1.6
Bulgaria	State Fund for Guaranteeing the Stability of the State Pension System	1.5	1.5
Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska	0.2	0.1
Total		**6,610.1**	**6,650.3**

(1) Data correspond to all forms of investment with a value associated to a pension fund/plan. (2) Data refers to most recent time period reported or available. See Annex for 2015 reporting dates for each fund. (3) Data for 2014 and/or 2015 have been gathered from publicly available reports. (4) Norway's Government Pension Fund - Global is a Sovereign Wealth Fund and not a Public Pension Reserve Fund, its mandate goes beyond financing pension expenditures. (5) The 2015 asset levels reflect reported 2014 values which were the most recently available figures. (6) Data for AP6 come from a publicly available report. The 2015 asset level is the sum of assets of AP1, AP3 and AP4 in 2015 and assets of AP2 and AP6 in 2014. (7) Data refer to the end of March 2014, and include the Employees Provident Fund, the Employees Pension Fund and the Employees Deposit Linked Insurance Fund. (8) Data refer to the end of March. (9) Russia's National Wealth Fund is a Sovereign Wealth Fund, and not a Public Pension Reserve Fund, because its mandate goes beyond financing pension expenditures. (10) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries.

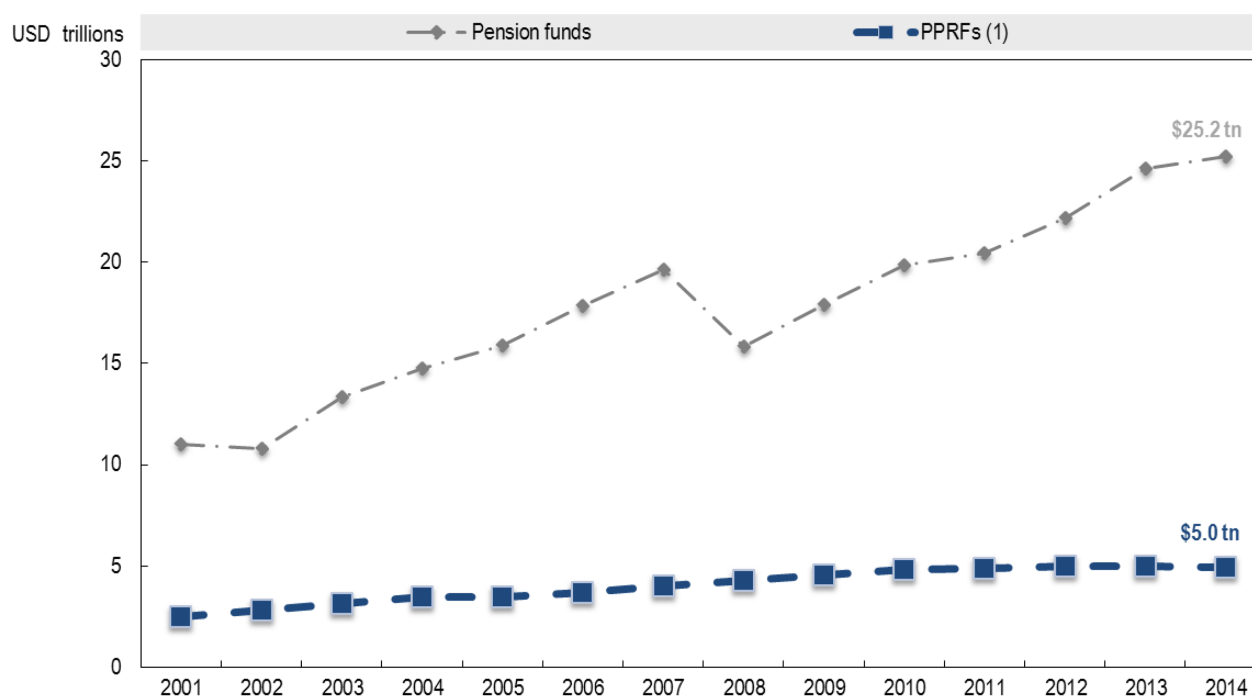
Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

EXECUTIVE SUMMARY

The growing role of institutional investors in financial markets...

In 2014, retirement systems in the OECD – comprised of pension funds and public pension reserve funds (PPRFs) – held USD 30.2 trillion in assets (Figure 1), a number now well above pre-crisis levels. In that same year, the combined GDP of the OECD countries was USD 48.8 trillion. In 2001, OECD retirement system assets represented 51.8% of GDP; this number has since grown to 61.9% of GDP, highlighting the growing role of institutions as financial intermediaries. Put another way, the accumulation of savings in such financial channels has never been larger, which underscores the important role that institutions can play as sources of productive long-term capital.

Figure 1. Assets in pension funds and public pension reserve funds in the OECD, 2001-2014
In USD trillions



PPRFs = Public Pension Reserve Funds.

Note: Book reserves are not included in this chart.

(1) Data include Australia's Future Fund, Belgium's Zilverfonds (2008-2014), Canada Pension Plan Investment Board, Chile's Pension Reserve Fund (2010-2014), Japan's Government Pension Investment Fund, Korea's National Pension Service, New Zealand Superannuation Fund, Government Pension Fund - Norway, Poland's Demographic Reserve Fund, Portugal's Social Security Financial Stabilisation Fund, Spain's Social Security Reserve Fund, Sweden's AP1-AP4 and AP6, United States' Social Security Trust Fund.

Source: OECD calculations based on OECD Global Pension Statistics, Institutional Investors' Assets databases, and OECD estimates.

The total amount of assets under management for the Large Pension Funds (LPFs) for which data was received or obtained was USD 3.7 trillion at the end of 2014. The assets put aside by the largest pension funds for which we received data increased by a robust 11.6% on average between 2013 and 2014 (through

asset appreciation and/or fund flows). Trailing five-year real annualised returns were positive for all funds, where history was available.

Sovereign Wealth Funds (SWFs) and Public Pension Reserve Funds (PPRFs) are becoming major players in international financial markets. Total amounts of PPRF assets were equivalent to USD 6.6 trillion by the end of 2014 for the countries in which data was received or obtained. PPRF assets increased 6.2% on average between 2013 and 2014 (due to asset appreciation and/or fund flows). The largest reserve is held by the United States Social Security Trust Fund at USD 2.8 trillion, followed by Japan's Government Pension Investment Fund at USD 1.1 trillion. Canada, China, and Korea also accumulated large reserves. Of the countries surveyed, twelve had established their PPRFs since 2000. Large reserves are also accumulated in sovereign wealth funds that have a pension focus.

...set to continue, particularly in emerging markets...

Despite the global economic slowdown, the prospect for future growth for institutional investors is high, especially in countries with mandatory systems or where private pensions and insurance markets are still small in relation to the size of their economies. In Australia, as an example, the Superannuation scheme, currently with about AUD 1.6 trillion in assets, is forecasted to grow to nearly AUD 6 trillion by 2037, and is the third largest pool of private retirement savings in the OECD[14].

Developing economies generally face an even greater opportunity to develop their institutional investor sectors as, with few exceptions, their financial systems are largely bank-based. Whether such growth materialises will depend on some key policy decisions, such as the establishment of a national pension system with a funded component which is nowadays a common feature in most OECD countries[15]. Chile has experienced some success in growing its private pension asset base – assets grew from USD 60.5 billion in 2004 to USD 165.4 billion in 2014[16].

Emerging economies are also home to some of the largest LPFs and PPRFs in the world. For example the survey included large selected pension funds in four major non-OECD countries: Brazil, Indonesia, South Africa, and Nigeria. South Africa's GEPF at USD 133.5 billion and Brazil's Previ at USD 62.7 billion stood out as the largest funds in their respective continents.

...although growth has been strong, some pension markets face major structural challenges.

A combination of the low return environment, the need to reduce costs, regulation, and funding pressures are contributing to changes in the structure of pension markets in some regions. Given shifts in demographics (aging populations), longevity risk, and sluggish growth combined with high unemployment in some countries (leading to lower contributions), some pension systems may be under financial pressure. At the same time low commodity prices have impacted countries where such revenues support contributions to PPRFs (such as in Norway).

[14] Australia has a unique retirement savings market. Beginning with legislation in the 1990s, a compulsory occupational pension system was introduced. See the Association of Superannuation Funds of Australia (ASFA) report on *Public Infrastructure: Provision, Funding, Financing and Costs* and OECD report on *Pension Fund Investment in Infrastructure: A Comparison Between Australia and Canada* for a detailed description of the Australian institutional investment landscape.

[15] However, owing to rising public debt, some OECD countries such as Hungary and Poland have partially rolled back reforms that had established mandatory funded pension systems.

[16] OECD Global Pension Statistics

Due to the prolonged low-yield environment, the *OECD Business and Finance Outlook 2015*[17] suggested that global institutional investors might be engaged in an excessive search for yield. Such a shift in asset allocation implies a reduction of safer investments such as government bonds and bills and emphasizes yield enhancement through credit investments and asset classes with higher prospective returns such as equities and alternatives. Low interest rates affect both sides of the defined benefit balance sheet, by making it more difficult to earn a return to meet future obligations, and by also increasing pension liabilities. For defined contribution schemes, the effect on returns is similar, while low interest rates can increase annuity prices for retirees[18]. Indeed, with negative real yields in the OECD region, and negative nominal government bond yields in some countries extending further along the maturity spectrum, funding future liabilities is growing increasingly difficult.

Shifting structures of pension markets is the result of some of these pressures, and consolidation of pension funds has occurred in some markets, mostly the result of regulation that spurs funds to tackle solvency issues and costs. The current low return environment partly explains a drive to reduce costs; larger funds tend to have an advantage over their smaller counterparts, particularly in their ability to reduce management fees (see trend section for further analysis on this subject).

Challenges are particularly related to long-term solvency...

Funding ratios remained a paramount concern for plan sponsors and mitigation of funding level risks an important long-term objective. Some funds also cited demographic risk (including longevity) as a top actuarial concern – updating assumptions to reflect a population that is living longer increases liabilities and widens a potential funding shortfall. Inflation is also a concern, though somewhat diminished in the current low inflation environment.

Despite the strong returns experienced since the GFC, the overall financial positon of pension funds may not have improved dramatically over the past five years. Since the coordinated decline of interest rates in the post global financial crisis period, falling interest rates and narrowing credit spreads in the OECD have increased pension liabilities, putting additional financial pressures on DB pension funds in many regions[19].

During 2014 and 2015, government bond yields decreased in the United States, Germany (and the Eurozone), the United Kingdom, Japan – and additionally in some emerging markets economies. The combination of lower interest rates (presumably leading to lower liability discount rates) with higher asset values contributed to mixed changes in the economic position of pension funds. Figure 2 displays changes in average funded status for pension funds included in the survey, grouped by country. Japan, the Netherlands and the UK showed improvement amongst the funds surveyed (on average). Brazil showed a decline in funded status[20].

[17] See full publication here: http://dx.doi.org/10.1787/9789264234291-en

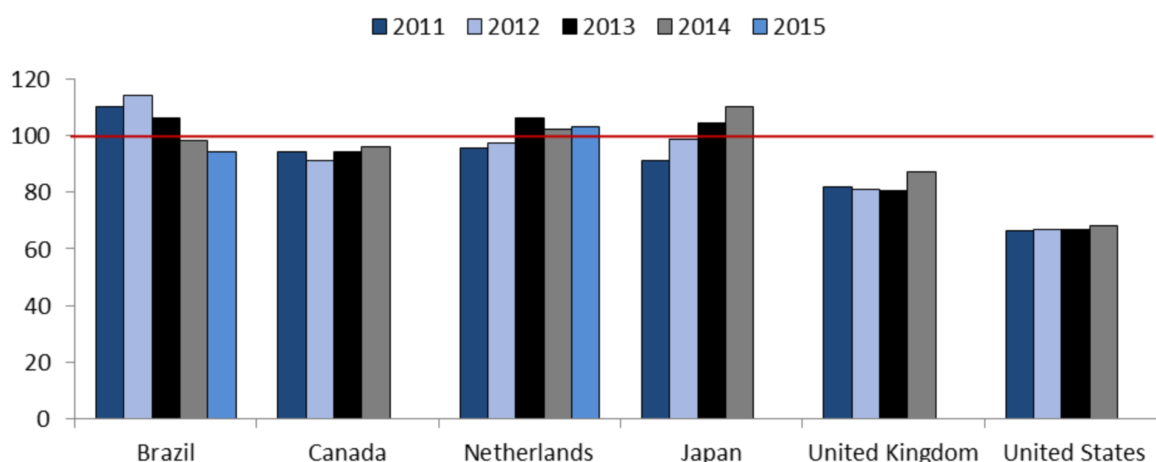
[18] See *Pension Markets in Focus 2015* for an overview of financial issues facing global retirement schemes at www.oecd.org/daf/fin/private-pensions/Pension-Markets-in-Focus-2015.pdf

[19] As an example, the aggregate funded status of pension plans sponsored by companies in the S&P 1500 index has not materially improved to pre-2008 levels; at September 30, 2015, Mercer estimated the aggregate funding level at 79% of liabilities, while in 2007 it hovered at around 100%.

[20] Changes in funded status only represent the average of those funds that reported this piece of information in the survey and does not represent the performance of all funds within a country. Dates of actuarial valuations of liabilities and market value of assets may vary from fund to fund.

Figure 2. Average funded status of select defined benefit pension funds in selected countries 2011-2015

Assets as a percentage of liabilities



Note: Defined benefit pension funded status is a self-reported statistic; differences in calculation methods and assumptions used to calculate pension fund liabilities may vary across countries and individual pension funds. Sample size for each country is based solely on the survey population and may be small compared to the broader pension market.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

Adapting to a challenging environment: emerging practices and trends

With financial markets strongly affected by policymakers' actions, investment paralysis – the problem of having few attractive investment opportunities in an environment where asset values already seem high is a challenge. The end of QE in the United States, high fiscal debts in Europe and Japan, and shifting economic signals in emerging markets make it increasingly challenging for institutional investors to design policy allocations using traditional methods. What the survey does reveal are some emerging practices and trends that funds are using to adapt to the challenging environment.

Expense reduction and insourcing of alternative investment management, the search for uncorrelated lower volatility returns, the expansion of alternatives, the optimisation of fixed income portfolios through diversification and yield enhancement, and revising asset allocation techniques were key themes in institutional investment portfolios in the recent economic environment. Investments in emerging markets occupy a portion of most institutional investment portfolios and funds continue to refine exposure. A major section of this report covers infrastructure investments by institutions.

The following are some key trends identified within the survey population, which are covered in greater depth in subsequent sections:

- Insourcing, co-investment, and expense reduction
- Credit strategies and yield enhancement
- Partnerships in infrastructure and SME financing
- Emerging markets and foreign investment
- Climate change resiliency and green investments
- Social impact investing

TRENDS IN ASSET ALLOCATION – A GLOBAL SEARCH FOR YIELD

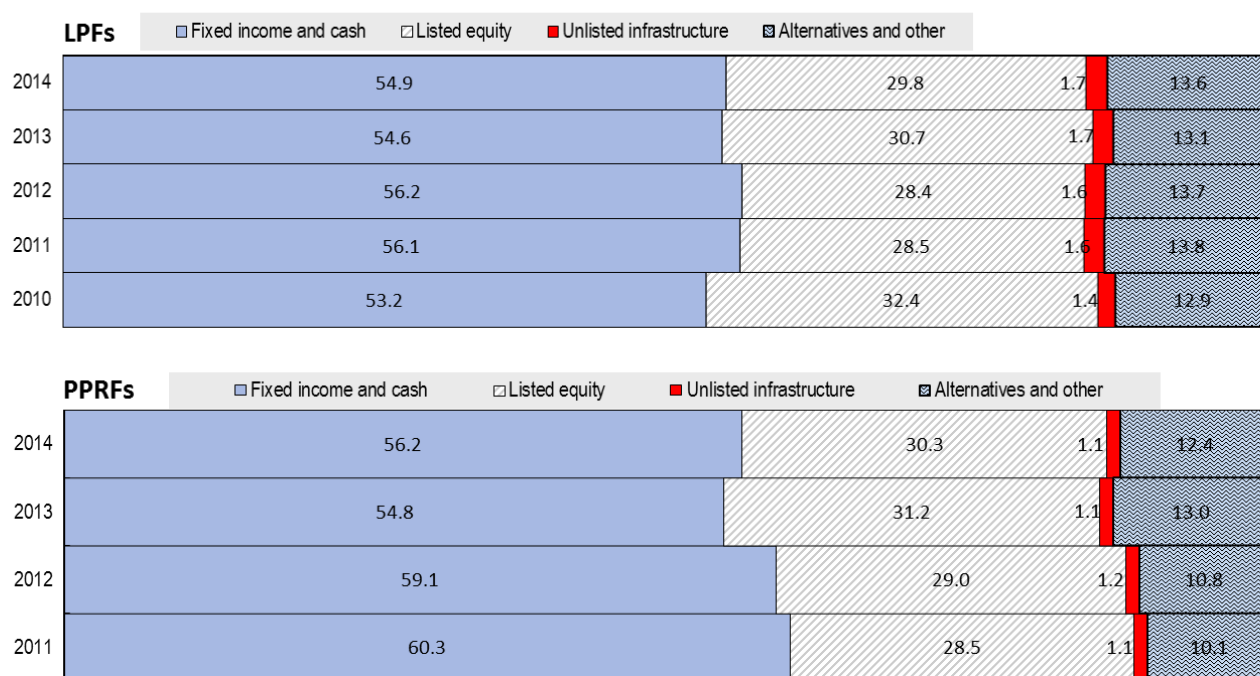
Although funds surveyed are of a different nature, the survey reveals a clear trend in alternative assets

The survey shows a clear increase in alternatives amongst both LPFs and PPRFs, yet more mixed results in equities. While allocations to alternatives have increased, LPFs have not turned to the equity markets to increase returns, on average. With now several years of buoyant equity markets, forward-looking return expectations in equities have been lowered while volatility expectations remain elevated, prompting LPFs to lower equity allocations in favour of alternatives.

Historical asset allocation for a group of 34 LPFs and 19 PPRFs from the survey supports this trend[21]. LPF allocations to alternatives (including infrastructure) increased from 14.3% of total assets in 2010, to 15.3% in 2014 (Figure 3), on average. Shifting market values factor into changing asset allocation; however, given that equity markets have advanced through most of this time period, it appears that on average, funds have been reducing equity exposure in favour of larger alternative investment allocations. Fixed income allocations increased slightly over this time period for LPFs.

Figure 3. Historical average asset allocation of select Large Pension Funds (LPFs) and Public Pension Reserve Funds (PPRFs) 2010-2014

As a percentage of total assets



Note: Values are a simple average invested in each asset category for all LPFs and PPRFs, from which actual asset allocation was available in the periods 2010-2014, independently of their size in terms of assets. A total of 34 LPFs submitted asset allocations over the five-year period ending in 2014, a subset of the total survey population; 19 PPRFs submitted asset allocation data over the four-year period ending in 2014, also a subset of the total 2014 survey population. Asset allocation totals may not add to 100% due to rounding.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs..

[21] 34 LPFs reported asset allocation over the past five years for this historical analysis, which is a subset of the 2014-2015 total survey population.

The trend in alternatives is even stronger amongst PPRFs. On average, the 19 funds that submitted data over the past four years saw average allocations to alternatives (including infrastructure) increase from 11.2% in 2011 to 13.5% in 2014 (Figure 3). PPRF allocations to equities also increased over this time period, while fixed income exposure declined. On average, PPRFs had lower exposures to riskier assets compared to LPFs, which partly explains the stronger trend over the past few years.

Amongst PPRFs, those funds that are limited to invest only in fixed income have not changed asset allocation, and some funds (in Spain and Portugal) have reduced risk due to fiscal pressures. What is noteworthy is that for those funds that have the ability to set long-term policy targets, portfolios have drifted towards alternatives. Funds that are able to maintain a long-term view on liquidity of reserve assets have responded by increasing return-seeking assets.

