Annual Survey of Large Pension Funds and Public Pension Reserve Funds

REPORT ON PENSION FUNDS' LONG-TERM INVESTMENTS

2014

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. The data herein is designed to illuminate the role that large institutional investors can play in providing a source of stable long-term capital, consistent with the objectives and directions as set for in the February 2013 communiqué from the G20 Finance Ministers and Central Bank Governors. This data will help to provide insights and detailed investment information which complement the administrative data gathered by the OECD at a national level through the Global Pension Statistics project.

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

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

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G20 Background

At the G20 Leaders Summit held on November 15-16, 2014[2], in Brisbane, Australia, the issue of long-term financing for sustainable and durable growth was an important theme in charting the economic future of member countries. G20 leaders identified structural reforms and quality investments, particularly in infrastructure, as important conditions to foster job creation and to support long-term growth targets. Promoting institutional investment in infrastructure is increasingly becoming a topic of interest at the G20 as part of this multi-year plan for growth.

To this end, the OECD was called on to continue to lead an important part of this agenda through the G20/OECD Task Force on Long-term Investment Financing by Institutional Investors (the Task Force). Through the Task Force, the G20 welcomed several reports in 2014 including the G20/OECD Checklist on Long-term Investment Financing Strategies and Institutional Investors,[3] the Report on Effective Approaches to Support Implementation of the High-Level Principles on Long-term Investment Financing by Institutional Investors (the Principles),[4] and two additional reports Private Financing and Government Support to Promote Long-term Investments in Infrastructure, and Pooling of Institutional Investors Capital – Selected Case Studies in Unlisted Equity Infrastructure.[5] The reports encapsulate several years of work, based on the OECD Institutional Investors and Long-term Investment Project, presenting 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.

Recognising that further research is needed and that institutional investors can play a role in promoting an agenda of economic stability and sustainable growth, some IOs have been mandated to provide specific deliverables. OECD research on the Taxonomy of Instruments and Incentives for Stimulating the Finance of Infrastructure, first presented to the G20/OECD Task Force in early September 2014, will be part of this ongoing work.

Other deliverables for the OECD include the results of the G20/OECD Checklist on Long-term Investment Financing Strategies and a report on the remaining effective approaches to implement the G20/OECD High-Level Principles

The survey report on pension funds' long-term investments here presented in this publication will complement the research effort.

[1] Editors: Joel Paula and Raffaele Della Croce. Contributors: Romain Despalins and David Pinkus. This report was made possible by the contributions of pension funds and public pension reserve funds. The OECD gratefully acknowledges the efforts of the participants in providing extensive data. The views contained herein may not necessarily reflect those of the G20 and OECD Members.

[2] See Communiqué Meeting of Finance Ministers and Central Bank Governors – Cairns, 20-21 September 2014 http://www.g20.org/news/20130216/781212902.html

[3] See OECD contribution: *G20/OECD Checklist on Long-Term Investment Financing Strategies and Institutional Investors*

[4] See OECD contribution: *Report on Effective Approaches to Support Implementation of the G20/OECD High-Level Principles on Long-Term Investment Financing by Institutional Investors*

[5] See OECD contribution: *Private Financing and Government Support to Promote Long-Term Investments in Infrastructure*

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. In recent years institutional investors have 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. 2014 now marks the fourth year of the survey and following the G20 mandate, the scope of this report will cover selected OECD countries, IOPS[8] countries, and member countries of the G20.

The survey reviewed trends in assets and asset allocation by 104 Large Pension Funds (LPFs) and Public Pension Reserve Funds (PPRFs),[9] which in total managed USD 10.4 trillion in assets, one third of the total worldwide assets held by this class of institutional investor.[10] Information was provided through the survey for 71 out of the 104 investors.[11] Data for the 33 remaining funds came from publicly available sources.

75 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 3.9 trillion. Data for 50 schemes were provided by the large pension funds directly, the other 25 coming from publicly available sources. This information is presented in combination with the PPRF survey carried out at the same time. 21 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 6.5 trillion by the end of 2013 for the countries in which we received or looked for

[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 is rarely part of a separate allocation, usually being considered 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 lending to infrastructure vehicles is reported as fixed income, while direct investment or participation in private equity vehicles is often reported within the category “other”.

[8] IOPS: International Organisation of Pension Supervisors. More information about IOPS can be found at: http://www.iopsweb.org/.

[9] PPRFs are reserves/buffers to support otherwise PAYG financed public pension system 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. In the survey were included some SWFs such as Norway’s Government Pension Fund – Global that have at least a partial pension objective.

[10] 50 large pension schemes and 21 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.

[11] 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.

data. Altogether, data was compiled from funds representing 35 countries around the world including some non-OECD countries such as Brazil, India, Indonesia, Nigeria, and South Africa.

This survey is part of the OECD project on Institutional Investors and Long-term Investment[12] the scope of which continues to broaden as the project deepens.[13] Going forward, the survey will be extended to other institutional investors with the roll-out of the Large Insurance Company Survey underway at the end of 2014, and planned surveys for Sovereign Wealth Funds. The survey data complements insights and detailed administrative data gathered at the national level.[14]

The information in this survey report is designed to illuminate the role that large institutional investors can play in providing a source of stable long-term capital, consistent with the objectives and directions as set forth by the Task Force. Initial findings and relevant policy conclusions here presented will be further expanded – including further analysis from other OECD reports and inputs from the IMF and WB.

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. While spotting investment trends and reporting on the general state of long-term pension savings will be of prime value to the ultimate investors, it will 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 get a sense of the drivers behind asset allocation decisions and the conditions needed to attract long-term savings.

Based on a qualitative and quantitative questionnaire, the survey is divided into three different parts: 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 35 funds out of the total 71 funds that returned completed questionnaires.

[12] See www.oecd.org/finance/lti.

[13] See OECD Project Report

[14] See *OECD Pensions Outlook 2014* at www.oecd.org/daf/fin/private-pensions.

Table 1. Large Pension Funds surveyed

Country head office	Name of the fund or institution	Total investments or assets in 2013 in USD bn. (1)
Netherlands	Stichting Pensioenfonds ABP (ABP)	445.3
United States	California Public Employees' Retirement System (CalPERS) (2,3)	283.5
Singapore	Central Provident Fund (2)	202.0
Netherlands	Pensioenfonds Zorg en Welzijn (PFZW)	189.4
United States	California State Teachers' Retirement System (CalSTRS) (2,3)	166.3
United States	New York City Combined Retirement System	150.9
South Africa	Government Employees Pension Fund (GEPF)	133.4
United States	Florida Retirement System Pension Plan (2,3)	132.4
Canada	Ontario Teachers' Pension Plan Board (OTPP)	130.5
Denmark	Arbejdsmarkedets Tillægspension (ATP) (2)	125.2
Japan	Pension Fund Association	112.8
Sweden	Alecta	94.2
United States	Ohio Public Employees Retirement System (OPERS)	87.7
Germany	Bayerische Versorgungskammer (2)	80.9
United States	New Jersey Fund (2)	76.8
Brazil	Previ	72.0
Canada	Alberta Investment Management Corp. (AIMCO) (2)	69.6
United States	Retirement Funds of Washington State (2,3)	68.0
Netherlands	Pensioenfonds Metaal en Techniek (PMT)	66.6
United Kingdom	Universities Superannuation Scheme (USS)	66.4
Canada	Ontario Municipal Employees Retirement System (OMERS)	61.8
United Kingdom	BT Pension Scheme (2,3)	60.9
United States	Massachusetts PRIM Board (2)	57.7
Australia	AustralianSuper	57.3
Denmark	PFA Pension	54.5
Australia	AMP Superannuation Savings Trust (2,3)	54.4
Finland	Keva	52.2
United States	United Nations Joint Staff Pension Fund	51.4
Chile	AFP Provida	45.1
United States	Los Angeles County Employees Retirement Association (LACERA)	44.7
Finland	Ilmarinen	44.5
Chile	AFP Habitat	42.7
Mexico	Afore XXI Banorte	39.2
Chile	AFP Cuprum	33.7
Australia	UniSuper Management Pty Ltd (UniSuper) (2,3)	33.7
United Kingdom	Railways Pension Trustee Company (2)	33.1
United Kingdom	BP Pension Scheme (2)	31.4
United States	South Carolina Retirement System Investment Commission (RSIC) (2,3)	28.7
Brazil	Petros (2)	27.8
Mexico	Banamex	26.9
Australia	Sunsuper	24.0
France	Établissement de Retraite Additionnelle de la Fonction Publique (ERAFP	23.8
Brazil	Fundação dos Economiários Federais (FUNCEF)	22.4
Colombia	AFP Porvenir (4)	17.3
United States	State Universities Retirement System (2,3)	16.3
Israel	Menora-Mivtachim	16.1
Peru	AFP Integra (2)	15.2
Italy	Cometa	11.4
Germany	Bayer-Pensionskasse (2)	11.3
Peru	AFP Profuturo (2)	9.8
Germany	Hoechst Pensionskasse (2)	9.3
Turkey	Ordu Yardımlaşma Kurumu (OYAK)	8.5
United States	New Hampshire Retirement System (2,3)	6.4
Italy	Fonchim	6.0
Nigeria	RSA Fund (5)	5.7
Russia	Lukoil - Garant (2)	4.3
Spain	Fonditel (6)	3.9
South Africa	Sentinel Retirement Fund (7)	3.7
Brazil	Fundação de Assistência e Previdência Social do BNDES (FAPES)	3.5
Italy	Fonte	3.3
Portugal	Pension funds managed by CGD (8)	3.0
Russia	VTB	2.1
Spain	Previsión Social, Empleados del Grupo Endesa, f.p. (Endesa)	2.0
Nigeria	CPFA Fund (5)	2.0
Spain	Fondo de Pensiones de Empleados de Bankia (Bankia) (9)	1.9
Portugal	Banco BPI Pension Fund	1.5
Nigeria	AES Fund (5)	0.9
Spain	Santander Empleados Pensiones, FP (Santander)	0.2
Russia	Trade-industrial pension Fund	0.1
Spain	Comisiones Obreras (CCOO)	0.0
Total		**3,871.3**