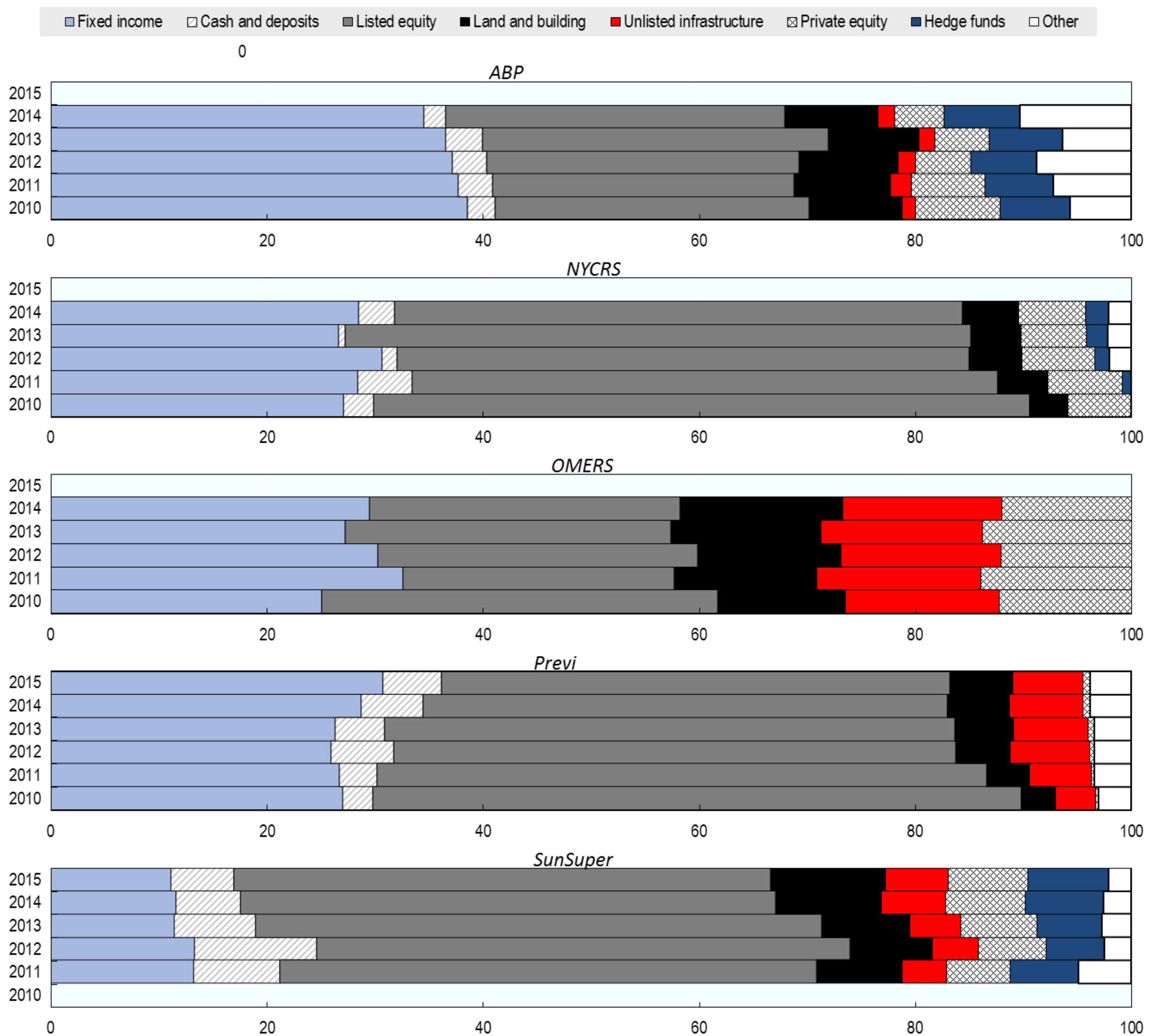
The return-seeking behaviour in the overall survey population was strongest in the most developed pension markets in the OECD including the United States, Canada, Europe, Japan and Australia. Yet there are some notable exceptions. Two funds based in Brazil, FUNCEF and PREVI, both increased target fixed income allocations and reduced target equity exposures over the past two years. FAPES, also based in Brazil, increased targets to fixed income, citing higher government bond yields; FAPES also reduced target allocations to land and buildings, citing maximum regulatory constraints. Previ reduced its target to alternative investments from 14% in 2013 to 10% of total assets in 2015 (although the fund's actual allocation to alternatives/other was 17.1% of total assets, the highest level observed since data collection began in 2010). Russia's VTB increased its target for cash from 2013 to 2014, and reduced the target to fixed income. BPJS Ketenagakerjaan, based in Indonesia, slightly increased its target allocation to cash, reduced equities, and held alternatives constant. In order to better understand trends the next section looks at a group of selected funds.

Trends in Alternative Assets for Selected Funds from 2010 to 2015

Figure 4 shows historical asset allocation for five LPFs from diverse geographies. Based on this sample, fund allocations to listed equities declined in favour of alternatives; this was the case observed for NYCRS, OMERS and Previ. The allocation to real estate increased for all funds shown in figure 4, with the exception of ABP, where allocations remained unchanged between 2010 and 2014. All five funds' allocations to unlisted infrastructure increased. NYCRS invested in unlisted infrastructure for the first time in 2013.

Figure 4. Historical asset allocation of selected LPFs 2010-2015

As a percentage of total investment



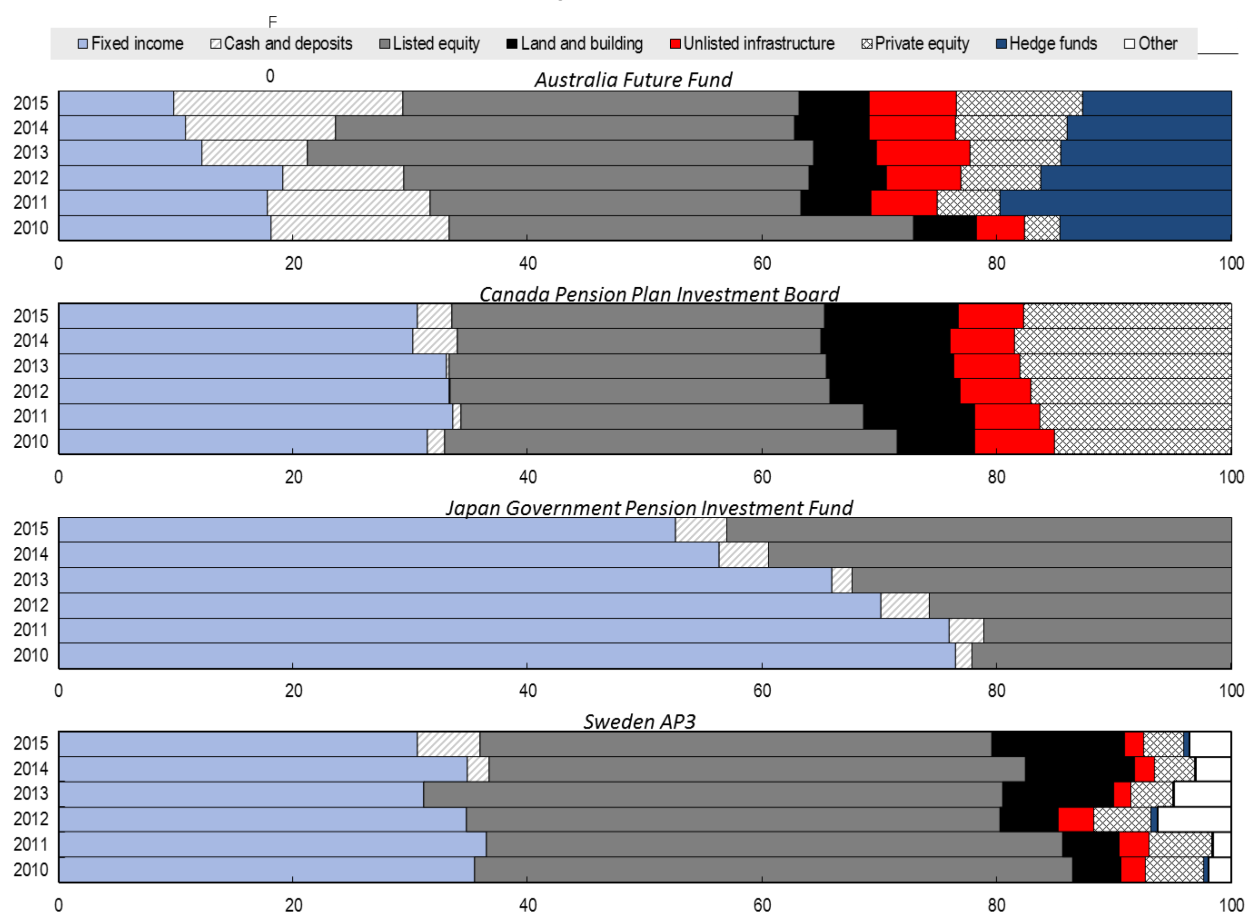
Note: Data for Sunsuper in 2011 and 2012 refers to the total asset allocation of the fund, while data for 2013 onwards refers to the asset allocation of the Balanced fund option.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

Figure 5 shows several PPRFs that have submitted asset allocation data since 2010. Over this time period, all four funds' allocation to return seeking assets increased. The Australia Future Fund's allocation to private equity and unlisted infrastructure increased, while CPPIB's allocation to real estate and private equity also increased. Sweden AP3's allocation to alternatives, in particular real estate, increased over the past five years.

Figure 5. Historical asset allocation of selected PPRFs 2010-2015

As a percentage of total investment



Note: Data for Japan's GPIF is based on questionnaires submitted in 2010-2013 while data for 2014 and 2015 have been calculated using publicly available reports.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

Japan's Government Pension Investment Fund (GPIF), considered to be the largest pension fund in the world (which classifies it as PPRF and pension fund), announced a major change in investment policy in October 2014, which will include alternative assets as part of its portfolio allocation (see last year's survey for greater detail). The fund has slowly migrated assets from fixed income to equities, adopting a 50/50 allocation to stocks and bonds, including up to 5% in alternatives as part of this shift.

Other evidence of a global search for yield…

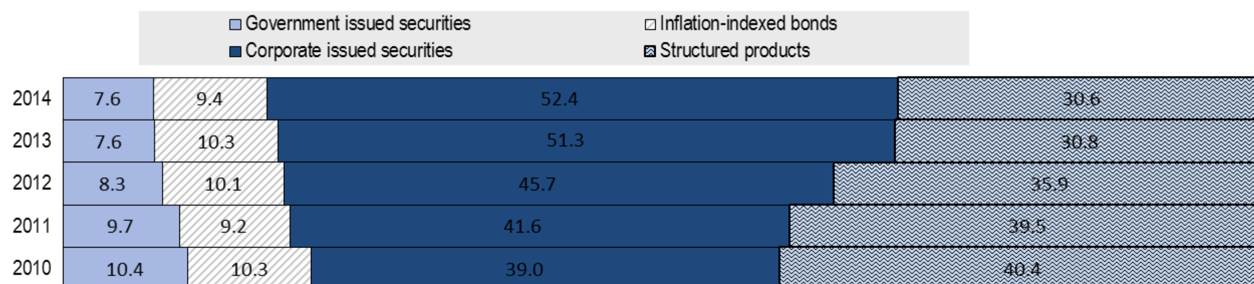
Peeling back the onion further reveals sub-asset class trends. With many government bond markets in the OECD persistently offering negative real yields, some funds have increased yield by expanding credit allocations, in particular through high yield bond strategies, alternative credit, and return-seeking opportunistic fixed income strategies. Bonds are the traditional anchor to windward of a portfolio and provide protection against riskier equities – there is some evidence that funds are expanding the role of bonds as sources of excess return over government bond benchmarks.

A total of nine large pension funds, which completed the more granular section of their bond allocations, reported over 50% of their bond portfolio was invested in corporate issued securities at the end of 2014. An

example fund from the United States is given in Figure 6. The corporate bond exposure increased 13.4 percentage points from 2010 to 2014

Figure 6. Historical fixed income sector allocations of a United States based LPF 2010-2014

As a percentage of total fixed income



Note: Totals may not add to 100% due to rounding.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

Asset classes such as infrastructure and real estate that provide alternative sources of income were also in high demand over the recent time period. Investments in private market assets, which are valued less frequently and can therefore have a lower ex-post standard deviation of returns, have been a way for funds to maintain higher return targets, while dampening portfolio volatility[22]. But this reduction in measured standard deviation can be illusory and may not properly capture the potential price volatility of private market assets due to the infrequency of appraisals. This has the effect of making illiquid assets more attractive than public equities which are subject to market vicissitudes and mark-to-market rules.

...including diversification across geographical regions

Funds have mostly invested across borders by diversifying equity and fixed income portfolios, but some also invest in foreign alternatives such as real estate, private equity and infrastructure. Most funds have established allocations in emerging markets equities. Emerging market investments are part of the foreign allocations of both LPFs and PPRFs.

The average LPF included in this publication invested 34.1% of total assets in foreign markets. Funds based in Europe and Canada generally had high amounts invested overseas, while funds in Latin America, with the exception of Chile, invested nearly exclusively in domestic markets. Funds based in the United States reported a moderate amount of foreign investment. Foreign diversification is mostly the result of regulation and investment policy, although large funds based in countries with small domestic markets may be more inclined to invest abroad to diversify and increase the opportunity set. Only six LPFs reported zero foreign exposure.

The average PPRF invested 36.5% of assets in foreign markets. With some major exceptions (eight funds in total) such as reserve funds in Argentina, Belgium, Bosnia & Herzegovina, Bulgaria, Mexico, Poland, Spain and the United States, the other PPRFs had large exposures to foreign markets. Chile invested 100% of its portfolio abroad. Norway's Government Pension Fund Global also invested 100% of assets in foreign markets. New Zealand's PPRF invested over 85% in foreign markets.

[22] Even though private market assets may have a lower ex-post standard deviation than publicly listed equities, infrequent appraisals, lagging portfolio valuations, and model-based valuation methods can reduce asset price volatility even if theoretically asset price volatility should be higher than listed equities for some private market assets.

TRENDS IN INFRASTRUCTURE INVESTMENT

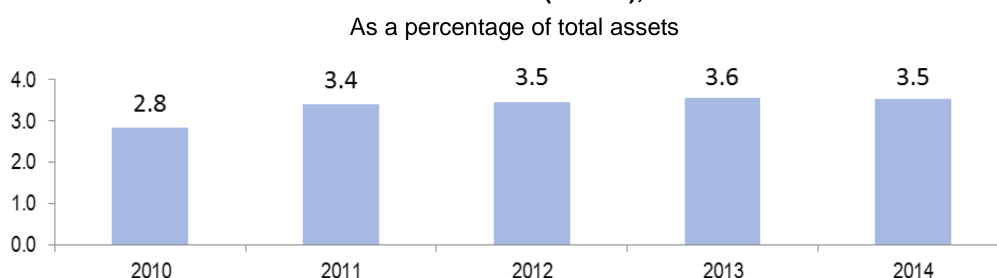
Limited investment in infrastructure, stable in the last years...

This year's survey results show a low level of investment in infrastructure on average among the surveyed funds, despite evidence of a growing interest by pension fund managers. If total assets under management are considered for the funds that returned questionnaires (i.e. 77 funds, USD 7.8 trillion), infrastructure investment in the form of unlisted equity and debt was USD 85.6 billion in 2014, representing 1.1% of the total assets under management[23].

23 funds reported their infrastructure allocation in the survey over the period 2010-2014 (figure 7). The average of these funds increased from 2.8% of total assets in 2010 to 3.5% in 2014. Notably, the pace of this increase has slowed over the past few years, indicating that funds have not been able to grow their infrastructure allocations compared to the rest of the portfolio. Six of the 23 funds in figure 7 had established new allocations to infrastructure in the past five years.

Figure 7. Historical unlisted infrastructure equity allocation of select Large Pension Funds (LPFs) and Public Pension Reserve Funds (PPRFs), 2010-2014

As a percentage of total assets



Note: Values are a simple average invested in unlisted infrastructure equity for those LPFs and PPRFs that reported unlisted infrastructure equity exposure in Part B of this survey, independently of their size in terms of assets. The data tracks a total of 23 LPFs and PPRFs over the period 2010-2014.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

In the future, the regulatory framework and availability of assets may ultimately decide the growth capacity of this asset class. For instance, a fund based in Chile cited regulatory constraints as a barrier to establishing an infrastructure investment allocation. Funds based in Nigeria and Russia have also in the past cited regulatory constraints as an issue. Other funds cite a lack of suitably structured assets or availability of quality investments as limiting their ability to grow their allocation. This seems to confirm the importance of barriers and disincentives which limit such investments and the relevance and need for policymakers to address them. High valuations of infrastructure assets may also contribute to the slowdown in investment by institutions.

...but large potential demand...

Target allocations amongst the funds with dedicated exposure ranged on the low end from under 1% to over 20% of total assets. All funds that reported a separate target allocation to infrastructure were below

[23] Figures may be understated given that for fixed income the majority of the funds do not report such details on their allocation and infrastructure unlisted equity is often included in other asset classes. Some funds also report their allocation to infrastructure through listed equity (i.e. infrastructure corporates), which for this survey, we have considered as indirect exposure.

targets at the end of 2014. Four LPFs indicated that they planned to increase target allocations to infrastructure in the next one to two years.

CalPERS, the largest pension fund in the United States, has a 1.0% target allocation to infrastructure, and had 0.7% of total assets invested in infrastructure at the end of June, 2015. The fund made USD 1.5 billion in new commitments to infrastructure in fiscal 2015. The Québec Pension Fund increased unlisted infrastructure from 2.1% of the total portfolio in 2010 to 4.6% in 2014. Previ's allocation to infrastructure increased by 3.1 percentage points from 2010 to 2014.

Ten LPFs, including Chile's AFP Provida, two funds in Croatia: PBZ CO and Raiffeisen Mandatory Pension Funds, Indonesia's BPJS Ketenagakerjaan, Italy's Cometa, two Nigerian funds: AES Fund and RSA Fund, and Russia's VTB, planned to open new allocations to infrastructure in coming years.

...in brownfield assets and developed countries...

This year's survey gathered more granular portfolio level data on preferred strategies, regional exposure and sector allocations as reported by LPFs and PPRFs.

The majority of funds surveyed indicated that they prefer the more stable investment profile of operational (brownfield) assets and remain opportunistic in their emerging market interest in infrastructure.

Prospective risk and return are perceived as higher in new greenfield assets and may require more due diligence on the part of the investor. That being said, increased return appetite in relation to construction risk is pushing investors to acquire the expertise to be able to provide creditor oversight on new-build construction. Two funds reported that they were considering adding greenfield assets to their existing infrastructure exposure. For example, PGGM is investing in new projects through its partnership with Royal BAM in Holland.

Market development in infrastructure is offering new opportunities to investors. Beyond "core" infrastructure, there is increasing interest among investors in what are considered as value-added brownfield opportunities. These investments are focused on assets that need to be refurbished - either addressing operational or structural issues or funding expansion. Expected returns on such projects already generating cash flows for the investors are higher than core projects. An example is the recent acquisition of Moto in the UK by ADBI and PGGM.

Most of the funds surveyed focus more on developed markets and remain opportunistic in their emerging market interest in infrastructure. In 2015, of the 9 large pension funds and public pension reserve funds that provided regional breakdown of foreign unlisted infrastructure investment, 8 allocated the majority of their foreign investments to developed markets (defined as North America, European Union and Japan, Korea, Australia and New Zealand). Funds reported emerging market allocations between 0% and 35% of total foreign unlisted infrastructure investment. CPPIB opened offices in New York and São Paulo, putting investment professionals closer to key markets, and expanded its activities in Latin America, India and other selected Asian markets over 2014. The fund has five offices across four continents.

The perceived risk/return profiles of these markets change continuously based on the specific country and regional situation and according to the investment horizon of individual investors. Political instability and financial market volatility are keeping many investors away from investing in emerging markets infrastructure. Initiatives from multilaterals such as the tranching of the capital structure from IFC are trying to mitigate some of the major risks for investors.

...with sector diversification mostly in energy and transport and smaller allocations to renewables and social infrastructure...

Transportation and energy are the largest allocations amongst funds surveyed, indicating investor preference and availability of opportunities (see figure 12 in Section B). While investment policy and decision making process differ from fund to fund, corporate information suggests that pension funds are attracted by the long-term tariff agreements in the transport and regulated utilities sector.

Renewable energy and social infrastructure are relatively new sectors in the portfolio of certain investors although increasing. Some funds reported sector allocations for unlisted infrastructure, listed shares, and debt, or in a combination of these three categories.

...and new approaches and trends to accessing infrastructure markets.

The survey analysed interesting trends in the development of new vehicles and forms of investing in infrastructure, often through direct or co-investment vehicles and debt channels.

Institutional investors are taking different approaches to infrastructure investing. Behind the separate investment allocation to infrastructure lies the investor decision to consider infrastructure as an asset class in its own right. Of the 41 funds that indicated investment in infrastructure assets, 30 reported exposure to unlisted infrastructure assets, while 16 had dedicated target allocations to the asset category.

Of the total USD 74.3 billion allocated to unlisted infrastructure, a subset of funds broke down their allocation into direct investments and managed funds. In this sample, unlisted infrastructure funds accounted for 25% of the total, direct and co-direct investments 74%, and other unlisted investments were 1% of the total. Direct investment remained the most common method for funds to gain exposure to infrastructure, especially amongst large funds that have the size and expertise for direct investments.

Debt exposure to infrastructure was USD 11.2 billion or 0.5% of total assets in 2014. The debt category may contain publicly traded debt instruments or direct project loans, senior and/or mezzanine loans, and bonds. Of the funds surveyed, twelve reported exposure to direct loans and bonds. The UK's USS reported 0.7% of the total portfolio was invested in infrastructure loans, a slight increase of 0.2 percentage points from last year. Chile's AFP Provida invested 0.8% of the portfolio in infrastructure loans. Spain's Endesa and Brazil's FAPES reported over 5% invested in infrastructure bonds. Argentina's Sustainability Guarantee Fund, a PPRF, reported a 12.5% allocation to infrastructure loans and bonds.

SURVEY OF LARGE PENSION FUNDS AND PUBLIC PENSION RESERVE FUNDS

Macroeconomic Environment in 2014 and 2015

The evolving macroeconomic environment is a crucial factor driving the asset allocation, asset/liability management, and risk management decisions of investors. Pension funds typically revise their asset allocation assumptions and forward looking return/risk forecasts annually, and sometimes more frequently. A key question that investors began asking heading into 2015 was how long the market rally would last, and what regions or assets would be best positioned to weather any potential volatility. This question has become even more important after several years of strong returns have pushed some allocations beyond strategic targets and tolerance limits, testing in some cases rebalancing protocols – also considering that forward looking return assumptions were reduced as stock markets continued to climb.

Through 2015, investors grew more concerned with rising geopolitical tensions and an anticipated normalisation of accommodative monetary policies put into place after the GFC. By the end of 2015, a global rout in commodity prices, led by the collapse of petroleum and natural gas, transmitted volatility across capital markets. The decline in energy prices was a boon to some economies that import energy, having the effect of raising real income, but for energy exporting economies, the impacts were hard-hitting, affecting growth forecasts and raising volatilities in currency markets. The fall in commodity prices, including metals and other sectors, has been so severe that there are concerns of a commodity-induced recession, causing a review of the systemic links of commodity prices to other sectors of the economy and financial system.

In the United States, where unemployment and growth continued to improve, the Federal Reserve increased interest rates for the first time since 2006. Recalling the Fed-induced "taper tantrum" from 2013, it is clear that central bank action would be a key driver of financial market performance. With the ECB's announcement of its EUR 1 trillion bond-buying program, and Japan fighting off persistent deflationary pressures, major economic blocks appeared to be on different trajectories. With the higher probability of interest rates rising in the U.S., the potential impact of a shift in Fed policy will likely be felt in markets well beyond the United States. Indeed, divergence amongst local market returns and headline economic indicators increased in the OECD region and in emerging markets. In the recent time period, diversification of investments, long an underpinning tenant of prudent investment management, may have helped or hurt investors, depending on base country or amount of foreign investment.

Reflecting on the strong performance over the past few years, global wealth has increased substantially since the 2008 global financial crisis. The central bank response to the crisis has had the effect of providing liquidity and supporting asset prices across many regions. To put this in perspective, since the 2009 nadir, the capitalisations of major stock market indices like the S&P 500, MSCI Emerging Markets, and MSCI World have more than doubled – extending the market rally into its sixth year. In particular, developed market equities have surged well beyond previous highs achieved during the dotcom bubble of the early 2000s and later peak in 2007. Interest rates have remained low and credit spreads narrowed over the same period, providing a strong tailwind for investment portfolios.

A key concern amongst G20 Finance Ministers is the unevenness of growth, both in regions and between countries and how to set a path for sustainable expansion. Investing in a multi-speed world of divergent growth, inflation, and central bank action, translates to vigilant investment and risk management processes. For institutional investors, a long-term investment view is key to maintaining discipline and attaining long-term objectives.

While certainly influenced by the macroeconomic environment, pension funds' asset allocation decisions are affected by other factors beyond investment opportunities and funded status. Pension funds differ in the type of retirement plan they support [defined benefit (DB), defined contribution (DC) or DB hybrid-mixed] and hence on the nature of their liabilities. Of note in this study are the relative differences between DB and DC plans. Since DC investments are driven by plan participants, they may be more subject to behavioural and cognitive biases compared to DB plans as investors react to market information.

Investment Trends – LPFs and PPRFs

The following section will provide greater detail on the trends highlighted in the executive summary, providing evidence gathered from the survey and from investors themselves.

Insourcing, co-investment, and expense reduction

Underlying a strong desire to reduce costs and to gain the most efficient exposure to asset categories is an ongoing trend amongst large pension funds leading them to insource investment management. This trend involves hiring skilled portfolio managers and investment professionals to directly manage assets as opposed to hiring external managers. In the past, many funds had managed traditional investments like public equities and bonds in-house, as these asset classes are relatively easy to analyse and manage, often with a low-cost passive framework. Over the more recent time period, insourcing has included more active strategies and illiquid categories like private equity, infrastructure, and real estate.

Reducing costs is easier than generating alpha, making it a top reason to insource asset management, citing the high costs to hire external active managers, and in particular, the high fees associated with alternative investments like private equity and real estate[24]. Beneficiaries and regulators are also pushing for greater disclosure of fees paid to asset managers, which are often obscured through carried interest (e.g. a "2 and 20 fee structure), which can put external pressure on funds to reduce costs.

Managing assets directly also provides the ability for a stronger alignment of investment strategy and risk management for the fund, and reduces agency risks. Insourcing, while cost reductive, does require significant investment in technology, human resources, and operational support in order to implement increasingly complex investment strategies. The competition for top investment talent is a major consideration – the largest funds with resources to commit to insourcing and the ability to hire talented professionals have been best positioned to benefit from this trend, but acquiring investment talent may be a challenge going forward. Appropriate governance structures must also be in place in order to effectively manage in-house investments.

Insourcing investment in illiquid assets such as infrastructure and real estate has often taken the form of co-investment with other institutional investors like pension funds, insurance companies, or sovereign wealth funds, and can also include investing alongside other investment funds (e.g. private equity fund). In particular, infrastructure and real estate assets are long-lived and may not necessarily be suitable for traditional private equity structures, making these assets more attractive for direct ownership. Funds with less experience can also partner with other funds that have well-established teams of professionals or expertise. The following are some insourcing examples from the survey:

- Borealis Infrastructure, a separate investment platform of the OMERS Administration Corporation, manages infrastructure assets on behalf of OMERS and other institutional investors. Its associated Global Strategic Investment Alliance was formed in 2012 to bring together other long-term

[24] Studies by CEM Benchmarking based on surveys of large and mid-sized pension funds affirm that outperformance of in-house investment is mostly driven by cost reduction.

investors seeking large-scale investment in infrastructure. Borealis managed capital commitments of USD 12.58 billion as of June 2014.

- Citing the need to reduce the number of managers in its private equity portfolio, and to gain more efficient exposure to the asset class, CalPERS expanded its co-investment team in private equity, focusing on buyouts. Investing alongside private equity fund managers allows for reduced fees and carried interest, and may provide more control. In a report dated September 2012, CalPERS showed strong long-term returns from its co-investment and direct private equity portfolio. The fund also became one of the first large funds in the United States to disclose carried interest paid to private equity managers.

- In 2015, CalSTRS proposed to amend its infrastructure investment policy to include "consortiums" as part of its direct/co-direct platform of investment. Consortiums are defined as partnerships where CalSTRS has a higher level of governance rights. The fund also increased its infrastructure staff from two to five investment professionals.

- This trend is not limited to large pension funds. Sweden's AP2 (a PPRF) established a special in-house unit to manage emerging markets investment, which will eventually include emerging markets debt. Other funds like CPPIB opened offices in New York and São Paulo, putting investment professionals closer to key markets. The fund has five offices across four continents.

- The Massachusetts Pension Reserves Investment Trust Fund transitioned its hedge fund portfolio (8.9% of total assets on June 30, 2015) from a fund-of-funds structure to direct hedge funds, realising substantial savings in fees. The fund also in 2014 implemented an internally-developed lower cost hedge fund replication strategy. The fund underwrote and bid on its first direct real estate investment, seeking to implement a new strategy in direct real estate assets.

Survey respondents also identified that minimising administration expenses was an important objective. Benchmarking administration expenses and comparing practices to peers helps to identify ways to cut costs. ATP, for example, has strived to digitise and optimise member services and to streamline operations. The fund has succeeded in reducing administration expenses by five percent in each of the last two years. Alecta reported that they had reduced management expenses to a historic low of 0.07% for their pension products.

Credit opportunities and opportunistic fixed income strategies

In the current low interest rate environment, institutional investors continue to consider credit strategies as a way to enhance yield. During and after the GFC, credit "recovery" strategies involved deploying capital in distressed or oversold markets such as leveraged loans, high yield bonds, CDOs, and securitised loans. In some cases, direct sales of whole loans from banks shedding assets were also included. Specialised allocations to credit may be tactical investments, or part of a longer-term strategic allocation, depending on a fund's view on opportunities. In the current environment, credit opportunities persist through direct lending strategies, where institutional investment funds raise capital to deploy in SME loans, infrastructure lending, and other direct corporate loans. Liquidity is lower in such strategies often placing them in alternative investment categories.

Some specific fund examples:

- The United States' New York City Combined Retirement System committed USD 1.125 billion in new capital to opportunistic fixed income mandates in fiscal 2014. As explained in the 2014 Annual Report: "The flexible partnerships generally seek to profit from market

dislocations and opportunities ranging from distressed debt, non-performing loans, direct lending, CMBS, RMBS, CLOs, to other fixed income securities in the US, Europe and Asia".

- Valtion Eläkerahasto, a PPRF in Finland, has for the past two years focused on private credit opportunities in Europe and Finland. The fund is seeking to increase private credit, particularly in the United States.

Partnerships in infrastructure and SME financing

Strategic relationships between banks and investors, and corporations and investors, are becoming more common. One driver has been the increased international and sectorial diversification of debt origination efforts, as banks and investors leverage their areas of comparative advantage and respond to market opportunities. Partnerships are also sought to align the structuring and debt origination capabilities of certain banks with the appetite for long-tenor debt sought by investors. Regarding corporate finance of infrastructure, the capital expenditure needs of utilities with exhausted balance sheets are increasingly being paired with institutional investors.

A specific example:

- The Netherlands Investment Institution (NLII), established by Dutch institutional investors in October 2014, launched a senior debt fund and announced another subordinated debt fund to channel institutional investment towards SME financing. NLII launched a senior loan fund in September 2015. Dutch institutional investors made initial commitments of EUR 480 million, with the fund participating in loans to large Dutch SMEs. NLII announced a second fund to be launched, which will consist of subordinated SME loans.

Opportunistic strategies (multi-asset class), tactical asset allocation, and alternative asset allocation techniques

Institutional investors recognise the importance of having a long-term investment view – which is reflected in the long-term strategic asset allocation. However, due to the particularly challenging investment environment, some funds are modifying their investment processes to include tactical or dynamic elements. Sometimes the need to act quickly to take advantage of market opportunities or to protect against certain risks are necessary – in effect, balancing long-term views with short-term risk controls and/or investment opportunities with high conviction. The ability to act in an unconstrained manner, and not be limited by liquidity issues is key to implementing such strategies. The belief that institutional investors can act as shock absorbers in the economy by providing liquidity and by not being forced to sell assets when asset prices are squeezed is supported by their long-term investment horizon, and ability to react in the short-term to express counter-cyclical views.

Opportunistic strategies or multi-asset class strategies allow for investors to employ a greater degree of flexibility in navigating market opportunity, by essentially delegating a portion of the asset allocation decision to managers or specialised in-house teams. These strategies may be hidden in the way that asset allocation is reported in this survey.

Financial markets themselves present information in a rapid continuous basis – however focusing on long-term opportunities requires resisting short-termism and to instead look at long-horizon performance objectives – thus a dynamic asset allocation process is still tethered to long-term risk/return expectations. As an example, the New Zealand Superannuation Fund has been successful in implementing a dynamic asset allocation. The fund has added value over its benchmark through strategic tilts to the primary asset categories (such as growth, but also global fixed income and currencies). These tilts are based on short- to mid-term views on valuation compared to mean reverting levels.

The Canadian Pension Plan Investment Board (CPPIB) has moved from an essentially traditional portfolio of public equity and fixed income in 2005 to a diversified portfolio that invests nearly 45% in alternative asset categories. Asset allocation, for the most part, is anchored around market-based indexes, but the fund realises the need to overcome "anchoring bias", looking beyond traditional asset allocation techniques.

Additionally, Modern Portfolio Theory (which, along with the efficient markets hypothesis, is the underpinning framework to efficient portfolio construction) is based on Sharpe ratios and correlations and is blind to systemic risk[25]. Scenario analysis, risk budgeting, risk parity, and factor-based strategies are alternative asset allocation concepts that can be applied in conjunction with MPT in order to analyse portfolio risk and return through different lenses.

New investment philosophies, including "fiduciary capitalism" are emerging to tackle increasingly complex investment goals and fund governance. Diversified long-term investors have a duty to examine the portfolio as a whole, not just stock by stock and using one dimensional metrics like standard deviation (such as in MPT) can overlook systemic risks. Interconnections and intergenerational connections are important. This opens room for the usage of new tools, portfolio management techniques and the consideration of financial systemic risks or climate change risk.

Some specific examples:

- In addition to the example given earlier, the New Zealand Superannuation Fund uses a risk budgeting approach to asset allocation. Investments are analysed based on their overall contribution to risk in the portfolio, which ensures a single-portfolio focus on the investment process, rather than focusing on filling individual asset allocation buckets. This process is expected to be fully implemented in 2014/2015.

- PPRFs, while different from pension funds, also provide examples of such strategies. Sweden's AP3 included opportunistic asset allocation, volatility strategies, and risk premia strategies in the "other" category of the survey. The fund employs a dynamic asset allocation approach that focuses on risk allocation and allows for "time diversification" (combining investment decisions with long-, medium-, and short-term investment horizons).[26] AP1 initiated a new investment in a risk parity strategy in 2013.

- The Canada Pension Plan Investment Board (a PPRF) does not have a target allocation to alternatives, but is essentially opportunistically allocating to strategies that are attractive vis-à-vis traditional investments such as long-only equities and fixed income. The fund also uses the Global Tactical Asset Allocation group to shift systematic risk exposures in major markets such as currencies, equities, fixed income, and commodities. Active strategies are always evaluated relative to passive options in order to understand the efficiency of alpha relative to its costs.

- Perhaps the most noteworthy example of alternative asset techniques is OMERS' adoption of risk parity at the total fund level. Other noteworthy large funds that have employed risk parity include the Wisconsin State Investment Board and Teacher Retirement System of Texas. Refer to last year's Survey report for a detailed description of OMERS' transition.

[25] For example, it is observed that during extreme market events and financial stresses, the correlations between asset classes increase towards 1, diminishing the benefits of diversification. Systemic risks can therefore affect all asset classes outside of the risk-free asset.

[26] AP3 Annual Report, page 13

Emerging markets

Most funds have established allocations in emerging markets equities. Changes in asset allocation in emerging markets over the past few years have come from gradually expanding these allocations, and by adding diversifying exposures to emerging markets debt, particularly in local currency bond markets, or in alternative strategies such as private equity or hedge funds. Emerging markets volatility increased substantially in 2014-2015 and performance has lagged that of developed markets in recent time periods. Some funds made changes to asset allocations reflecting the volatility, seeing buying opportunities due to sell-offs in equity and currency markets, or through modifying current exposures to react to the changing outlook. 29 out of the total 77 respondents to the survey reported investment in foreign emerging markets in 2014, with allocations ranging from as little as 2% to 50% of total foreign investment and an average of 15%.

Some specific examples:

- The most recent asset study of the State Universities Retirement System of Illinois included a recommended addition to emerging markets debt, with a total portfolio allocation of 3%.
- Ilmarinen, an LPF in Finland, increased exposure to China's stock market over the past two years, while exposure to other emerging markets equities has declined.
- Valtion Eläkerahasto, the state pension fund of Finland, invested 17% in emerging markets at the end of 2014. 10% of which was in emerging markets debt, while the remaining 7% was in emerging markets equities. The fund seeks to expand its alternative investment portfolio into emerging markets, including private equity.

Climate change resiliency and green investments[27]

A section of the survey included some questions on green investment by LPFs and PPRFs. Hard data on such investments is relatively scarce. The results indicate that there are emerging trends and practices within the space.

Virtually all funds surveyed have integrated some form of ESG considerations into their investment and risk management processes, or have at least initiated the process of evaluating ESG practices. Definitions of green investments or ESG investment processes can vary from one fund to another. Despite broad support of ESG considerations, fewer funds than the total survey population reported exposure to green investments, described in Table 3[28].

Since pension funds have a long-term investment horizon, issues related to climate change and its impact on portfolio values are increasingly a topic of interest. Long-range forecasts of climate change scenarios shed light on the potential risk to portfolio investments, particularly those that are carbon intensive. Holistic risk management processes capture such scenarios and begin to quantify potential risks, and search for ways to hedge such risks at low cost. Investments in green technologies and businesses or infrastructures that are less sensitive to climate change scenarios are one way that funds are taking action

[27] See *Mapping Channels to Mobilise Institutional Investment in Sustainable Energy,* OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/9789264224582-en, for more on this subject.

[28] Green investments can be defined through many criteria, depending on investor values. For the survey, examples of such investments included green equity indexes such as FTSE4Good, S&P Global Eco Index, S&P Global Water Index, green bonds such as European Investment Bank climate awareness bonds, SEB & Credit Suisse – World Bank/IFC Green Bonds, and alternative investments in real estate that are environmentally acceptable such as improving energy efficiency, recycling, or reducing CO2 emissions.

now to mitigate such risks. OECD research on Investment Governance and the Integration of ESG Factors into the investment processes of institutional investors will provide further information on how institutional investors are reacting to these challenges.

As underscored by Mark Carney, Governor of the Bank of England, there are three broad channels through which climate change can affect the financial sector and financial stability including physical risks, liability or litigation risks, and transition risks. The concept of "stranded assets" in investment portfolios, mostly defined as fossil fuel companies and reserves (oil fields and coal held by energy companies) rendered unburnable by future policy actions on climate change, is a potential financial risk which could lead to rapid re-pricing of carbon intensive companies and assets. The worst case scenario would involve writing down assets in response to sudden changes in climate change policy – the hope is that any changes in policy would be done in an orderly and metered fashion, clearly telegraphed to all stakeholders. The reality is that this is a complex problem to analyse, requiring long-range forecasts of energy supply and demand, climate science, policy regulations on CO2 emissions, and liability risk – which is further obfuscated by a lack of clear policy direction, agreement and clear messaging. Increasingly, institutional investors are concerned about potential impacts on investment portfolios, while the regulatory environment is slowly beginning to change in response to climate change.

Within the past few years, some governments have taken action. France was among the first countries to pass legislation addressing climate change risk. In response to the law, French institutional investors must disclose, by December 2016 reporting date, their carbon footprint, and also their green investments, defined as those assets that aim to reduce greenhouse gas emissions. ERAFP, a French pension fund, had already measured for the first time its carbon footprint in 2013. Other countries that have taken action include South Africa with its Pension Fund Act, which calls on funds to consider ESG criteria in the investment process. Furthermore, the Code for Responsible Investment in South Africa (CRISA) provides guidelines for institutional investors on how to integrate ESG factors into investment processes.

22 funds out of the total 77 that submitted completed questionnaires reported green investments. France's ERAFP reported 24.7% of the total portfolio was invested in socially responsible equities. Sweden's AP2 invested 9.0% of the total portfolio in green investments, which included forestry and farmland. The Netherland's ABP invested 6.7% of the total fund in green investments. Many funds that reported green investments also stated that they had no set target for green investments.

A noteworthy trend amongst the funds that reported green investments was a general increase in the amount of pension funds that invest in green bonds, and also in the relative size of their allocations. For instance, four funds based in Sweden: Alecta, AP2, AP3, and AP4, all increased allocations to green bonds in 2014. Santander, based in Spain, reported green bond exposure for the first time in 2015, amounting to 1.1% of the total portfolio.

Table 3. Detailed green investments of select LPFs and PPRFs in 2014

As a percentage of total investment

Country head office	Name of the fund or institution	Total investments in 2014 (in USD m.)	Green investments (as a % of total investments)				
			Green equity	Green bonds	Alternative green asset classes (1)	Other green investments	Total Green Investments
Australia	Health Employees Superannuation Trust Australia (2)	25,030	..	..	0.3	..	0.3
Brazil	FAPES - BNDES	3,189	0.2	..	..	..	0.2
Brazil	Previ (3)	62,733	..	..	..	0.1	0.1
Denmark	PFA Pension	46,075	0.4	..	0.3	..	0.7
Finland	Valtion Eläkerahasto	21,378	..	..	0.3	..	0.3
France	ERAFP (4)	25,587	24.7	0.0	..	..	24.7
Netherlands	PFZW	196,333	1.4	0.5	0.4	0.5	2.8
Netherlands	PMT	71,112	..	..	0.1	..	0.1
Netherlands	Stichting Pensioenfonds ABP (5)	473,569	1.5	0.3	0.8	4.0	6.7
New Zealand	New Zealand Superannuation Fund (6)	21,473	..	..	0.0	6.7	6.7
Norway	Government Pension Fund - Global	872,607	..	..	..	0.6	0.6
Romania	Azt Viitorul Tau	1,152	..	..	..	0.2	0.2
Spain	Endesa	1,923	..	0.2	..	..	0.2
Spain	Fonditel (7)	3,972	1.2	..	0.1	..	1.3
Spain	Santander (8)	205	..	1.1	..	..	1.1
Sweden	Alecta	88,330	..	0.3	..	..	0.3
Sweden	AP2 (6)	37,990	1.1	1.1	4.3	2.5	9.0
Sweden	AP3	37,271	..	1.3	0.0	0.0	1.3
Sweden	AP4	38,124	..	0.6	..	..	0.6
United Kingdom	USS (9)	62,972	..	..	0.3	0.1	0.4
United States	New York City Combined Retirement System	159,189	0.3	..	..	..	0.3
	United Nations Joint Staff Pension Fund	52,821	0.3	0.2	..	..	0.4

Note: Some funds have green investments (in "green" indices for instance) but cannot separate these investments from other portfolio investments, as is the case for Keva in Finland, and Illinois SURS in the United States (green private equity).