(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 refer to the end of June. (4) Data only refer to the moderate plan of the mandatory pension fund. (5) 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. (6) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. (7) Data only refer to the Pensioner Portfolio. (8) Data cover the CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança, Mundial Confiança, and Petrogal. (9) Data are given for the most representative plan of Bankia Pensiones.
Source: OECD and other sources.

Table 2. Large Pension Funds surveyed

Country head office	Name of the fund or institution	Total investments or assets in 2013 in USD bn. (1)
United States	Social Security Trust Fund	2,764.4
Japan	Government Pension Investment Fund	1,223.9
Norway	Government Pension Fund - Global (GPFG) (2)	849.6
Korea	National Pension Service (3)	404.5
China (People's Republic of)	National Social Security Fund (3)	203.5
Canada	Canada Pension Plan Investment Board	189.3
Sweden	National Pension Funds (AP1-AP4 and AP6) (4)	164.7
India	Employee Provident Fund (3,5)	116.2
Russia	National Wealth Fund (3,6)	88.6
Australia	Future Fund	85.6
Canada	PSP Investments (3,7)	75.0
Spain	Social Security Reserve Fund	74.1
France	AGIRC - ARRCO (3)	71.6
Argentina	Sustainability Guarantee Fund	50.7
Canada	Quebec Pension Plan	43.1
Norway	Government Pension Fund - Norway (GPFN)	28.9
Belgium	Zilverfonds	27.5
New Zealand	New Zealand Superannuation Fund	20.6
Portugal	Social Security Financial Stabilisation Fund	16.1
Indonesia	Jamsostek (8)	12.3
Chile	Pension Reserve Fund	7.3
Poland	Demographic Reserve Fund	5.9
Mexico	IMSS Reserve (9)	1.7
Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska	0.2
Total		**6,525.3**

(1) Data correspond to all forms of investment with a value associated to a pension fund/plan. (2) 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. (3) Data have been gathered from publicly available reports. (4) Data for AP6 come from a publicly available report. (5) Data refer to the end of March 2013, and include the Employees Provident Fund, the Employees Pension Fund and the Employees Deposit Linked Insurance Fund. (6) 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. (7) Data refer to the end of March 2013. (8) Jamsostek was founded in 1977 as a state entity which develops employment accident, health care, death and provident fund schemes for employees. Since the beginning of January 2014, the state pension fund was converted into BPJS Ketenagakerjaan, which is the workers' social security provider agency. (9) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries.
Source: OECD and other sources.