".." means not available.

(1) The alternative green asset classes include hedge funds, natural resources, private equity, infrastructure and inflation-linked bonds. (2) Includes investment in private equity clean technology. (3) Green investments are defined by Previ as assets (such as stocks, exchange-traded funds and mutual funds) in which the underlying business(es) are somehow involved in operations aimed at improving the environment. (4) If investments based on the FTSE4Good or similar methodologies are considered as green investments, all the investments in equity by ERAFP could be seen as green, since ERAFP applied an ESG best-in-class approach to all the equity mandates. (5) Other investments include green real estate, which are defined as properties with a GreenStar label in the GRESB Index, and that have an above average performance on sustainability. (6) Other investments include forestry. (7) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. (8) Reported values are as of September 30, 2015. (9) Other green investments include renewable and lower carbon infrastructure, cleantech private equity, and a listed environmental technology fund.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

Some fund specific examples of green investments and practices:

- BT Pension Scheme's Responsible Investment Oversight Committee oversees the Scheme's responsible investment strategy, with a stated objective of "securing tangible long-term benefits for Scheme members"[29]. Recent topics included flood risk to the Scheme's UK tangible assets, and integrated ESG criteria into the Scheme's passive portfolio construction.

- Alecta invested for the first time in green bonds in 2014. The fund describes such instruments as specifically backing various environmental projects, and that they are certified by an independent agency. The fund did not report a specific target allocation for green bonds.

[29] BT Pension Scheme, Annual Report and Accounts, June 30, 2014, page 17.

Social impact investments[30]

The OECD has gathered for the first time in 2014 and 2015 data on social impact investments by LPFs and PPRFs, provided in Table 4. The results show that some funds have committed capital to finance organisations or projects with the explicit expectation of a measurable social, as well as financial return; this also includes investment that contributes to the general public benefit. The survey grouped investments into two primary categories: social impact investments (for example social impact bonds) and venture capital/SME finance that is specifically targeted to have a demonstrable social benefit (such as local market development).

Many funds in the survey had stated that they have ESG policies that integrate investment decisions across all asset classes under a unified investment process (social being the “S” in ESG). Broadly, this “S” could represent human rights, working conditions, health, safety, or general wellbeing. Negative screens that eliminate unethical enterprises may be a part of a responsible investment ethos, along with positive screens that seek investments with a strong social impact track record, although implementation can vary across asset category.

Table 4. Detailed social investments of select LPFs and PPRFs in 2014

As a percentage of total investment

Country head office	Name of the fund or institution	Total investments in 2014 (in USD m.)	Social investments (as a % of total investments)			
			Social impact investments	Social / development VC and SME finance	Other social investments	Total social investments
Argentina	Sustainability Guarantee Fund (1)	55,495	4.7	..	..	4.7
Australia	Health Employees Superannuation Trust Australia (2)	25,030	..	..	..	..
Australia	Sunsuper	25,030	2.5	..	..	2.5
Denmark	PFA Pension	46,075	0.3	..	..	0.3
France	ERAFP	25,587	0.2	..	..	0.2
Netherlands	Stichting Pensioenfonds ABP	473,569	0.5	..	..	0.5
New Zealand	New Zealand Superannuation Fund	21,473	0.2	..	..	0.2
Spain	Fonditel (3)	3,972	0.2	..	0.9	1.1
Spain	Santander (4)	205	0.8	..	..	0.8
Sweden	AP2	37,990	0.1	..	..	0.1
United Kingdom	USS	62,972	..	0.0	..	0.0
United States	New York City Combined Retirement System	159,189	1.0	..	..	1.0

Notes: Some funds have social investments but cannot separate these investments from other portfolio investments, as is the case for Fonte in Italy.
".." means not available.
(1) Investments include social infrastructure. The Sustainability Guarantee Fund invests for both financial returns and social returns. (2) HESTA did not report funds allocated to social investments, however the fund recently invested in a social ventures trust which may show up in later reporting cycles. (3) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. (4) Reported values are as of September 30, 2015.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

This specific part of the survey was seeking information on investments that funds have made in specific products, debt/equity instruments or through specific investment mandates designed for social impact investing. Given varying organisational cultures that describe what social impact investing is to each institutional investor, definitions can vary across funds.

[30] See *Social Impact Investment: Building the Evidence Base*, OECD Publishing, Paris. DOI: http://dx.doi.org/10.1787/9789264233430-en, for more information on social impact investments.

Twelve out of the total 77 funds that submitted a completed questionnaire reported exposure to social investments. All funds were based in the OECD region, with the exception of Argentina. Fonditel indicated that some of the instruments reported include social impact and/or development impact bonds. Argentina's Sustainability Guarantee Fund, a PPRF, invested 4.7% in social infrastructure with a dual goal of achieving both financial and positive social returns. Such investments included housing construction and potable water improvement. Australia's Sunsuper reported 2.5% of total assets invested in social impact. The fund offers for its members a multi-manager responsible investment choice in the superannuation scheme that is diversified across many asset classes using ESG principles alongside financial criteria.

Box 1. Social impact bonds and development impact bonds

Social impact bonds (SIBs) are a type of public-private partnership that embeds a pay-for-success scheme, commissioned by public authorities, foundations or corporations to provide social goods and services. SIB commissioners have clear priorities in terms of social goals that need to be achieved in a more efficient way, which allows them to set up predefined and measurable target social outcomes. Investors in SIBs are repaid based on the achieved outcomes, defined *a priori* by the SIB commissioner. Therefore, the investors will be repaid in tranches over time, only if the agreed upon outcomes are achieved. The payments and any positive returns on investment should reflect the innovation and more efficient social service provision provided by the social service delivery organisation.

Development impact bonds (DIBs) are based on the model of SIBs and finance development initiatives in lower income countries. Similar to SIBs, DIBs are performance-based instruments and pay based on the achievement of agreed development goals stipulated in the contract.

The SIB model, first used in the U.K., has been replicated in other regions such as the United States, Canada, Israel and Australia. SIBs issued to date have focused on a range of social issues such as criminal justice, child/family support, homelessness, employment, and health.

Source: Adapted from *Social Impact Investment: Building the Evidence Base,* OECD Publishing

The New York City Combined Retirement System (NYCRS), through the Bureau of Economic Development, targets certain investments for sustainable economic growth and development in the City of New York. In 2014, all five of New York City's pension funds (which comprise the combined system in this report) invested a combined amount of over USD 1.4 billion (with an additional USD 459 million in commitments) in economically targeted investments (ETIs) such as affordable housing and community development loans. The fund has also committed capital to rehabilitating and creating workforce housing in response to Super Storm Sandy.

Aside from the hard data gathered on social impact investments, some funds also have other programmes as part of a Corporate Social Responsibility (CSR) ethos. For example, NYCRS has fostered positive social impact through its Emerging Manager Program (EMP), which seeks to hire fund managers that demonstrate exceptional potential and that cultivate diversity. The program evaluates minority and women-owned business enterprise fund managers (MWBEs) and seeks to invest with managers that deliver superior risk-adjusted returns. As of June 30, 2015, NYCRS had invested USD 12 billion through the EMP[31]. In 2014, The State University Retirement System of Illinois formed an Emerging Manager and Diversity Matters Subcommittee to identify additional investment opportunities in MWBEs.

[31] "Description of the Emerging Manager Program of the New York City Retirement Systems", Office of the New York City Comptroller, Bureau of Asset Management

PART A1 – GENERAL OVERVIEW OF LARGE PENSION FUNDS

Large Pension Fund Size

The total amount of assets under management for the Large Pension Funds (LPFs) covered by the survey was over USD 3.7 trillion at the end of 2014 (Table 5). Within the OECD countries for which we received data, the Netherlands has two of the largest funds, ABP at USD 473.6 billion and PFZW at USD 196.3 billion. Amongst the largest are three funds based in the United States: CalPERS at USD 295.8 billion, CalSTRS at USD 190.5 billion, and the New York City Combined Retirement System at USD 159.2 billion. South Africa's GEPF at USD 133.5 billion and Singapore's Central Provident Fund at USD 210.2 billion also ranked high in the list. This year's survey includes responses from 54 funds representing approximately 23 countries in the OECD and outside the OECD, complemented by additional information collected in publicly available reports for 14 additional funds.

Table 5 also shows large selected pension funds in four major non-OECD countries: Brazil, Indonesia, Nigeria, and South Africa. South Africa's GEPF at USD 133.5 billion and Brazil's Previ at USD 62.7 billion stood out as the largest funds in their respective continents.

The assets put aside by the largest pension funds for which we received data increased by a very strong 11.6% (nominal) on average between 2013 and 2014 (through asset appreciation and/or fund flows). Brazil's Previ was the only fund to show a decrease in assets over the period. 23 funds showed an increase in assets greater than 15%. Spain's Santander showed the largest increase at 58.3%, driven primarily through strong contributions. Three funds based in Romania: ING Mandatory, Azt Viitorul Tau, and ING ACTIV/ING OPTIM, (all of which are DC schemes) observed an increase in assets over 30% in the period. Growth was mostly attributed to strong contributions. Funds in most regions were buoyed by good investment returns in 2014.

In terms of total assets relative to the national economy, Singapore's Central Provident Fund had the highest ratio at 71.2% of GDP, followed by ABP at 58.9% of GDP (which with PFZW represented 83.3% of the Dutch GDP), Denmark's ATP at 36.6%, South Africa's GEPF at 40.7 and AFP Provida with 19.0% of Chile's GDP. The weighted average of LPF assets accounted for 17.9% of the national GDP in the countries covered in this publication.

Table 5. Total assets of selected LPFs in 2014

Country head office	Name of the fund or institution	Total investments or assets (1)		
		USD bn.	% of GDP	% increase (compared to the previous year)
Netherlands	Stichting Pensioenfonds ABP	473.6	58.9	20.8
United States	CalPERS (2)	295.8	1.7	4.3
Singapore	Central Provident Fund (2)	210.2	71.2	8.8
Netherlands	PFZW	196.3	24.4	17.8
United States	CalSTRS (2)	190.5	1.1	14.5
United States	New York State Combined Retirement System (2,3)	176.8	1.0	10.1
United States	New York City Combined Retirement System	159.2	0.9	5.5
United States	Florida Retirement System Pension Plan (2,4)	149.1	0.9	12.6
South Africa	GEPF	133.5	40.7	10.5
Canada	OTPP	131.4	7.7	9.7
Denmark	ATP (2)	115.0	36.6	18.9
Japan	Pension Fund Association	105.0	2.6	6.7
United States	State of Wisconsin Investment Board (2)	88.8	0.5	2.6
Sweden	Alecta	88.3	17.5	13.0
Canada	Alberta Investment Management Company (AIMCO) (2)	72.3	4.2	12.3
Germany	Bayerische Versorgungskammer (2)	72.2	2.0	1.4
Netherlands	PMT	71.1	8.8	21.3
United Kingdom	BT Pension Scheme (2,4)	68.7	2.3	1.8
Australia	AustralianSuper (5)	64.4	4.9	21.8
United Kingdom	USS	63.0	2.3	14.8
Canada	OMERS	62.9	3.7	11.1
Brazil	Previ	62.7	3.0	-1.7
United States	Massachusetts PRIM Board (2)	60.7	0.4	4.9
	United Nations Joint Staff Pension Fund	52.8	0.3	2.8
United States	Los Angeles County Employees Retirement Associatior	47.2	0.3	5.6
Denmark	PFA Pension	46.1	14.7	3.6
Chile	AFP Provida	46.0	19.0	17.5
Finland	Ilmarinen	41.5	16.7	6.0
Mexico	Afore XXI Banorte	41.1	3.5	11.7
Chile	AFP Cuprum	35.0	14.5	20.5
United Kingdom	Railways Pension Scheme (2)	33.8	1.2	7.7
United Kingdom	BP Pension Scheme (2)	31.8	1.1	6.7
France	ERAFP	25.6	1.0	22.0
Australia	Health Employees Superannuation Trust Australia	25.0	1.9	13.7
Brazil	FUNCEF (2)	20.0	1.0	0.9
Australia	Sunsuper (5)	18.1	1.4	11.4
United States	State Universities Retirement System of Illinois (4,6)	17.4	0.1	17.2
Israel	Menora-Mivtachim	17.0	6.1	17.6
Australia	Telstra Superannuation Scheme (2,4)	15.1	1.0	14.7
Indonesia	BPJS Ketenagakerjaan	15.0	1.8	24.7
Italy	Cometa	11.4	0.6	13.2
Israel	Makefet	11.0	3.9	15.2
Germany	Bayer-Pensionskasse (2)	10.1	0.3	1.4
Turkey	OYAK	9.3	1.2	21.4
Nigeria	RSA Fund (7)	8.1	1.5	18.7
Italy	FONCHIM	5.9	0.3	12.8
Spain	Fonditel (8)	4.0	0.3	0.4
South Africa	Sentinel Retirement Fund (9)	3.6	1.1	7.1
Italy	Fonte	3.4	0.2	16.9
Croatia	Raiffeisen Mandatory Pension Funds	3.2	6.2	15.7
Brazil	FAPES - BNDES	3.2	0.2	3.4
Portugal	Pension funds managed by CGD (10)	2.8	1.3	23.6
Romania	ING Mandatory pension fund	1.9	1.1	37.9
Spain	Endesa	1.9	0.1	8.5
Nigeria	CPFA Fund (7)	1.9	0.4	4.7
Croatia	PBZ CO	1.7	3.3	10.2
Portugal	Banco BPI Pension Fund	1.4	0.7	6.4
Russia	VTB	1.3	0.1	5.4
Romania	Azt Viitorul Tau (11)	1.2	0.6	33.2
Nigeria	AES Fund (7)	0.8	0.2	17.7
Spain	Santander	0.2	0.0	58.3
Romania	ING ACTIV and ING OPTIM Voluntary Pension Funds	0.1	0.1	31.4
Spain	CCOO	0.0	0.0	12.5
Romania	Raiffeisen Acumulare	0.0	0.0	24.5
Total selected pension funds (12)		**3,728.8**	**17.9**	**11.6**

".." means not available

(1) Data correspond to all forms of investment with a value associated to a pension fund/plan. 2014 valuations are for year-end 2014, unless otherwise noted. (2) Data have been gathered from publicly available reports. (3) Data refer to the end of March. Change in assets calculated from March 2013 to March 2014. (4) Data refer to the end of June. Change in assets calculated from June 2013 to June 2014. (5) Data refer to the Balanced option only. (6) Data only refer to DB pension plans. (7) In Nigeria, there are three types of pension schemes, namely, the Retirement Savings Account (RSA) Fund, which is contributory; the Closed Pension Funds; and the Approved Existing Schemes (AES). The largest pension fund from each of these three schemes has been selected. (8) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. (9) Data only refer to the Pensioner Portfolio. (10) Data cover the CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança, Mundial Confiança, and Petrogal. Data for Petrogal have been gathered from a publicly available report. (11) Data refer to the biggest pension plan managed by Azt Viitorul Tau. (12) Weighted average for assets as a % of GDP and % increase.

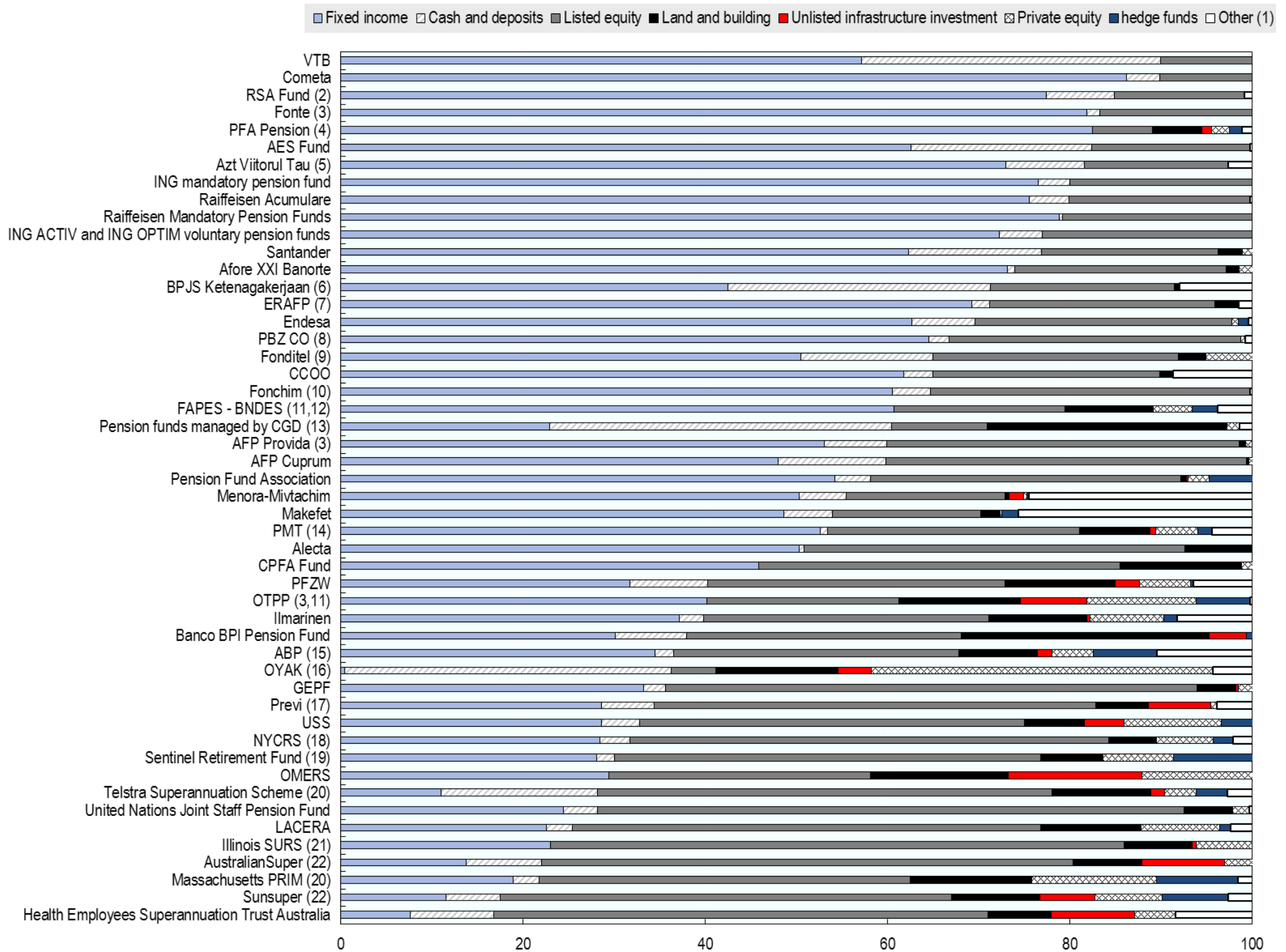
Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

LPF Asset Allocation

LPF survey results present data from defined benefit (DB) and defined contribution (DC) plans, which have different investor profiles (see Introduction).

Figure 8. Asset allocation of LPFs - actual 2014

As a percentage of total investment



(1) The "Other" category includes loans, commodities and other investments. (2) Other investments include mutual funds and receivables. (3) Other investments have been excluded from asset allocation calculations because they were negative in 2014. (4) Other investments are primarily related to asset-liability matching and hedging. (5) Data refer to the biggest pension plan managed by Azt Viitorul Tau. Other investments include UCITS. (6) Other investments include mutual funds. (7) Other investments include multi-asset fund-of-funds. (8) Other investments include UCITs compliant cash funds. (9) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. (10) Other investments include derivatives and outrights. (11) Investments in cash and deposits have been excluded from asset allocation calculations because they were negative in 2014. (12) Other investments include profit sharing debentures. (13) Other investments include listed infrastructure. (14) Other investments include currency and interest rate overlays. (15) Other investments include derivatives with a positive value, music rights, investment funds, receivables and payables. (16) Other investments include trade and other receivables, inventories, prepaid expenses, all other PPE other than land and buildings, intangibles, other current and noncurrent assets. (17) Other investments include real estate funds. (18) Other investments include securities lending. (19) Data refer to the Pensioner Portfolio. (20) Data is as of 2015. Refer to Annex for reporting dates. (21) Data refer to the balanced plan only. (21) Data only refer to DB pension plans. (22) Data refer to the balanced plan only.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

The simple average portfolio for the LPFs shows that 54.1% of total assets were invested in fixed income and cash, 31.1% in equity, and 14.9% in alternative/other investments in 2014. After several years of recovery, equity valuations have increased in most portfolios, in some cases pushing the question of rebalancing where such policies exist.