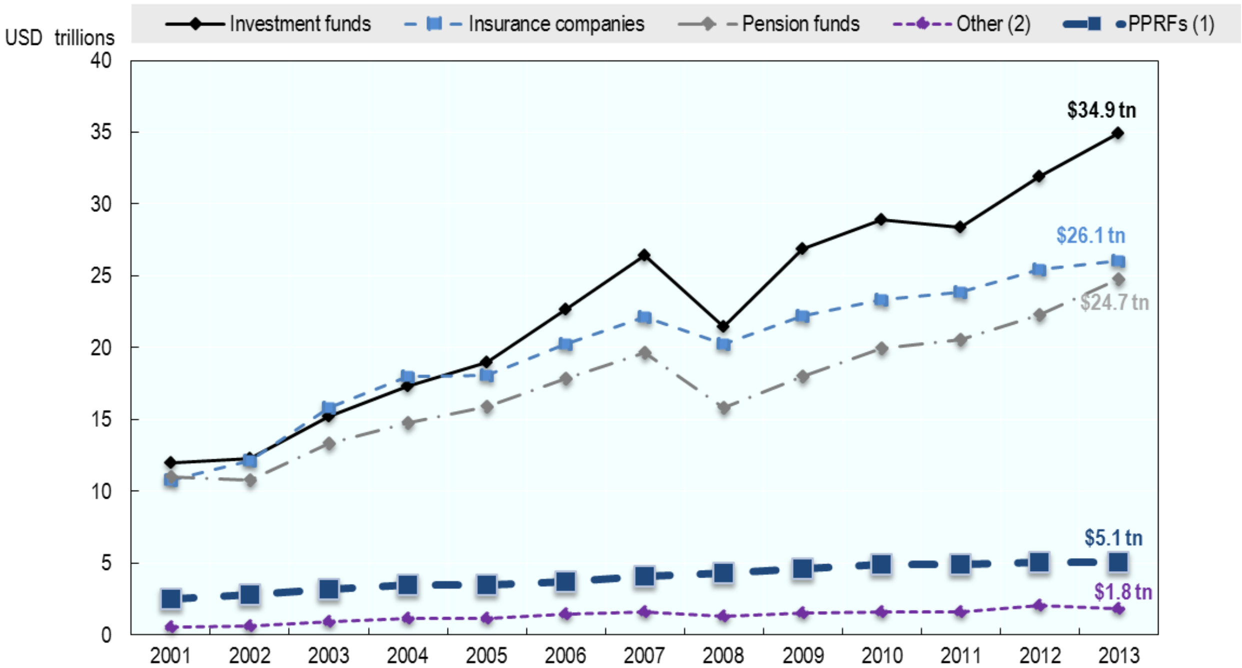
EXECUTIVE SUMMARY

The growing role of institutional investors in financial markets.

In 2013, the primary institutional investors in the OECD – pension funds, public pension reserve funds (PPRFs), mutual funds, and insurance companies – held USD 92.6 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 47.3 trillion. In 2001, OECD institutional assets represented 1.4x GDP; this number has since grown to 2.0x GDP, highlighting the growing role of institutions as financial intermediaries. Put another way, the accumulation of savings in such financial channels has never been so large, which underscores the important role that institutions can play as sources of productive long-term capital. This function has become increasingly important during a time period in which the role of traditional financial intermediaries such as banks and their capacity to provide long-term financing is changing in the post credit crisis period. The scope of this survey covers OECD countries, some non-OECD countries, and member countries of the G20.

Figure 1. Total assets by type of institutional investor in the OECD, 2001-2013

In USD trillions



PPRFs = Public Pension Reserve Funds.

Note: Book reserves are not included in this chart. Pension funds and insurance companies' assets include assets invested in mutual funds, which may be also counted in investment funds. As 2013 annual data for investment funds, insurance companies and other institutional investors are not yet available, 2013 Q4 data have been used instead when available.

(1) Data include Australia's Future Fund, Belgium's Zilverfonds (2008-2013), Canada Pension Plan Investment Board, Chile's Pension Reserve Fund (2010-2013), 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. (2) Other forms of institutional savings include foundations and endowment funds, non-pension fund money managed by banks, private investment partnership and other forms of institutional investors.