Funds surveyed ranged from conservative, fixed-income oriented portfolios to return-seeking portfolios with significant allocations to equities and alternatives. Russia's VTB allocated 90% of the total portfolio to fixed income and cash. Italy's Cometa fund invested 89.9% of assets in fixed income and cash, while other conservative portfolios PFA Pension (Denmark) and ERAFP (France) invested 82.5% and 71.3%, respectively, in fixed income and cash. Funds based in Italy, Romania and Spain in general had higher allocations to fixed income and cash. The funds with the highest allocation to listed equities were the United Nations Joint Staff Pension Fund at 64.4%, followed by the United States' Illinois SURS at 62.9%, and South Africa's GEPF and AustalianSuper both at 58.3%.

Traditional asset categories such as stocks and bonds comprised the majority of assets in funds domiciled in Latin America (exception of Brazil), Italy, Nigeria, Romania, Russia, and Spain. For example, Chile's two largest funds invested nearly all assets in traditional categories.

Alternative investments for LPFs include hedge funds, real estate, unlisted infrastructure, private equity, and other categories such as natural resources, loans, or commodities. The survey reveals that LPFs across regions have adopted alternative investments in varying degrees. Two funds had over 40% of total assets allocated to alternatives: Canada's OMERS at 41.8%, and Turkey's OYAK at 58.8%. OMERS' long-term target for alternative investments is 47% of total assets. Oyak's exposure was mostly in private equity. Six other funds had over 30% allocated to alternatives. They include: ABP, Banco BPI Pension Fund, OTPP, Makefet, Massachusetts PRIM, and Sunsuper. Only six funds out of the total 50 in this section reported zero exposure to alternative investments.

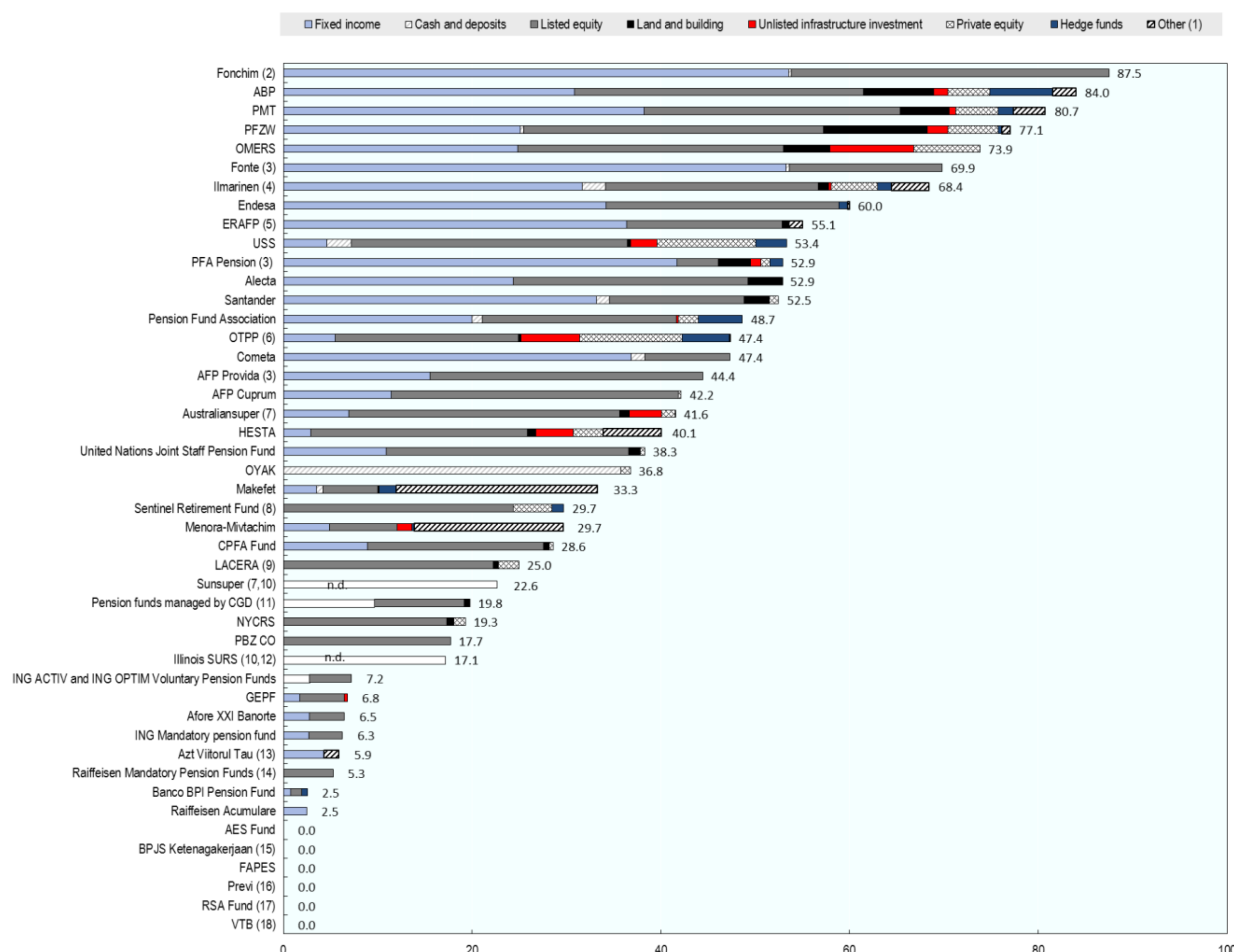
Two Portuguese funds had high allocations to real estate: Banco BPI at 27.2% and pension funds managed by CGD at 26.3%. Massachusetts PRIM, OTPP, OMERS and USS had the highest allocations to private equity at 13.7%, 12.0%, 12.0%, and 10.7%, respectively. Massachusetts PRIM, South Africa's Sentinel Retirement Fund, and Australia's HESTA led the survey population in terms of hedge fund allocation with 8.9%, 8.6%, and 8.4%, respectively. As part of the alternative asset allocation, some funds also invested in infrastructure (see Part B – Infrastructure Investment).

LPF Foreign Investment

There was a large dispersion in levels of foreign investment amongst funds surveyed, but in general, most funds invested a substantial amount in foreign markets. The most popular way to gain exposure was through foreign bonds, followed by foreign stocks. This may be related to the size of domestic markets (comparatively large funds based in countries with small domestic markets may be more inclined to invest in foreign financial markets). For example, OMERS has expressed the desire to diversify holdings, citing the fact that Canada's domestic market capitalization represents less than 3% of the world market capitalization. But in most instances, especially in less mature pension systems, foreign investment is first decided by regulatory policy, and then by individual fund policy. Funds based in Europe tended to have large overseas allocations to both traditional and alternative investments. Funds in Brazil and Russia had low foreign allocations. The average fund invested around 33.5% of assets abroad.

Figure 9. Share of selected large pension funds' foreign investment by asset class, 2014

As a percentage of total (i.e. domestic and foreign) investment



(1) The "Other" category includes loans, commodities and other investments. (2) Other investments have been excluded because they were negative in foreign markets in 2014. (3) Other investments have been excluded because they were negative 2014. (4) Investments in commodities have been excluded from calculations of other investments because they were negative in foreign markets in 2014. (5) Cash and deposits are not all domestic. Some deposits are in money market funds governed by French law in the European Union. (6) Investments in cash and deposits and other investments have been excluded because they were negative in 2014. (7) Data refer to the balanced plan only. (8) Data only refer to the Pensioner Portfolio. (9) Foreign investments refer to investments outside Canada and the United States. (10) Breakdown of foreign investment by asset class is not available. (11) Data in this figure are an aggregate of the foreign investments of the CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança and Mundial Confiança. (12) Data refer to end of June 2014. Data refer only to DB schemes. (13) Data refer to the biggest pension plan managed by Azt Viitorul Tau. (14) Investments in cash and deposits have been excluded because they were negative in the domestic market in 2014. (15) Foreign investments are prohibited. (16) Investments abroad occur through funds constituted in Brazil and hence they are considered as internally made. (17) 2014 data refer to DB and DC plans. (18) VTB invests in bonds of international financial organisations, however these work by Russian legislation.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

Italy's Fonchim invested 87.5% in foreign markets, the most of any fund surveyed. ABP and PMT also held a large amount of foreign assets at 84.0% and 80.7%, respectively. 13 funds invested more than half of total assets in foreign markets. Fonchim had the highest allocation to listed foreign equities at 33.7%, followed by the Netherland's PFZW at 31.8% and ABP at 30.6%. Fonchim had a large allocation to foreign fixed income, investing 53.6% of total assets, followed by Italy's Fonte at 53.3%. The UK's USS and Canada's OTPP had allocations of over 10% of total assets to foreign private equity, while the

Netherlands' PFZW allocated 11.0% of assets to foreign properties. ABP allocated 6.7% of total assets to foreign hedge funds.

LPF Performance – Investment Rate of Return in Local Currency

Table 6. Nominal and real annual investment rate of return of selected LPFs 2010-2014

In percentage

Country head office	Name of the fund or institution	Nominal						Real					
		2010	2011	2012	2013	2014	*5-year average*	2010	2011	2012	2013	2014	*5-year average*
Australia	AustralianSuper (1)	6.1	-1.4	13.2	17.5	8.9	*8.7*	3.3	-4.2	10.7	14.4	7.0	*6.0*
Australia	HESTA	..	..	..	17.4	7.8	..	..	..	..	14.3	6.0	..
Australia	UniSuper Management Pty Ltd	5.1	..	..	..	..	..	2.3	..	..	..	..	..
Australia	Sunsuper (2)	6.0	-2.2	14.6	17.3	7.6	*8.4*	3.2	-5.0	12.1	14.1	5.8	*5.8*
Australia	Telstra Superannuation Scheme	..	..	..	16.3	7.9	..	..	..	..	13.2	6.1	..
Brazil	FAPES	..	8.6	24.7	-3.0	7.7	..	..	2.0	17.8	-8.4	1.3	..
Brazil	FUNCEF (3)	..	10.7	9.3	6.9	4.4	..	..	3.9	3.3	0.9	-1.8	..
Brazil	Previ	..	7.6	12.6	7.1	2.6	..	..	1.1	6.4	1.1	-3.6	..
Canada	OMERS	11.4	3.2	10.0	6.0	10.0	*8.1*	8.8	0.9	9.1	4.7	8.5	*6.3*
Canada	OTPP	14.3	11.2	13.0	10.9	11.8	*12.2*	11.7	8.7	12.1	9.5	10.2	*10.4*
Chile	AFP Cuprum (4,5)	13.0	0.0	6.8	7.6	15.6	*8.5*	9.7	-4.2	5.3	4.4	10.4	*5.0*
Chile	AFP Habitat (5)	..	..	..	7.8	..	..	..	..	..	4.6	..	..
Chile	AFP Provida (4)	12.0	-1.2	7.2	6.8	15.5	*7.9*	8.8	-5.4	5.6	3.7	10.3	*4.5*
Colombia	AFP Horizonte-Col	18.8	..	..	..	..	..	15.2	..	..	..	..	..
Colombia	AFP Porvenir (6)	..	..	..	0.0	..	..	..	..	..	-2.0	..	..
Croatia	PBZCO	..	..	..	5.1	10.2	..	..	..	..	4.8	10.7	..
Croatia	Raiffeisen Mandatory Pension Funds	..	..	..	4.2	12.4	..	..	..	..	3.9	12.9	..
Denmark	ATP	..	..	..	-4.9	..	..	..	..	..	-5.6	..	..
Denmark	PFA Pension	8.0	11.1	10.5	-0.9	15.1	*8.6*	5.0	8.4	8.4	-1.7	14.7	*6.8*
Finland	Ilmarinen	..	-4.0	7.5	9.8	6.8	..	..	-6.7	5.0	8.1	6.3	..
France	ERAFP	..	-1.1	17.3	6.5	12.8	..	..	-3.5	15.8	5.8	12.7	..
Germany	BASF Pensionskasse	..	0.7	9.7	..	..	..	..	-1.3	7.5	..	..	..
Indonesia	BPJS Ketenagakerjaan	..	..	..	10.0	10.8	..	..	..	..	1.7	2.3	..
Israel	Makefet (5)	..	..	..	11.5	5.6	..	..	..	..	9.5	5.8	..
Israel	Menora-Mivtachim	9.4	-2.2	10.5	9.9	6.3	*6.7*	6.5	-4.3	8.7	7.9	6.5	*5.0*
Italy	Cometa	2.1	0.8	7.7	3.9	6.4	*4.1*	0.2	-2.4	5.3	3.2	6.4	*2.5*
Italy	Fonchim	2.4	-1.3	8.3	6.7	6.5	*4.4*	0.5	-4.5	5.8	6.0	6.5	*2.8*
Italy	Fonte	..	..	..	4.3	5.7	..	..	..	..	3.6	5.7	..
Japan	Pension Fund Association (5)	..	-4.3	16.0	24.3	11.3	..	..	-4.1	16.1	22.3	8.7	..
Mexico	Afore XXI Banorte	12.7	6.6	14.0	2.2	7.6	*8.6*	8.0	2.7	10.1	-1.7	3.4	*4.4*
Mexico	Banamex	..	..	..	4.2	..	..	..	..	..	0.2	..	..
Netherlands	PFZW	12.6	8.4	13.4	3.7	15.5	*10.6*	10.5	5.9	10.2	2.0	14.7	*8.5*
Netherlands	PMT	11.6	7.0	12.6	1.1	20.6	*10.4*	9.5	4.5	9.4	-0.6	19.8	*8.3*
Netherlands	ABP	13.5	3.3	13.7	6.2	14.5	*10.1*	11.3	0.9	10.5	4.5	13.7	*8.1*
Nigeria	AES Fund	..	2.5	16.5	..	..	..	..	-7.1	4.1	..	..	..
Nigeria	CPFA Fund	..	7.7	18.7	18.5	4.4	..	..	-2.4	6.0	9.8	-3.3	..
Nigeria	RSA Fund (7)	..	4.3	15.3	15.3	6.0	..	..	-5.5	3.0	6.8	-1.8	..
Portugal	Banco BPI Pension Fund	3.1	-7.3	20.6	16.7	7.7	*7.7*	0.6	-10.5	18.3	16.5	8.1	*6.0*
Portugal	Pension funds managed by CGD (8)	..	1.0	6.5	5.5	5.3	..	..	-2.5	4.5	5.3	5.6	..
Romania	Azt Viitorul Tau (9)	..	..	..	10.3	6.1	..	..	..	..	8.6	5.3	..
Romania	ING Mandatory pension fund	..	..	..	11.3	9.3	..	..	..	..	9.6	8.4	..
Romania	ING ACTIV and ING OPTIM Voluntary Pension Funds	..	..	..	11.6	7.2	..	..	..	..	9.9	6.3	..
Romania	Raiffeisen Acumulare	..	..	..	14.2	9.1	..	..	..	..	12.4	8.2	..
Russia	Lukoil - Garant	..	1.8	7.5	..	..	..	..	-4.1	0.9	..	..	..
Russia	Trade-industrial pension Fund	..	..	..	6.6	..	..	..	..	..	0.1	..	..
Russia	VTB	9.2	0.5	8.7	5.9	4.4	*5.7*	0.4	-5.3	2.0	-0.5	-6.2	*-2.0*
South Africa	GEPF(10)	19.7	12.2	11.9	16.0	12.5	*14.4*	15.7	5.8	5.9	10.1	6.8	*8.8*
South Africa	Sentinel Retirement Fund (11)	..	..	..	19.7	12.5	..	..	..	..	13.6	6.8	..
Spain	Bankia (12)	..	-2.0	6.3	7.7	..	..	..	-4.3	3.3	7.5	..	..
Spain	CCOO	0.6	2.0	7.3	9.0	6.0	*4.9*	-2.3	-0.4	4.3	8.7	7.1	*3.4*
Spain	Endesa	0.3	1.1	7.7	9.4	7.1	*5.1*	-2.6	-1.2	4.7	9.1	8.2	*3.5*
Spain	Fonditel (13)	0.5	-5.3	9.0	4.2	5.8	*2.7*	-2.4	-7.5	5.9	3.9	7.0	*1.2*
Spain	Santander	..	-1.5	6.6	7.2	5.8	..	..	-3.8	3.6	6.9	6.9	..
Sweden	Alecta	..	-2.1	11.4	10.2	12.8	..	..	-4.3	11.5	10.0	13.2	..
Turkey	OYAK	..	14.1	14.2	15.3	17.2	..	..	3.3	7.6	7.4	8.3	..
United Kingdom	BT Pension Scheme	..	1.7	7.5	..	..	..	..	-2.4	4.7	..	..	..
United Kingdom	USS (14)	11.7	0.4	11.4	12.8	15.1	*10.2*	7.7	-3.6	8.5	10.6	14.5	*7.4*
United States	CalPERS	..	1.1	13.3	..	..	..	..	-1.8	11.4	..	..	..
United States	LACERA	..	..	..	15.0	6.7	..	..	..	..	13.3	5.9	..
United States	Massachusetts PRIM Board (5,15)	..	-0.3	13.4	15.2	8.2	..	..	-3.2	11.5	13.5	7.4	..
United States	New York City Combined Retirement System (5)	..	1.3	13.2	16.1	7.5	..	..	-1.7	11.3	14.4	6.7	..
United States	OPERS	..	0.2	14.4	13.9	..	..	..	-2.7	12.4	12.2	..	..
United States	State Universities Retirement System of Illinois (16)	..	..	..	17.0	6.5	..	..	..	..	15.3	5.7	..
United States	United Nations Joint Staff Pension Fund (5)	..	-3.9	12.7	15.5	3.2	..	..	-6.7	10.8	13.8	2.4	..

Note: Average real net investment returns have been calculated using the nominal interest rate and the variation of the end-of-period domestic consumer price index between the ends of each year.

".." means not available

(1) Returns are for the Balanced plan. (2) Data in 2013 and 2014 refer to the Balanced pension option. (3) 2014 values gathered from publicly available sources. 2014 values are gross investment rates of return. 2011-2013 are net investment rate of returns. (4)

Returns are provided for the Fund C. (5) Returns are gross investment rates of return. (6) Data only refer to the moderate plan of the mandatory pension fund. (7) Before 2014, data refer to DC plans only. From 2014, data refer to DC and DB plans. (8) Returns have been calculated as a weighted average of the returns of CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança and Mundial Confiança. Total assets of each fund have been used as weights. (9) Data refer to the largest fund managed: Fond de Pensii Administrat Privat AZT Viitorul Tau. (10) Data for 2010 are net investment rates of return. Data for 2011-2014 are gross investment rates of return. (11) Data only refer to the Pensioner Portfolio. (12) Data are given for the most representative plan of Bankia Pensiones. (13) Data in 2013 and 2014 refer to Fonditel's biggest pension plan (Empleados de Telefónica de España) while data for 2010 to 2012 are aggregates of several plans. (14) Investment rates of return are not net, since the net asset value of some investments used to calculate the returns embeds fees. (15) Returns for 2013 and 2014 have been gathered from publicly available sources. (16) Data refer only to DB schemes.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

2014 delivered good returns to most LPFs – stock markets, in particular in the United States, led performance. Fixed income returns were also positive in most markets as yields declined in the United States, Europe, and Japan. Performance in emerging markets was more mixed. Alternative asset classes such as real estate and private equity added strongly to performance. Differences in pension fund returns show a wide variation owing to heterogeneity in size, local market performance, investor base (DB or DC), liability profile, asset allocation and other factors such as levels of liability hedging and/or currency hedging observed in the sample of retirement schemes.

The average fund surveyed returned 7.0% real in 2014. In a year where investing in riskier assets was rewarded, funds with larger allocations to equities and alternative investments reaped higher returns while conservative funds experienced lower, but more stable returns. An exception was for funds based in some emerging markets where volatility was much higher. The Netherlands, followed by funds based in Denmark, the United Kingdom, Chile and Canada led the group. Trailing five-year real returns were positive for all funds with the exception of Russia's VTB.

PART A2 – GENERAL OVERVIEW OF PUBLIC PENSION RESERVE FUNDS

Public Pension Reserve Fund Size

The total amount of Public Pension Reserve Funds (PPRFs) assets at the end of 2014 was equivalent to USD 5.7 trillion within the countries for which data was received or obtained (Table 7). The largest reserve is held by the US Social Security Trust Fund at USD 2.8 trillion, followed by Japan's Government Pension Investment Fund at USD 1.1 trillion. Korea, China, Canada and Sweden also have accumulated large reserves. Of the countries surveyed, twelve had established their funds since 2000. The United States Social Security Trust Fund is the oldest, established 75 years ago.