Source: OECD Global Pension Statistics, Global Insurance Statistics and Institutional Investors' Assets databases, and OECD estimates.

Large Pension Fund and Public Pension Reserve Fund growth..

The total amount of assets under management for the Large Pension Funds (LPFs) included in the survey was USD 3.9 trillion at the end of 2013. After several years of good portfolio returns, most LPFs have regained or surpassed pre-crisis asset levels. The assets put aside by the largest pension funds for which we received data increased by 9.7% on average between 2012 and 2013 (through asset appreciation and/or fund flows). Trailing four-year real returns were positive for all funds.

Within the OECD countries for which we received data, the Netherlands has two of the largest funds, ABP at USD 445.3 billion and PFZW at USD 189.4 billion. Amongst the largest are three funds based in the United States: CalPERS at USD 283.5 billion, CalSTRS at USD 166.3 billion, and the New York City Combined Retirement System at USD 150.9 billion.

Total amounts of PPRF assets were equivalent to USD 6.5 trillion by the end of 2013 for the countries in which we received or looked for data. 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 1.2 trillion. Canada, Korea and Sweden also accumulated large reserves. The survey also shows PPRFs or SWFs in five major non-OECD countries that are G20 members: Argentina, China, India, Indonesia, and Russia.

Compared to last year, PPRF assets increased 7.1% on average (due to asset appreciation and/or fund flows). Spain was the only fund to report a decrease in assets since the previous year, as the Spanish Social Security Reserve Fund was tapped to pay pension benefits and to meet fiscal objectives.
Five-year real returns, which capture results during the recovery period from the GFC to the end of 2013, are positive for nearly all funds, with the exception of the Pension Reserve Fund in Chile.

..set to continue, particularly in emerging markets.

Despite the recent financial crisis, 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 1.8 trillion in assets, is forecasted to grow to nearly AUD 6 trillion by 2037, and is the fifth largest pool of retirement savings in the OECD.[15] The Canada Pension Plan, at USD 219 billion in 2014, is projecting to have USD 519 billion of assets under management by 2030.

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.[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, Colombia, South Africa, and Nigeria. South Africa's GEPF at USD 133.4 billion and Brazil's Previ at USD 72.0 billion stood out as the largest funds in their respective continents.

Sovereign Wealth Funds (SWFs) and Public Pension Reserve Funds (PPRFs) are becoming major players in international financial markets. Of the countries surveyed, twelve had established their PPRFs in the

[15] Australia has a relatively 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

[16] 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.

previous decade or later. Large reserves are also accumulated in sovereign wealth funds that have a pension focus. The Government Pension Fund Global in Norway at the end of 2013, held USD 849.6 billion in assets, accounting for 171.5% of Norway's GDP.

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 opportunities in an environment where asset values already seem high is a challenge. Quantitative easing 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. Furthermore, the post GFC environment is changing the way that financial institutions such as banks act as market makers and providers of credit. What the survey does reveal are some emerging practices and trends that funds are using to overcome these barriers.

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 provides a summary of emerging practices and evolving trends amongst large funds**:**

Alternative Investments in DC systems

Defined contribution pensions are a large component of retirement savings in many countries. Due to DB plan closures, freezings and shifting corporate retirement benefit schemes, DC plan assets are forecasted to grow substantially faster than DB plan assets in some regions. An important issue is how, given the long-term retirement savings of workers, can DC plan participants benefit from an illiquidity premium on investments when there are often shorter-term liquidity provisions at the fund level. Policies in markets where DC assets are a substantial part of long-term savings need to address this issue.

Hedge Funds

CalPERS grabbed headlines in 2014 when it announced that it would divest from hedge fund investments in subsequent years. CalPERS was an early institutional investor in hedge funds over ten years ago. While it is certainly noteworthy when a large and influential fund like CalPERS changes policy in such a way, what may come out of the CalPERS announcement is continued pressure on hedge fund fees, which are high relative to traditional investments. The trend over the past four years, based on the survey data, is a slight increase in average hedge fund allocations.[17]

Credit Opportunities

In the current environment, credit opportunities persist through direct lending strategies, where institutional investment funds raise capital to deploy in SME loans and other direct corporate loans. Liquidity is lower in such strategies often placing them in alternative investment categories.

[17] Allocations to hedge funds may be affected by changes in portfolio asset values, currencies, or fund flows.

Opportunistic Strategies and Alternative Asset Allocation Techniques

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. So called opportunistic strategies or multi-asset class strategies allow for investment managers 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.

Liability Driven Investments and De-Risking Glide-paths

Either due to regulatory requirements or internal policies, funds are recognising the need to invest assets in order to minimise funding level volatility, while balancing these goals with return objectives. With interest rates still near secular lows, increasing hedge ratios can be a difficult decision to make. The concept of linking funded status or the hedge ratio to asset allocation (sometimes called de-risking) leads to a more dynamic strategic asset allocation, and helps to codify the decision process.

Emerging Markets

Most funds have established allocations in emerging markets equities. Changes in asset allocation in emerging markets over the past few years has come from gradually expanding these allocations, and by adding exposures to emerging markets debt, particularly in local currency bond markets, or in alternative strategies such as private equity or hedge funds. Volatility in recent time periods has slowed investment into emerging economies; however, the overall trend of increasing investments did not reverse.

Green and ESG Investments

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. Definitions of green investments, or ESG criteria, can vary from one fund to another. Some types of investments reported included specially screened equities, green bonds, and alternatives such as environmental technology infrastructure.

TRENDS IN ASSET ALLOCATION

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

Perhaps the most salient trend amongst the survey population was an increase in alternative investments. This was especially true amongst PPRFs: the 16 funds that reported data in 2010 and 2013, nearly the entire survey population, increased alternatives/other by 4.2 percentage points, on average, over the past four years. The ten largest LPFs also increased alternative investments (2.3 percentage points, on average). Allocation trends within traditional stocks and bonds were not in agreement amongst the two survey groups: PPRFs increased allocations to equities and reduced fixed income, on average, while the opposite was true amongst LPFs.

Several funds mentioned a desire to increase private markets exposure, both in equity and debt. Funds achieved this by adding alternative strategies such as private equity, credit opportunities, infrastructure, and real estate.

Given shifts in demographics, longevity risks, and sluggish growth (lower contributions), PPRFs may need to alter asset allocation in order to meet future obligations. Consistent with the trends in asset allocation amongst PPRFs over the past four years (funds have increased return-seeking assets such as equities and alternatives), 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 box 3).

Large Pension Fund Asset Allocation

The simple average portfolio for the pension funds surveyed shows that as of December 2013, 52.1% of total assets were invested in fixed income and cash, 31.5% in equity, 1.6% in unlisted infrastructure, and 14.8% in alternative/other investments (see Figure 2). Bonds and cash represented the majority of assets for funds based in Italy, Spain and Russia. Pension funds based in Australia, South Africa, the United Kingdom and the United States had the largest allocations to listed equities.

34 funds reported asset allocation in 2010 and 2013. From this group of funds, trends indicate that the funds, on average, reduced equity allocations from 33.1% to 31.1% of the total portfolio, increased fixed income and cash from 53.3% to 55.2%, and alternatives/other increased slightly from 13.6% to 13.7%.

Looking at only the ten largest funds, whose combined assets totalled USD 1.5 trillion in 2013, the shift from traditional stocks and bonds to alternatives over the past four years was noteworthy. This group of funds, representing seven countries, reduced equity allocations from 42.4% in 2010 to 39.3% in 2013, increased fixed income from 40.0% to 41.2% and increased alternative/other from 17.6% to 19.5%

Some of the LPFs surveyed had substantial allocations to alternatives. Turkey's OYAK and Canada's OMERS invested 40.3% and 42.7% in alternatives, respectively. A total of 18 funds invested over 20% of total assets in alternative/other investments.

The funds with the highest allocation to real estate were the Pension Funds managed by CGD at 33.0%, Banco BPI Pension Fund at 31.1%, and OTPP at 14.4%. OYAK invested the highest amount in private equity/hedge funds at 23.0%, followed by OTPP at 17.2%, and South Africa's Sentinel Retirement Fund at 16.1%. As part of the alternative asset allocation, some funds also invested in infrastructure (see below).