Table 7 also shows three major non-OECD countries that are G20 members: Argentina, China, and India. China's National Social Security Trust Fund reached USD 251.0 billion at the end of 2014. Argentina's fund, founded in 2007, reached USD 55.5 billion.

The reserves put aside by the PPRFs that submitted questionnaires increased by 6.2% (nominal) on average between 2013 and 2014 (based on local currency values). Argentina's Sustainability Guarantee Fund increased by by 43.3% since last year, driven mostly by high domestic rates of inflation. Three other funds showed increases of over 20%: Chile's Pension Reserve Fund at 25.6%, China's National Social Security Fund at 23.7%, and Canada's PSP Investments at 23.0%. Spain showed a decline of 22.5%. During 2014, Spain drew on reserves to pay pension benefits and to meet fiscal objectives.

In terms of total assets relative to the national economy, Korea had the highest ratio at 31.6% of GDP, followed by Sweden at 30.3% (aggregate AP funds), Finland at 28.8% (aggregate of Keva and Valtion Eläkerahasto), and Japan at 28.1% (Table 7). The weighted average of PPRF assets accounted for 18.3% of GDP in the selected countries in 2014.

Table 7. Total assets of selected PPRFs in 2014

Country head office	Name of the fund or institution	Year of Establishment	Total investments or assets (1)		
			USD bn.	% of GDP	% increase (compared to the previous year)
Selected countries					
United States	Social Security Trust Fund	1940	2,789.5	16.1	0.9
Japan	Government Pension Investment Fund	2006	1,135.9	28.1	6.3
Korea	National Pension Service (2)	1988	427.4	31.6	10.0
China (People's Republic of)	National Social Security Fund (2)	2001	251.0	2.4	23.7
Canada	Canada Pension Plan Investment Board	1997	205.8	12.1	18.5
Sweden	National Pension Funds (AP1-AP4 and AP6) (3)	2000	153.2	30.3	12.0
India	Employee Provident Fund (2,4)	1952	123.0	6.4	16.9
Australia	Future Fund	2006	89.6	6.8	13.1
Canada	PSP Investments (2,5)	1999	84.8	4.8	23.0
Finland	Keva and Valtion Eläkerahasto	1997	71.8	28.8	9.2
France	AGIRC - ARRCO (2)	n.d.	70.1	2.7	11.2
Argentina	Sustainability Guarantee Fund	2007	55.5	10.7	43.3
Spain	Social Security Reserve Fund	1966	50.5	3.9	-22.5
Canada	Quebec Pension Plan	2006	44.7	2.6	13.1
Norway	Government Pension Fund - Norway (GPFN)	2001	27.4	6.5	16.0
Belgium	Zilverfonds	2001	25.2	5.2	4.0
New Zealand	New Zealand Superannuation Fund	1989	21.5	11.5	9.1
Portugal	Social Security Financial Stabilisation Fund	1977	16.4	7.8	15.4
Chile	Pension Reserve Fund	2006	7.9	3.3	25.6
Poland	Demographic Reserve Fund	2002	5.1	1.0	0.7
Mexico	IMSS Reserve (6)	n.d.	1.6	0.1	7.3
Bulgaria	State Fund for Guaranteeing the Stability of the State Pension System	2007	1.5	3.0	4.9
Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska	2011	0.2	1.0	-0.2
Total selected countries (7)			**5,659.5**	**18.3**	**6.2**
Memo item: Sovereign Wealth Funds with a pension focus (8)					
Norway	Government Pension Fund - Global (GPFG)	1990	872.6	205.8	25.6
Russia	National Wealth Fund (2)	2008	78.0	6.1	51.3
Total memo items			**950.6**		
Total PPRFs and SWFs with a pension focus			**6,610.1**		

(1) Data correspond to all forms of investment with a value associated to a pension fund/plan. (2) Data have been gathered from publicly available reports. (3) Data for AP6 come from publicly available reports. (4) Data refer to the end of March 2014, and include the Employees Provident Fund, the Employees Pension Fund and the Employees Deposit Linked Insurance Fund. (5) Data refer to the end of March 2014. (6) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries. (7) Weighted average for assets as a % of GDP and % increase. (8) Norway's Government Pension Fund - Global and Russia's National Wealth Funds are sovereign wealth funds and not public pension reserve funds, because their mandate goes beyond financing pension expenditures.

"n.d." means not available.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs, publicly available reports and Sovereign Wealth Fund Institute..

Large reserves are also accumulated in sovereign wealth funds that have a pension focus. The Government Pension Fund Global in Norway has two main goals: to facilitate government savings necessary to meet the rapid rise in public pension expenditures in coming years, and to support long-term management of petroleum revenues. At the end of 2014, the fund held USD 872.6 billion in assets, accounting for 205.8% of Norway's GDP. The fund is considered to be the largest sovereign wealth fund in the world. Russia's national wealth fund is dedicated to supporting the pension system to guarantee long-term sound functioning of the system (see Annex).

PPRF Asset Allocation

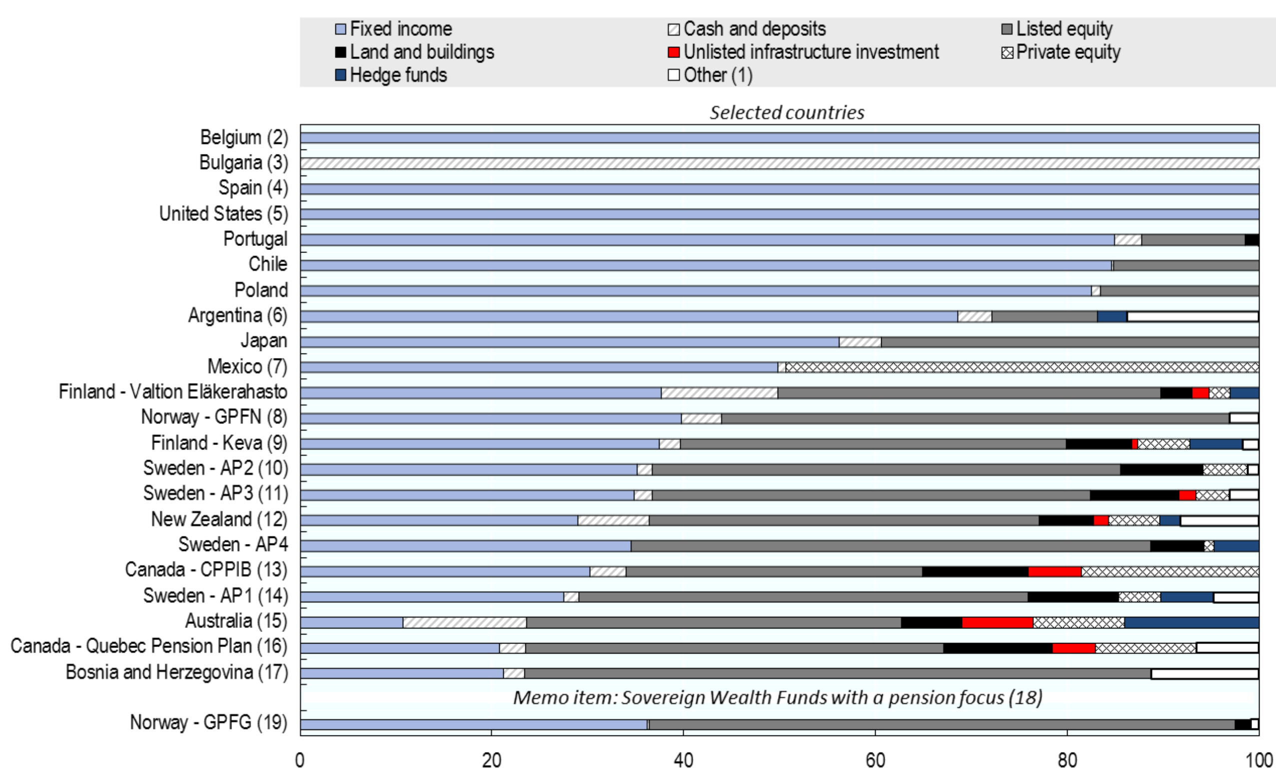
Over the past few years, several PPRFs had to increase liquidity and reduce risk due to fiscal pressures. Major changes in investment strategies took place in Spain and Portugal. Spain's Social Security Reserve Fund migrated nearly all assets to Spanish government bonds in 2014 and has increased cash and liquidity in 2015. Portugal de-risked the Social Security Financial Stabilization Fund by increasing fixed income allocations and decreasing listed equities and real estate related holdings. Since 2010, Portugal's fund increased fixed income and cash from 65.3% of assets to 83.9% by the end of 2014.

Other funds have moved in the opposite direction and have reduced fixed income and cash and increased exposures to return seeking assets. Japan's Government Pension Investment Fund invested 77.9% in fixed income and cash, and 22.1% in listed equities in 2010. By the end of 2014, the fund had invested 60.6% of assets and fixed income and cash and 39.4% in listed equities. The shift reflects a new policy asset mix effective in 2014 of 50% fixed income, and 50% listed equities. This new policy also includes the ability to invest up to 5% in alternative investments.

Within the survey population, a spectrum of asset allocation profiles is apparent. Some funds, such as those in Belgium and the United States, have statutory limits requiring them to invest only in government bonds. Other funds, such as in Australia, Canada and New Zealand, have much lower allocations to fixed income and higher allocations to return seeking assets (such as alternative investments and equity).

Figure 10. Asset allocation of PPRFs – actual 2014

As a percentage of total investment



(1) The "Other" category includes loans, commodities and other investments. (2) Zilverfonds invested in Belgian Government bonds only. (3) State Fund for Guaranteeing the Stability of the State Pension System was held in weekly deposits at the Bulgarian National Bank. (4) In 2014, the Spanish Social Security Reserve Fund ceased investing in government bonds of other European Union countries and now only invests in domestic government debt. (5) Assets were invested in interest-bearing securities of U.S. Government for purchase exclusively by the Social Security trust funds (special issues). (6) Other investments include listed infrastructure investments. (7) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries. The asset allocation of IMSS changed between 2012 and 2013, mainly in private equity, as a result of the increase in the Afore investment. Since 1997, IMSS invested in Afore XXI, which in 2012 merged their operations with Afore Banorte and became Afore XXI Banorte. In March 2013, with the acquisition of Afore BBVA Bancomer, the institutional investment in Afore XXI Banorte increased as well. (8) Other investments include financial derivatives, unsettled trades, receivables. (9) Other investments include commodities and loans. (10) "Fixed income" includes, apart from bonds and certificates, investments in fixed income funds (including alternative credit funds, emerging market debt funds, etc.). "Other" investments include loans. Negative values reported in the "other" category were excluded from the asset allocation calculations; derivatives are reported at fair value as "Other investments". Any cash backing of these derivatives are included and reported as "Cash and deposits". Unsettled transactions, accrued interest and dividends are reported as "Other investments". (11) Other investments include derivatives, convertibles, insurance-linked securities, volatility strategies, risk premia strategies. (12) Other Investments include Timberlands, Farmland, Insurance linked securities and derivatives. (13) ARS strategies and associated structured products have been included in "Cash and deposits". (14) Other investments include risk premia and risk parity strategies. (15) The category "unlisted infrastructure investment" includes listed and unlisted infrastructure

investments. (16) Other investments include asset allocation strategies and asset-backed commercial paper. (17) Other investments include investment in unregistered instruments of local companies. (18) Norway's Government Pension Fund - Global is a Sovereign Wealth Fund and is not a Public Pension Reserve Fund, because its mandate goes beyond financing pension expenditures. (19) Other investments include financial derivatives, unsettled trade,receivables, lending (repo).

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

Box 2. Norway's Government Pension Fund - Global Asset Allocation Review

The Government Pension Fund - Global is one of the world's largest institutional investors. In 2008, the Ministry permitted the Fund to invest a maximum of 5% of its total portfolio to in real estate. At the end of June 2015, unlisted real estate represented 2.0 percent of total assets, up from 1.0% in 2013. Moreover, from year-end 2013 to June 2015, the market value of the unlisted real estate portfolio almost tripled to USD 18.1 bn. The fund also has invested in listed real estate companies. As part of its strategic plan for 2014-2016, the Fund intends to invest one percent of its assets in real estate per year over that period, accompanied by the development of its real estate team. Norges Bank, the asset manager of the Government Pension Fund Global, had previously recommended that up to 10% of assets should be invested in real estate and infrastructure. Under the current mandate from the Ministry, the Fund is not permitted to invest in unlisted infrastructure. In December 2014, the Ministry announced that it will review both restrictions, the limit on real estate and the exclusion of infrastructure from the Fund's investments, by commissioning an expert report. Previous advice to move away from fixed target allocations and adopt an approach similar to CPPIB will also be reviewed by the Ministry.

A decision, announced in April 2016, has ruled that the Norwegian Ministry of Finance is not prepared to permit unlisted infrastructure investments for the sovereign wealth fund. Being the largest sovereign wealth fund in the world, the government cited the relatively small size of the unlisted infrastructure equity market in infrastructure as a potential challenge, and also cited political risks in infrastructure as a challenge.

The Ministry is also reviewing the exclusion of unlisted real estate and infrastructure assets from the investment universe of the Government Pension Fund Norway, managed by Folketrygdfondet. At the request of the Ministry, Folketrygdfondet recommended a cap of 10% for such assets in GPFN's portfolio. The Ministry review of real estate allows GPFG to increase the target from 5% to 7% of total assets.

The efforts undertaken by Norges Bank, Folketrygdfondet and the Ministry to evaluate the attractiveness of infrastructure investment parallel greater interest in infrastructure by institutional investors observed on a global scale. This development also highlights the increasing demand for better quantitative evidence on infrastructure performance and risk, in order to make cogent evaluations.

The simple average portfolio for the PPRFs included in the survey shows that 56.0% of the total assets were invested in fixed income and cash, 30.6% in listed equities, and 13.5% in alternative/other investments. Four funds invested exclusively in fixed income or cash. For instance, Bulgaria's reserve fund invested all assets in cash and deposits. By contrast, Australia, Canada, Norway and Sweden all maintain relatively low allocations to fixed income in favour of larger allocations to alternative investments. Bosnia and Herzegovina's fund had the highest allocation to listed equity at 65.4% of total assets. Funds use a mix of active and passive strategies in traditional sectors such as listed fixed income and equities (for instance New Zealand's fund is two-thirds passive).

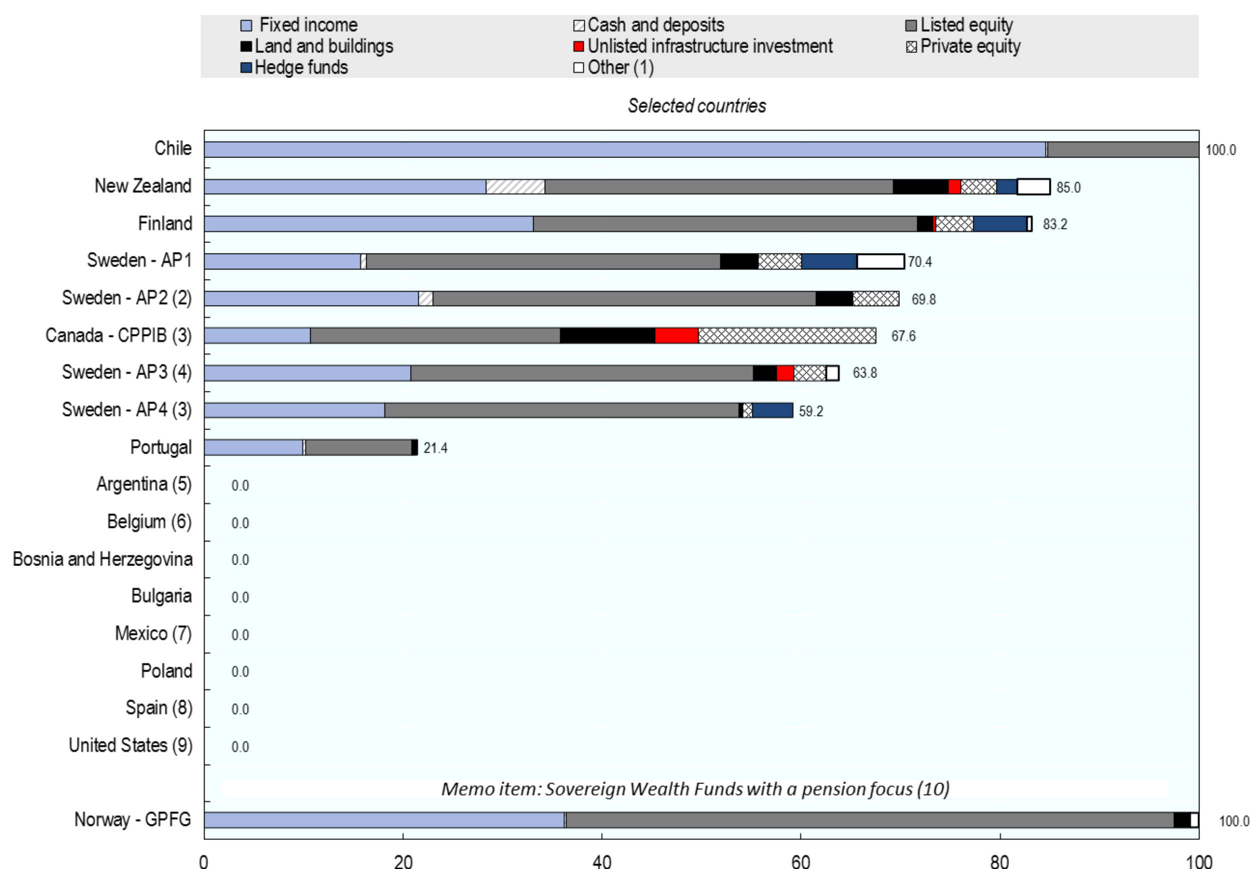
Alternative investments in PPRF portfolios include hedge funds, real estate, unlisted infrastructure, private equity, and other categories such as natural resources. Finland's Valtion Eläkerahasto's allocation to private equity included private credit. At the end of 2014, Australia's Superannuation Scheme invested 37.3% of total assets in alternatives, including 14.0% of total assets in hedge funds. The Swedish funds AP2, AP3 and AP4 have all increased their allocations to alternatives over the past few years. From 2010 to 2014, AP3 increased from 13.6% to 17.6%, and AP4 increased from 5.9% to 11.3%. New Zealand's Superannuation Scheme invested 22.9% of total assets in alternatives, which included allocations to forestry and farmland. PPRFs also invest in infrastructure assets mainly though listed and unlisted equity (see section B).

PPRF Foreign Investment

With some major exceptions, the majority of funds maintain exposure to foreign markets through both equity and fixed income instruments (Figure 14). Some funds also invest in foreign alternatives. Chile's entire portfolio was fully invested abroad, including equities in developed and emerging markets. Six additional funds invested over 60% of total assets in foreign markets.

Figure 11. Foreign investment by asset class in selected PPRFs in 2014

As a percentage of total (i.e. domestic and foreign) investment



(1) The "Other" category includes loans, commodities and other investments. (2) Other investments have been excluded because they were negative in 2014 in foreign markets. (3) Investments in cash and deposits have been excluded because they were negative in 2014 in the domestic market. (4) Investments in loans have been excluded from the calculation of "other investments" because they were negative in 2014 in the domestic market. (5) Foreign investments are prohibited. (6) Zilverfonds invested in Belgian Government bonds only. (7) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries. (8) The Spanish Social Security Reserve Fund stopped investing in foreign assets (government bonds) in July 2014. (9) Assets were invested in interest-bearing securities of U.S. Government for purchase exclusively by the Social Security trust funds (special issues). (10) Norway's Government Pension Fund - Global is a Sovereign Wealth Fund and is not a Public Pension Reserve Fund, because its mandate goes beyond financing pension expenditures.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs..

CPPIB invested over 30% of the portfolio in overseas alternatives, and had a high allocation to private equity and real estate, in particular. Sweden AP1 also invested a significant amount in foreign alternatives, allocating 18.5%. Portugal's reserve fund invested smaller amounts in foreign markets – most of the

foreign fixed income allocation was in the European Union, while the foreign equity portfolio was concentrated in North America.

Despite the limitation of those funds that prohibit foreign investment, a number of funds reported exposure to emerging markets, including stocks, bonds and alternatives. Seven funds reported exposure to listed equities and fixed income in emerging markets. CPPIB allocated over 11.0% of the total portfolio to emerging markets, including private equity, real estate, and unlisted infrastructure investments.

PPRF Performance – Investment Rate of Return in Local Currency

2014 delivered good returns to most PPRFs – stock markets, in particular in the United States, led performance. Fixed income returns were also positive in most markets as yields declined in the United States, Europe, and Japan. Alternative asset classes added strongly to performance. Thus portfolios with the largest allocation to global equities and alternatives performed the best. Looking more closely at fixed income, investment grade credit and certain segments of the securitised bond market outperformed government issues. Returns in stock markets and some alternative assets like private equity and real estate have been above average over the last few years.

All PPRFs that returned questionnaires posted positive nominal and real returns in 2014, with some reporting exceptionally strong returns. Funds based in Sweden posted double-digit real returns in 2014, driven by active allocations in alternatives, equities, but also due to the slight deflation in the Swedish economy. New Zealand's fund returned 13.0% real in 2014, after exceptionally strong results in the previous year. The fund benefited from active positions in growth investments, interest rates, and currencies. Six other funds reported double-digit real returns in 2014.

Yields declined in Spain and Portugal during 2014, contributing to strong returns for reserve funds in those countries. Yields were low and stable in the United States and Belgium, two other reserve funds that invest exclusively in fixed income, continuing their track records of low and stable returns.

Annualised five-year real returns, which capture results during the recovery period from the GFC to the end of 2014, are positive for nearly all funds that reported data. New Zealand returned 12.7% real annualised. Other funds that had diversified portfolios such as Sweden AP1-AP4, the Canadian reserve funds, and Australia's Future Fund all had strong five-year annualised real returns[32].

[32] Many active funds target a 4.0% real return over long-term periods. An adequate real return provides funds with the ability to grow the corpus of the fund beyond the rate of inflation and wage growth.

Table 8. Nominal and real average annual investment rates of return of selected PPRFs 2010-2014

In percentage

Country	Name of the fund or institution	Nominal						Real					
		2010	2011	2012	2013	2014	*5-year annualised*	2010	2011	2012	2013	2014	*5-year annualised*
Selected countries													
Argentina	Sustainability Guarantee Fund (1)	26.4	12.1	22.7	33.8	43.3	*27.2*	..	..	..	..	..	..
Australia	Future Fund	9.5	1.6	12.8	17.2	13.2	*10.7*	6.6	-1.4	10.4	14.1	11.3	*8.1*
Belgium	Zilverfonds	4.3	4.3	4.2	4.0	3.4	*4.1*	1.2	0.8	2.0	3.0	3.8	*2.1*
Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska	..	-0.7	2.6	6.0	5.7	..	..	-3.2	0.8	7.5	6.2	..
Canada	Canada Pension Plan Investment Board	8.9	5.3	9.7	13.5	15.6	*10.5*	6.4	2.9	8.8	12.1	13.9	*8.7*
Canada	Quebec Pension Plan	14.0	2.6	10.3	15.3	12.3	*10.8*	11.4	0.3	9.4	13.9	10.7	*9.0*
Chile	Pension Reserve Fund	-5.7	14.8	-3.4	10.5	17.7	*6.3*	-8.4	9.9	-4.8	7.2	12.5	*2.9*
Finland	Keva	12.3	-1.7	12.9	7.5	8.7	*7.8*	9.2	-4.5	10.3	5.8	8.2	*5.7*
Finland	Valtion Eläkerahasto	..	..	..	6.4	7.8	..	..	..	..	4.7	7.3	..
France	AGIRC (2)	3.4	-1.4	10.2	5.9	5.0	*4.6*	1.6	-3.8	8.7	5.2	5.0	*3.2*
France	ARCCO (2)	3.1	-2.4	11.6	6.7	6.4	*5.0*	1.3	-4.8	10.1	6.0	6.3	*3.7*
Japan	Government Pension Investment Fund (3)	0.4	-1.9	8.7	17.1	9.2	*6.5*	0.8	-1.7	8.8	15.2	6.7	*5.8*
Korea	National Pension Service	10.4	2.3	7.0	4.2	5.3	*5.8*	7.1	-1.8	5.5	3.0	4.4	*3.6*
Mexico	IMSS Reserve (4)	6.6	5.0	4.3	4.6	4.7	*5.0*	2.1	1.1	0.7	0.6	0.6	*1.0*
New Zealand	New Zealand Superannuation Fund	15.1	1.2	19.2	26.1	13.9	*14.8*	10.6	-0.7	18.1	24.1	13.0	*12.7*
Norway	Government Pension Fund - Norway	15.3	-3.9	12.2	15.6	10.6	*9.7*	12.2	-4.1	10.6	13.3	8.4	*7.9*
Poland	Demographic Reserve Fund	6.6	1.8	10.2	3.0	4.3	*5.1*	3.4	-2.7	7.7	2.3	5.2	*3.1*
Portugal	Social Security Financial Stabilisation Fund (3)	0.1	-11.0	23.3	6.9	14.7	*6.1*	-2.4	-14.1	21.0	6.7	15.2	*4.5*
Spain	Social Security Reserve Fund (3)	-1.8	6.0	4.9	9.1	11.9	*5.9*	-4.7	3.6	2.0	8.9	13.0	*4.4*
Sweden	AP1	10.3	-1.9	11.3	11.2	14.6	*8.9*	7.8	-4.1	11.4	11.0	15.0	*8.0*
Sweden	AP2	11.2	-2.1	13.3	12.7	13.1	*9.5*	8.7	-4.3	13.4	12.5	13.5	*8.5*
Sweden	AP3	9.0	-2.5	10.7	14.1	13.7	*8.8*	6.5	-4.7	10.8	13.9	14.1	*7.9*
Sweden	AP4	10.9	-0.7	11.2	16.4	15.7	*10.5*	8.4	-2.9	11.3	16.2	16.1	*9.6*
Sweden	AP6	9.4	-6.9	9.2	..	..	..	6.9	-9.0	9.3			..
United States	Social Security Trust Fund	4.6	4.4	4.1	3.8	3.6	*4.1*	3.1	1.4	2.3	2.3	2.8	*2.4*
Memo item: Sovereign Wealth Funds with a pension focus (5)													
Norway	Government Pension Fund - Global	..	-2.6	13.4	15.9	7.5	..		-2.8	11.8	13.6	5.3	..

Note: Average real net investment returns have been calculated using the nominal interest rate and the variation of the end-of-period consumer price index between the ends of each year.

".." means not available.

(1) Real returns were not available for Argentina's Sustainability Guarantee Fund. (2) AGIRC and ARRCO are unfunded mandatory supplementary plans for white-collar and blue-collar workers respectively, with reserves. Data come from publicly available reports. (3) Returns are gross investment rates of return. (4) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries. (5) Norway's Government Pension Fund - Global is a Sovereign Wealth Fund and not a Public Pension Reserve Fund, because its mandate goes beyond financing pension expenditures.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

PART B – INFRASTRUCTURE INVESTMENT

For this part of the report - the infrastructure investment survey - 41 funds out of the total 77 funds that returned completed questionnaires are included. These 41 funds account for USD 2.5 trillion in assets under management. Out of the total 41 funds, 10 are PPRFs. The funds taken into consideration are investing in infrastructure and provided information on their infrastructure investment allocation.

Table 9. Detailed infrastructure investment of selected large pension funds and public pension reserve funds, 2014

As a percentage of total assets

Country head office	Name of the fund or institution	Total investments in 2014 (in USD m.)	Infrastructure investment (as a % of total investments)		
			Unlisted Equity	Listed Equity	Debt
LPFs					
Australia	AustralianSuper	64,373	9.1	..	..
Australia	Health Employees Superannuation Trust Australia	25,030	9.2	..	..
Australia	Sunsuper	18,051	6.0	..	0.3
Australia	Telstra Superannuation Scheme (1)	13,306	1.5	1.9	..
Brazil	FAPES - BNDES	3,189	0.0	3.6	5.3
Brazil	Previ	62,733	6.8	4.1	..
Canada	OMERS	62,920	14.7	..	..
Canada	OTPP	131,379	8.3	..	0.0
Chile	AFP Provida	46,049	0.0	0.2	0.8
Denmark	PFA Pension	46,075	1.1	..	..
Finland	Ilmarinen	41,517	0.3	..	..
France	ERAFP	25,587	0.0	..	..
Israel	Makefet	11,045	0.1	..	..
Israel	Menora-Mivtachim	17,014	1.6	..	..
Japan	Pension Fund Association	105,049	0.2	..	..
Mexico	Afore XXI Banorte	41,109	0.0	0.9	1.0
Netherlands	PFZW	196,333	2.7	0.0	0.0
Netherlands	PMT	71,112	0.7	1.7	2.2
Netherlands	ABP	473,569	1.6	..	..
Portugal	Banco BPI Pension Fund	1,382	4.1	16.6	21.0
Portugal	Pension funds managed by CGD (2)	2,830	..	1.3	..
Romania	Azt Viitorul Tau	1,152	0.0	9.7	0.0
Russia	VTB (3)	1,259	0.0	7.2	0.0
South Africa	GEPF	133,491	0.3	..	..
Spain	Endesa	1,923	0.0	6.5	6.5
Spain	Fonditel (4)	3,972	0.2	..	..
Turkey	OYAK	9,327	3.7	..	..
United Kingdom	USS	62,972	5.3	0.4	0.7
United States	New York City Combined Retirement System	159,189	0.1	..	..
United States	Illinois SURS	17,366	0.4	..	..
United States	United Nations Joint Staff Pension Fund	52,821	0.1	..	..
PPRFs					
Argentina	Sustainability Guarantee Fund	55,495	0.0	..	12.5
Australia	Future Fund	89,577	7.4	..	..
Canada	Canada Pension Plan Investment Board	205,844	5.5	0.0	..
Canada	Quebec Pension Plan	44,715	4.6	..	..
Chile	Pension Reserve Fund	7,944	0.0	3.2	5.5
Finland	Keva	50,441	0.7	0.4	0.7
Finland	Valtion Eläkerahasto	21,378	1.8	..	..
New Zealand	New Zealand Superannuation Fund	21,473	1.5	2.2	0.0
Sweden	AP3	37,271	1.7	0.7	..
Sweden	AP4	38,124	0.0	6.1	..

".." means not available.

(1) Data refer to 2015. (2) Data cover the CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança, Mundial Confiança, and Petrogal. Data for Petrogal have been gathered from a publicly available report. (3) Infrastructure allocation refers to 2015 time period. (4) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports..

Although the majority of funds surveyed stated they are actively investing in infrastructure as shown in Table 9, these total allocations are not comparable, as they relate to different forms of investment.

Infrastructure Allocation in the Total Portfolio[33]

Institutional investors are taking different approaches to infrastructure investing. Behind the separate investment allocation to infrastructure lies the investor decision to consider infrastructure as an asset class in its own right.

Of the 41 funds that indicated investment in infrastructure assets, 30 reported exposure to unlisted infrastructure assets[34], and 16 had dedicated target allocations to the asset category (see Table 10).

Pension funds with a dedicated allocation have a target allocation to the asset class as part of the total portfolio and access the investment largely through unlisted equity instruments (infrastructure funds or direct investment).

Canada and Australia both have well established private capital markets for infrastructure investments and a long history of institutional investor participation[35]. Canada's OMERS reported an allocation to unlisted infrastructure assets of nearly 15% of the total fund, the highest within the survey population, while Australia's AustralianSuper and HESTA were both at nearly 10%, followed by Canada's OTPP at 8.3%. Amongst large pension funds, those funds with dedicated allocations and long-term targets tended to have the largest allocations to unlisted infrastructure, although Brazil's Previ was an exception. The fund reported a relatively high allocation to unlisted infrastructure at 6.8% of the total portfolio, but no target/separate allocation.

For funds without a separate allocation to infrastructure, investment in such assets may be included in real estate or private markets categories, or in the event that the fund invests in listed instruments, infrastructure investments may be categorised in listed equities or fixed income as a result of passive investments in public securities, or part of active portfolios[36]. Depending on the composition of industries in local bond and equity markets, infrastructure-related issues may be a large component of overall market capitalisation, as is the case in some developing markets.

Some funds reported exposure to greenfield investments, although most funds that responded to this question (eleven "no" versus seven "yes") indicated no greenfield exposure. Risk, and perspective returns, are higher in greenfield assets and may require more due diligence on the part of the investor. Some funds indicated that they prefer the more stable investment profile of brownfield assets. Two funds reported that they were considering adding greenfield assets to their existing infrastructure exposure.

Similar to real estate, infrastructure can have equity-like or bond-like characteristics, and institutional investors have positioned infrastructure in the holistic asset allocation with different objectives, keeping in mind the unique risk/return characteristics. Some of the larger funds have cited the benefits of direct

[33] From an investor perspective, pension funds with a separate allocation to infrastructure aim to gain direct exposure to the characteristics of the infrastructure asset (i.e. long-term, stable, often inflation linked etc.). Direct exposure is gained mainly through unlisted equity instruments (direct investment in projects and infrastructure funds) and project bonds while indirect exposure is normally associated with listed equity and corporate debt.

[34] Due to rounding, it may appear that some funds reported a zero percent allocation in Table 9.

[35] The OECD working paper Pension Fund Investment in Infrastructure: A Comparison between Australia and Canada provides more background on infrastructure markets in these two countries, and provides answers as to why institutional investors are major players in these regions.

[36] Several funds indicated that they would consider moving infrastructure investments to a dedicated allocation as investments mature, or as they see opportunities arise.

ownership and lower volatility of infrastructure vis-à-vis listed equities. The following are some examples of asset allocation and portfolio investments in infrastructure:

- France's ERAFP is launching for the first time investment in infrastructure, based on data gathered from 2015. The fund indicated an initial allocation of 0.5% of the total portfolio to be split between infrastructure and other private equity investments. Based on the fund's annual report, investment in clean energy and climate resilient assets is a major investment theme at the fund and may be a part of the infrastructure allocation going forward.

- CalSTRS, the second largest public pension fund in the United States, began investing in infrastructure in 2010 and has been slowly building its portfolio. At June 30, 2015, the fund reported unfunded commitments to infrastructure assets of over USD 802 million, an increase of over 60% on the 2014 figure; total infrastructure investments were under 1% of the total portfolio. CalSTRS investment policy includes the ability to invest in direct or co-invest with other investment funds or institutional investors.

- Australia's Future Fund and the Canada Pension Plan Investment Board, both PPRFs, invested 7.4% and 5.5%, respectively, in unlisted infrastructure equity. Both funds reported a separate allocation to infrastructure, but no target allocation as both funds maintain a long-term investment approach, but a more fluid asset allocation (with respect to setting targets).

- Portugal's Banco BPI Pension Fund had a high allocation to infrastructure assets (41.7% of the total portfolio), funded mostly through listed stocks and bonds, but did not have a dedicated allocation to the asset class, although the fund added unlisted infrastructure investments for the first time in 2013.

- The Washington State Investment Board (WSIB) (a United States based pension fund) classifies infrastructure in its "tangible assets" portfolio, which includes investments in four main industries: minerals and mining, energy, agriculture, forestry, and society essentials. WSIB managed USD 81.7 billion in retirement funds at 30 June 2015 and made USD 1.35 billion in new commitments to tangible assets in fiscal year 2015

Table 10. Infrastructure investment in 2014 – portfolio allocation

As a percentage of total assets

Country head office	Name of fund	Infrastructure allocation	Where does it fit in the portfolio allocation	Invest in greenfield projects	Actual allocation to unlisted infrastructure (2014) (% of total assets)	Most recent reported target asset allocation to unlisted infrastructure (if separate) (% of total assets)
LPFs						
Australia	AustralianSuper (1)	Separate	Infrastructure	..	9.1	13.0
Australia	Health Employees Superannuation Trust Australia	Separate	Infrastructure	Considering	9.2	12.5
Australia	Sunsuper (1)	Separate	Infrastructure	..	6.0	7.0
Australia	Telstra Superannuation Scheme (2,3)	Separate	Infrastructure	No	1.5	3-5
Brazil	FAPES - BNDES	Non-separate	n.d.	No	0.0	..
Brazil	Previ	Non-separate	Equities	Yes	6.8	..
Canada	OMERS	Separate	Infrastructure	..	14.7	21.5
Canada	OTPP	Separate	Infrastructure	..	8.3	8.4
Chile	AFP Provida	Non-separate	n.d.	No	0.0	..
Denmark	PFA Pension (4)	Non-Separate	Equity. Private Equity, Fixed Income	..	1.1	..
Finland	Ilmarinen	Non-Separate	n.d.	..	0.3	..
France	ERAFP (3)	Separate	Infrastructure	To be defined	0.0	0.5
Israel	Makefet	Non-Separate	Loans, Corporate bonds	..	0.0	..
Israel	Menora-Mivtachim	Non-Separate	Loans	..	1.6	..
Japan	Pension Fund Association	Non-Separate	Fixed income	No	0.0	..
Mexico	Afore XXI Banorte	Separate	Infrastructure and Fixed Income	Yes	0.0	6.5
Netherlands	PFZW	Separate	Infrastructure	Yes	2.7	5.0
Netherlands	PMT	Separate	Infrastructure	No	0.7	3.0
Netherlands	ABP	Separate	Infrastructure	Yes	1.6	3.0
Portugal	Banco BPI Pension Fund	Non-Separate	Equity and Fixed Income	..	4.1	..
Romania	Azt Viitorul Tau	Non-Separate	Equity	No	0.0	..
Russia	VTB	Non-separate	Equity	No	0.0	..
South Africa	GEPF	Non-Separate	Developmental Investments	Yes	0.3	..
Spain	Endesa	Non-Separate	Equity and Fixed Income	..	0.0	..
Spain	Fonditel (5)	Non-Separate	Private Equity	Yes	0.2	4.0
Turkey	OYAK	Non-Separate	Equity	No	3.7	..
United Kingdom	USS	Separate	Infrastructure	Considering	5.3	6.0
United States	New York City Combined Retirement System	Non-Separate	Real Assets	..	0.1	..
United States	Illinois SURS	Non-Separate	Other	..	0.4	..
United States	United Nations Joint Staff Pension Fund	Non-Separate	Real Estate	..	0.1	..
PPRFs					0.0	
Argentina	Sustainability Guarantee Fund (6)	Separate	Infrastructure	No	12.5	5-20
Australia	Future Fund	Separate	Infrastructure and Timberland	..	7.4	..
Canada	Canada Pension Plan Investment Board (7)	Separate	Infrastructure	..	5.5	..
Canada	Quebec Pension Plan	Separate	Infrastructure	..	4.6	7.5
Chile	Pension Reserve Fund	Non-Separate	Equity, Fixed income	..	0.0	..
Finland	Keva	Non-Separate	Private Equity, Equity and Fixed Income	No	0.7	..
Finland	Valtion Eläkerahasto	Separate	Infrastructure	Yes	1.8	..
Japan	Government Pension Investment Fund	Non-Separate	n.d.	No	..	..
New Zealand	New Zealand Superannuation Fund	Non-Separate	Private Equity and Global Equities	..	1.5	..
Sweden	AP1 (3)	Separate	Infrastructure	..	2.1	5.0
Sweden	AP3	Separate	Real Estate	..	1.7	..
Sweden	AP4	Non-Separate	Equity	..	0.0	..

"n.d." means not available.

(1) AustraliaSuper and Sunsuper target allocations are based on the balanced option in each respective DC scheme. (2) Target allocation is based on three premixed options for plan participants. (3) Data refer to 2015. (4) PFA Pension is a defined contribution scheme, thus a target allocation does not exist at the fund level. (5) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. Although Fonditel did not indicate a separate category for infrastructure, the fund reported a 4% target and categorises infrastructure as private equity. (6) Argentina's Sustainability Guarantee Fund invests in infrastructure through private debt instruments. (7) CPPIB does not have a separate allocation to infrastructure because CPPIB has a "Total Portfolio Approach" and therefore no specific allocations to any asset class. The Total Portfolio Approach, ensures that CPPIB can maintain – or deliberately change – targeted risk exposures across the entire portfolio as individual investments enter, leave or change in value.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

Analysis of infrastructure investment

Overall investment in infrastructure in 2014 was still limited: if we consider total assets under management of funds from which data was received (i.e. 77 funds for USD 7.8 trillion) infrastructure investment in the form of unlisted equity and debt considered as direct, was USD 85.6 billion, representing 1.1% of the total assets under management of the entire survey population.

Looking more in detail at the 41 funds taken into consideration for this part of the survey, total investment in infrastructure at the end of 2014, considered as direct exposure (USD 85.6 billion), represented 3.5% of total assets of these 41 funds.

This low level of investment in infrastructure has been on average stable. In 2010 23 funds reported, on average, an allocation of 2.9% to unlisted equity[37]. In 2014, infrastructure assets comprised 3.5% of total plan assets amongst the funds that reported unlisted infrastructure exposure.

Unlisted equity (i.e. infrastructure funds or direct investments in projects) is the largest category of infrastructure investment at USD 74.3 billion, and 3.0% of total assets in Part B. The average low investment is in line with what was reported in previous years: in 2013, 28 funds reported exposure to unlisted equity totalling USD 70.3 billion, or 3.0% of assets.

Despite the low and stable average, some funds are increasing their allocation to infrastructure. Brazil's Previ allocation to unlisted infrastructure increased from 3.7% of the total portfolio in 2010 to 6.6% in 2014. Australia's Sunsuper's allocation increased from 4.1% in 2011 to 6.0% in 2014.