LPF Foreign Investment

The average fund included in this publication invested 36.6% of total assets in foreign markets. Funds based in Europe and Canada generally had high amounts invested overseas, while funds in South America, with the exception of Chile, invested nearly exclusively in domestic markets. Foreign diversification is mostly the result of regulation and investment policy, although funds based in countries with small domestic markets may be more inclined to invest abroad to diversify and increase the opportunity set. Only six funds reported zero foreign exposure.

Public Pension Reserve Fund Asset Allocation

The simple average portfolio for the PPRFs in selected countries shows that 55.3% of assets were invested in fixed income and cash, 30.0% in listed equities, 1.1% in unlisted infrastructure, and 13.7% in alternative/other investments (see Figure 2). This figure contains a diverse set of funds and allocations. In Belgium and the United States, 100% of the portfolio was invested in domestic fixed income, while for the Canadian, Swedish and Australian funds, the fixed income and cash allocation was below 35%. The Australian PPRF also had one of the largest allocations to alternatives at 35.6% of total assets. As an example of active allocation changes, the Québec Pension Plan reduced target allocations to fixed income by 2 percentage points, and added to equity and alternative investments. Some funds also invest in infrastructure assets, mainly through listed and unlisted equity.

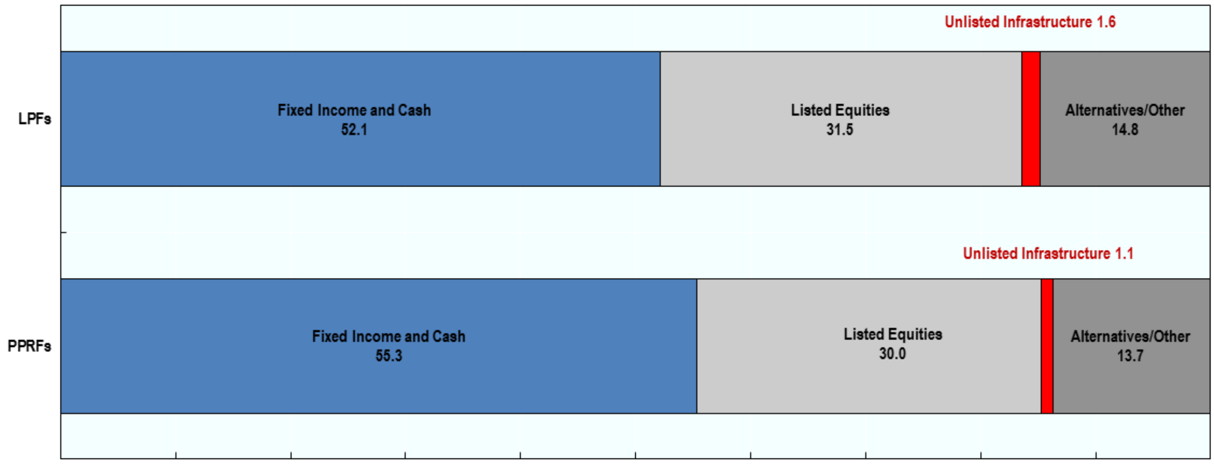
Average allocations to equities drifted from 24.8% in 2010 to 25.8% in 2013 in the survey population that reported data for both years. Average allocations to fixed income decreased markedly from 64.7% in 2010 to 59.5% in 2013, while alternatives/other increased from 10.5% to 14.7%.

PPRF Foreign Investment

The average fund (simple average) invested 31.6% of assets in foreign markets. With some major exceptions such as reserve funds in Argentina, Belgium, Indonesia, Bosnia & Herzegovina, Mexico, Poland, Spain and the United States, the other PPRFs had large exposures to foreign markets. Chile invested 100% of its portfolio abroad. New Zealand’s PPRF invested over 85% in foreign markets. 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. Emerging market investments are part of the foreign allocations of both equity and bond portfolios of several major PPRFs.

Figure 2. Average asset allocation of Large Pension Funds (LPFs) and Public Pension Reserve Funds (PPRFs), 2013 (1,2)

As a percentage of total assets



Note: (1) The value is a simple average of the share invested in unlisted infrastructure investments for all LPFs (respectively PPRFs) for which actual asset allocation was available in 2013, independently of their size in terms of assets. Totals may not add to 100% due to rounding (2) Both OMERS and FUNCEF changed the way that their asset allocation is reported compared to previous years. OMERS moved to a factor-based asset allocation approach and reported traditional investments such as stocks and bonds in the "other" category. FUNCEF reported fixed income in the "other" category compared to previous years.