There seems to be a large amount of potential capacity to expand institutional investment in infrastructure. Target allocations amongst the funds with dedicated exposure ranged on the low end from 1% to over 20% of total assets. All funds that reported a separate target allocation to infrastructure were below targets at the end of 2014 (see table 10).

Changing fund targets can indicate investor appetite for infrastructure assets. Of the funds surveyed in 2014, two indicated a reduction in their infrastructure target, four indicated an increase, and eleven reported no change. In 2015, no funds reported a reduction, five indicated an increase, and eleven reported no change.

Four funds including Russia's VTB, Chile's AFP Provida, ERAFP in France and Spain's Endesa planned to add new allocations to infrastructure in the near future. Sweden's AP1, a PPRF, established a new allocation to infrastructure in 2015 at 1.0% of total plan assets. Japan's GPIF may invest up to 5% of the total portfolio in alternative investments, including infrastructure, but has yet to fund this new allocation. A few other funds indicated possible interest, but cited regulatory constraints on investments as barriers.

Table 11. Infrastructure investment in 2014

	Total assets, in USD millions	As a % of total assets of funds in Part B of the report (1)	As a % of total assets for all funds (2)
Unlisted Equity	74,345	3.0	1.0
Debt	11,224	0.5	0.1

(1) Infrastructure investment is calculated as a percentage of total assets of funds investing in infrastructure. (2) Infrastructure investment is calculated as a percentage of total assets of all funds in the survey, excluding the ones stemming from annual reports.

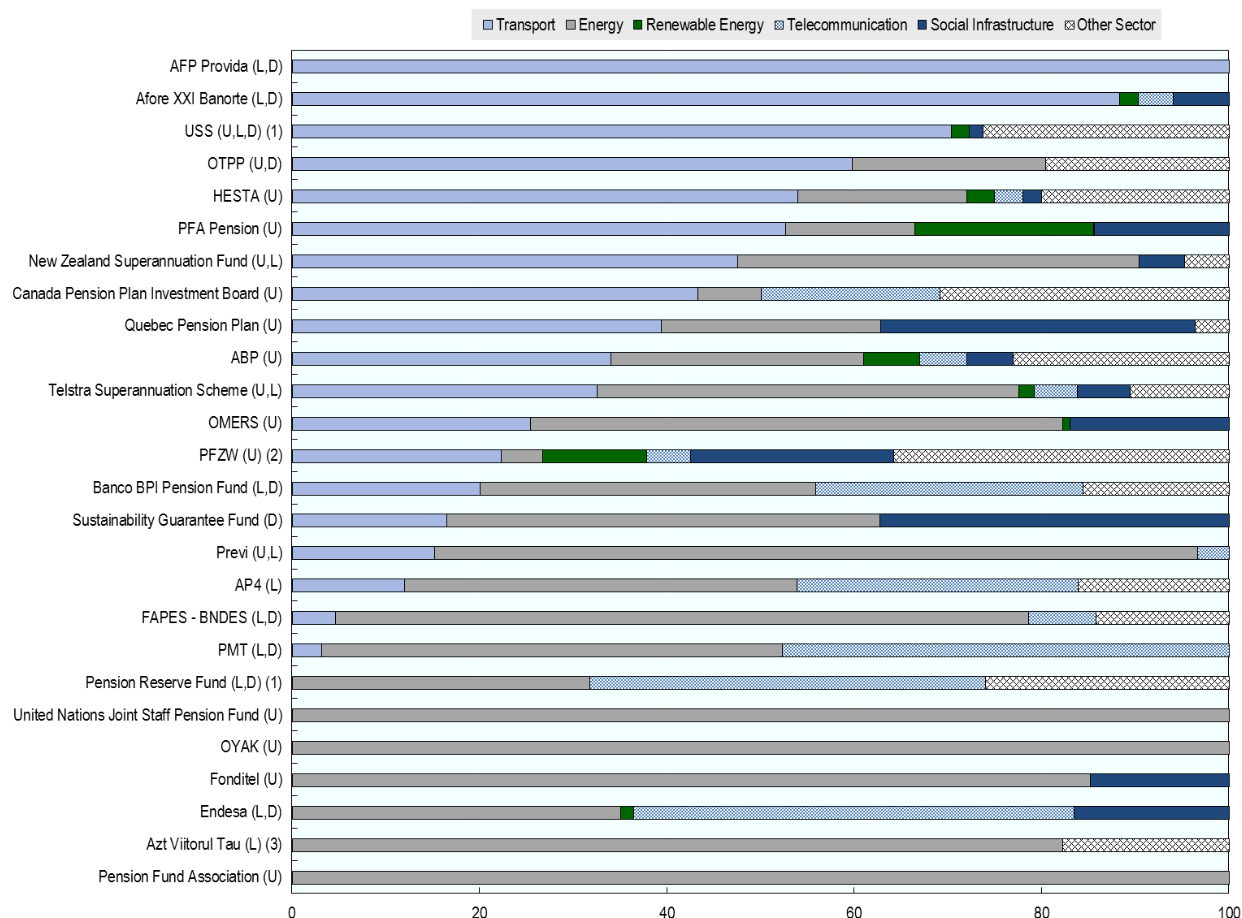
Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

[37] Figures may be understated given that for fixed income the majority of the funds do not report such details on their allocation and infrastructure unlisted equity is often included in other asset classes. Some funds also report their allocation to infrastructure through listed equity (i.e. infrastructure corporates), that for this survey, we have considered as indirect exposure.

Analysis of infrastructure portfolios

Figure 12. Infrastructure sector allocations of selected LPFs and PPRFs in 2014

As a percentage of total infrastructure investment



(1) Other includes utilities. (2) Other includes transmission, storage and distribution of electricity, oil and gas. (3) Other includes listed equity in the utility sector.

(U) Sector allocation includes unlisted infrastructure equity only.
(U,L) Sector allocation includes unlisted and listed infrastructure equity.
(L,D) Sector allocation includes listed infrastructure equity, and debt.
(U,D) Sector allocation includes unlisted infrastructure equity, and debt.
(L) Sector allocation includes listed infrastructure equity only.
(U,L,D) Sector allocation includes unlisted and listed infrastructure equity, and debt.
(D) Sector allocation includes debt only.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs.

This year's survey gathered data on sector allocations as reported by LPFs and PPRFs. Some funds reported sector allocations for unlisted infrastructure, listed shares, and debt, or in a combination of these three categories. Each fund is marked with the portion of the portfolio that their sector allocation covers.

Three funds invested only in energy including Japan's PFA, Turkey's OYAK and the UN Joint Staff Pension Fund. All three reported their energy exposure as unlisted equity investment. Chile's AFP Provida invested through listed shares and debt in transportation assets. A number of funds reported diversified

exposures. The Netherland's PFZW invested in all sectors, including energy transmission and storage, reported under "other".

Nine funds reported exposure to renewable energy, with PFA Pension reporting the largest allocation (through unlisted equity), followed by PFZW and ABP. PFA Pension has increased the share of renewable energy companies in their energy portfolio from 11% to 41% from 2010 to 2014, and expect this trend to continue. As part of its new investment policy adopted at the end of 2015, ABP plans to invest an additional EUR 4 billion in renewable energy generation. While the changing regulatory landscape in the energy sector brings challenges, it can also give rise to investment opportunities, specifically in renewable assets. Québec Pension Plan, Argentina's Sustainability Guarantee Fund, OMERS, and PFZW all had significant allocations to social infrastructure.

Table 12. Detailed infrastructure investment vehicles of selected large pension funds and public pension reserve funds, 2014

As a percentage of total unlisted infrastructure investment

Country head office	Name of the fund or institution	Total unlisted infrastructure equity in 2014 (in USD m.)	Unlisted infrastructure investment breakdown (as % of total unlisted infrastruture equity)		
			Unlisted infrastructure funds	Direct and co-investment infrastructure equity	Other unlisted infrastructure equity
LPFs					
Australia	AustralianSuper	5,838	70.2	25.3	4.6
Australia	Health Employees Superannuation Trust Australia	2,297	93.8	6.2	0.0
Australia	Sunsuper	1,082	11.9	88.1	0.0
Australia	Telstra Superannuation Scheme	199	61.4	38.6	0.0
Brazil	Previ	4,263	0.0	100.0	0.0
Canada	OMERS	9,250	0.0	100.0	0.0
Canada	OTPP	10,875	0.0	100.0	0.0
Denmark	PFA Pension	499	100.0	0.0	0.0
Japan	Pension Fund Association	204	0.0	100.0	0.0
Netherlands	PFZW	5,325	32.2	67.8	0.0
Netherlands	PMT	476	100.0	0.0	0.0
Netherlands	ABP	7,502	71.0	29.0	0.0
Portugal	Banco BPI Pension Fund	57	0.0	100.0	0.0
Spain	Fonditel	7	100.0	0.0	0.0
Turkey	OYAK	341	0.0	100.0	0.0
United Kingdom	USS	3,354	23.2	76.8	0.0
United States	Illinois SURS	66	100.0	0.0	0.0
United States	United Nations Joint Staff Pension Fund	76	100.0	0.0	0.0
PPRFs					
Canada	Canada Pension Plan Investment Board	11,374	0.5	98.1	1.4
Finland	Keva	335	48.2	51.8	0.0
Finland	Valtion Eläkerahasto	393	53.8	46.2	0.0
New Zealand	New Zealand Superannuation Fund	330	0.0	100.0	0.0
Sweden	AP3	641	100.0	0.0	0.0

(1) Data cover the CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança, Mundial Confiança, and Petrogal. Data for Petrogal have been gathered from a publicly available report. (2) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España.

Source: OECD calculations based on responses to the OECD Survey of LPFs and PPRFs and publicly available reports.

Trends in infrastructure investment

Direct investment or co-investment remained the most common method for funds to gain exposure to infrastructure, with well over half of unlisted infrastructure investments amongst funds surveyed (Table

12). This reflects the nature of the survey which has a focus on larger funds that have the size and expertise for direct investments.

Of the total USD 74.3 billion allocated to unlisted infrastructure, a subset of funds broke down their allocation into direct investments and infrastructure funds. In this sample, unlisted infrastructure funds accounted for 25% of the total, direct and co-direct investments 74%, and other unlisted investments were 1% of the total. Australian superannuation funds used a mix of investment funds and direct/co-direct investments. Funds based in Europe and the United States tended to use funds rather than direct investment. Canadian funds accessed unlisted equity through direct and co-investments.

A variety of fund structures to access infrastructure are available. Most institutional investors continue to be interested in shorter-term closed-ended structures with which they have more familiarity. However, there is also increasing interest for open-ended fund structures which may more closely match the underlying maturity of many core brownfield assets that come to market as part of very long-term public-private partnership (PPP) concessions. An example is the launch in the UK of the Pension Investment Platform, owned directly by nine local pension funds.

Debt finance

Despite the difficulties of measuring debt investment in infrastructure, often captured in other asset classes by investors, the survey clearly outlines high activity and some interesting new trends in this category including publicly traded debt instruments or direct project loans, senior and/or mezzanine loans, and bonds. Some funds also reported green bonds issuance as part this allocation.

Debt exposure to infrastructure for the subsample for part B was USD 11.2 billion or 0.5% of total assets in 2014. Of the funds surveyed, twelve reported exposure to direct loans and bonds. The UK's USS reported 0.7% of the total portfolio was invested in infrastructure loans, an increase from last year's allocation of 0.5%. Chile's AFP Provida invested 0.8% of the portfolio in infrastructure loans. Spain's Endesa and Brazil's FAPES reported over 5% invested in infrastructure bonds.

Argentina's Sustainability Guarantee Fund, one of the only PPRFs to report exposure to direct infrastructure fixed income, reported 12.5% allocated to loans and bonds. Financial trusts and structured finance transactions were the main financing vehicles for Argentina's debt investments in infrastructure. The fund is required by statute to invest at least 5%, and up to 20%, of the total portfolio in domestic infrastructure projects.

Some green bonds, may also be included as infrastructure investment. Investment in green bonds increased in 2014 due to expanded issuer volumes (see earlier section on green investments). Some of these debt instruments back clean water and energy projects which could fall under the category of infrastructure.

ANNEX

Complete Listing of Funds Included in this Report

Large Pension Funds: Data gathered through questionnaires during the 2015 exercise (base year: 2014)

	Country head office	Name of the fund or institution	Reporting period for 2015 update (if provided)
1)	Australia	AustralianSuper	Jun-15
2)	Australia	Health Employees Superannuation Trust Australia (Hesta)	Jun-15
3)	Australia	Sunsuper	Aug-15
4)	Australia	Telstra Superannuation Scheme	Jun-15
5)	Brazil	Fundação de Assistência e Previdência Social do BNDES (FAPES)	Jun-15
6)	Brazil	Previ	Jun-15
7)	Canada	Ontario Municipal Employees Retirement System (OMERS)	..
8)	Canada	Ontario Teachers' Pension Plan Board (OTPP)	..
9)	Chile	AFP Cuprum	Aug-15
10)	Chile	AFP Provida	Sep-15
11)	Croatia	PBZ Croatia Osiguranje (PBZ CO)	Jul-15
12)	Croatia	Raiffeisen Mandatory Pension Funds	Jul-15
13)	Denmark	PFA Pension	Jun-15
14)	Finland	Ilmarinen	Jun-15
15)	France	Établissement de Retraite Additionnelle de la Fonction Publique (ERAFP)	Jul-15
16)	Indonesia	BPJS Ketenagakerjaan	Jun-15
17)	Israel	Makefet	Jun-15
18)	Israel	Menora-Mivtachim	Jun-15
19)	Italy	Cometa	Jun-15
20)	Italy	Fonchim	Jun-15
21)	Italy	Fonte	Aug-15
22)	Japan	Pension Fund Association	Mar-15
23)	Mexico	Afore XXI Banorte	Aug-15
24)	Netherlands	Pensioenfonds Metaal en Techniek (PMT)	Jun-15
25)	Netherlands	Pensioenfonds Zorg en Welzijn (PFZW)	Jun-15
26)	Netherlands	Stichting Pensioenfonds ABP (ABP)	Jun-15
27)	Nigeria	AES Fund	..
28)	Nigeria	CPFA Fund	Jun-15
29)	Nigeria	RSA Fund	Aug-15
30)	Portugal	Banco BPI Pension Fund	Jun-15
31)	Portugal	CGD Staff's Pension Fund (1)	..
32)	Portugal	Fidelidade (1)	..
33)	Portugal	Galp Energia (1)	..
34)	Portugal	Império-Bonança (1)	..
35)	Portugal	Mundial Confiança (1)	..
36)	Romania	Azt Viitorul Tau	Aug-15
37)	Romania	ING ACTIV and ING OPTIM Voluntary Pension Funds	Jul-15
38)	Romania	ING Mandatory pension fund	Jul-15
39)	Romania	Raiffeisen Acumulare	Jun-15
40)	Russia	VTB	Jun-15
41)	South Africa	Government Employees Pension Fund (GEPF)	Jun-15
42)	South Africa	Sentinel Retirement Fund	..
43)	Spain	Comisiones Obreras (CCOO)	Aug-15
44)	Spain	Fonditel	Jun-15
45)	Spain	Previsión Social, Empleados del Grupo Endesa, f.p. (Endesa)	Jul-15
46)	Spain	Santander Empleados Pensiones, FP (Santander)	Sep-15
47)	Sweden	Alecta	Jun-15
48)	Turkey	Ordu Yardımlaşma Kurumu (OYAK)	..
49)	United Kingdom	Universities Superannuation Scheme (USS)	Jul-15
50)	United States	Los Angeles County Employees Retirement Association (LACERA)	Jun-15
51)	United States	Massachusetts Pension Reserves Investment Management Board (Mass PRIM)	Jun-15
52)	United States	New York City Combined Retirement System	..
53)	United States	State Universities Retirement System of Illinois	Jun-15
54)	United States	United Nations Joint Staff Pension Fund	Jun-15

(1) Pension funds managed by CGD

Source: OECD information based on responses to the OECD Survey of LPFs and PPRFs.

Public Pension Reserve Funds and Sovereign Wealth Funds with a pension focus: Data gathered through questionnaires during the 2015 exercise (base year: 2014)

	Country head office	Name of the fund or institution	Reporting period for 2015 update (if provided)
1)	Argentina	Sustainability Guarantee Fund	Jun-15
2)	Australia	Future Fund	Jun-15
3)	Belgium	Zilverfonds	Aug-15
4)	Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska	Jun-15
5)	Bulgaria	State Fund for Guaranteeing the Stability of the State Pension System	Aug-15
6)	Canada	Canada Pension Plan Investment Board	Jun-15
7)	Canada	Quebec Pension Plan	Jun-15
8)	Chile	Pension Reserve Fund	May-15
9)	Finland	Keva	Jun-15
10)	Finland	Valtion Eläkerahasto	Jun-15
11)	Japan	Government Pension Investment Fund	Jun-15
12)	Mexico	IMSS Reserve	Jul-15
13)	New Zealand	New Zealand Superannuation Fund	Jun-15
14)	Norway	Government Pension Fund - Global (GPFG)	Jun-15
15)	Norway	Government Pension Fund - Norway (GPFN)	Jun-15
16)	Poland	Demographic Reserve Fund	Jul-15
17)	Portugal	Social Security Financial Stabilisation Fund	Jun-15
18)	Spain	Social Security Reserve Fund	Jun-15
19)	Sweden	AP1	Jun-15
20)	Sweden	AP2	Jun-15
21)	Sweden	AP3	Jun-15
22)	Sweden	AP4	Jun-15
23)	United States	Social Security Trust Fund	Jun-15

Source: OECD information based on responses to the OECD Survey of LPFs and PPRFs.

Large Pension Funds: Data gathered through publicly available reports during the 2015 exercise (base year: 2014)

	Country head office	Name of the fund or institution	Reporting period for 2015 update (if provided)
1)	Brazil	Fundação dos Economiários Federais (FUNCEF)	..
2)	Canada	Alberta Investment Management Corp. (AIMCO)	..
3)	Denmark	Arbejdsmarkedets Tillægspension (ATP)	Jun-15
4)	Germany	Bayerische Versorgungskammer	..
5)	Germany	Bayer-Pensionskasse	..
6)	Singapore	Central Provident Fund	..
7)	United Kingdom	BP Pension Scheme	..
8)	United Kingdom	BT Pension Scheme	..
9)	United Kingdom	Railways Pension Scheme	..
10)	United States	California Public Employees' Retirement System (CalPERS)	Jun-15
11)	United States	California State Teachers' Retirement System (CalSTRS)	Jun-15
12)	United States	Florida Retirement System Pension Plan	..
13)	United States	New York State Combined Retirement System	Mar-15
14)	United States	State of Wisconsin Investment Board	..

Source: OECD information based on publicly available reports.

Public Pension Reserve Funds and Sovereign Wealth Funds with a pension focus: Data gathered through publicly available reports during the 2015 exercise (base year: 2014)

	Country head office	Name of the fund or institution	Reporting period for 2015 update (if provided)
1)	Canada	PSP Investments	Mar-15
2)	China (People's Republic c	National Social Security Fund	..
3)	France	AGIRC	…
4)	France	ARRCO	..
5)	India	Employee Provident Fund	..
6)	Korea	National Pension Service	Sep-15
7)	Russia	National Wealth Fund	Jun-15
8)	Sweden	AP6	..

Source: OECD information based on publicly available reports.

Types of Sovereign and Public Pension Reserve Funds

Although there is no single widely accepted definition, Sovereign and Public Pension Reserve Funds (SPFs) could be defined as funds set up by governments or social security institutions with the objective of contributing to finance the relevant pay-as-you-go pension plans. There are two types of SPFs. Although both have the same ultimate objective (i.e. meeting the potential financial liabilities relating to the social security system), they vary in terms of funding sources, investment strategies, and payout phases, among others.

- One is the fund that is part of the overall social security system, where the inflows are mainly surpluses of employee and/or employer contributions over current payouts, as well as top-up contributions from the government via fiscal transfers and other sources. Among others, Denmark's Social Security Fund, Japan's Government Pension Investment Fund, and USA's Social Security Trust Fund fall within this category. These funds may be managed by the social security institution itself or an independent -often public sector- fund management entity.

- The other type refers to those funds which are established directly by the government (completely separated from the social security system), and whose financial inflows are mainly from direct fiscal transfers from the government. Unlike the first type of SPFs, those within this category have been set up by governments to meet future deficits of the social security system. Some are not allowed to make any payouts for decades. All of these funds are under autonomous management entities. Examples include the Australia Future Fund, the New Zealand Superannuation Fund, the Norwegian Government Pension Fund, and the French "Fond de Réserve pour les Retraites". These funds are also sometimes classified as sovereign wealth funds (SWFs). Though they do not all have high foreign investment allocations.

Source: OECD Pension Markets in Focus.

Annual Survey of Large Pension Funds and Public Pension Reserve Funds

REPORT ON PENSION FUNDS' LONG-TERM INVESTMENTS

2015

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