Source: OECD.

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. This seems to confirm the importance of barriers and disincentives which limit such investments and the relevance and need for policymakers to address them. If total assets under management are considered for the funds that returned questionnaires (i.e. 71 funds, USD 7.8 trillion), infrastructure investment in the form of unlisted equity and debt was USD 80.0 billion in 2013, representing 1.0% of the total assets under management.[18]

This low investment in infrastructure has been on average stable. In 2010, the 28 funds that provided data on infrastructure investments reported a total direct exposure of USD 41.9 billion, which represented 2.9% of total assets of funds investing in infrastructure, surveyed at that time. Last year, infrastructure assets comprised 3.4% of total plan assets amongst the funds that reported exposure considered as direct infrastructure, matching this year's total.

Looking more closely at just direct equity, 28 funds reported an allocation to unlisted infrastructure equity in 2013. Total investment in unlisted infrastructure equity was USD 70.3 billion, which_represented 3.0% of the combined assets of the funds included in Part B of the report (35 funds in total).

In the future, while the survey results indicate a growing demand for infrastructure assets, the regulatory framework and availability of assets may ultimately decide the growth capacity of this asset class. For

[18] 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.

instance, a fund based in Nigeria expressed interest in adding infrastructure investments but cited a lack of stability in government policy and regulation as a barrier, along with sourcing suitably structured and bankable infrastructure projects. A fund in Russia cited government restrictions as a barrier to investment.

..but huge potential demand..

Despite the low and stable average, some funds are increasing their allocation to infrastructure or opening new allocations to the asset class.

Target allocations amongst the funds with dedicated exposure ranged on the low end from 1% to over 20% of total assets. All but three funds that reported a separate target allocation to infrastructure were below targets at the end of 2013. Five LPFs and one PPRF indicated that they planned to increase target allocations to infrastructure in the next one to two years.

Notably, Canada's OMERS reported three significant direct equity investments during the year, which included natural gas and power distribution in Europe and a Toronto based healthcare enterprise. CalPERS envisions ramping up its target allocation to direct infrastructure from 0.4% in 2013 to 2.3% of plan assets by 2018 (based on self-reported projections). The Québec Pension Fund increased unlisted infrastructure from 2.1% of the total portfolio in 2010 to 4.0% in 2013. The Australia Future Fund's allocation to infrastructure increased by 3.9 percentage points from 2010 to 2013.

Seven LPFs, including France's ERAFP, Spain's Bankia, Endesa, and Fonditel, and Mexico's Banamex, which categorises infrastructure in private equity, planned to establish new target allocations to infrastructure. Three PPRFs: Sweden's AP1, Bosnia and Herzegovina's Fund, and Japan's GPIF would open new allocations to infrastructure in coming years.

..with new approaches to investing in infrastructure.

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 35 funds that indicated investment in infrastructure assets, 28 reported exposure to unlisted infrastructure assets, while 14 had dedicated target allocations to the asset category.

Of the total USD 70.3 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 29% of the total, direct and co-direct investments 68%, and other unlisted investments were 3% 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. This year's survey recorded an increase in allocations to direct investment over the past three years of data collected.

Debt exposure to infrastructure was USD 9.7 billion or 0.4% of total assets in 2013. The debt category may contain publicly traded debt instruments or direct project loans, senior and/or mezzanine loans, and bonds. Of the funds surveyed, eleven reported exposure to direct loans and bonds. The UK's USS reported 0.5% of the total portfolio was invested in infrastructure loans. Chile's AFP Provida invested 1% of the portfolio in infrastructure loans. Spain's Endesa and Brazil's FAPES reported over 5% invested in infrastructure bonds. In 2012, Germany's BASF opened a target allocation to infrastructure loans and bonds at 4% of the total portfolio, providing some evidence that there is interest in this sub-set of the infrastructure investment category. Argentina's Sustainability Guarantee Fund, the only PPRF to report exposure to direct infrastructure fixed income, reported 13.6% allocated to loans and bonds.

POLICY CONSIDERATIONS

New practices, trends and investment opportunities in long-term assets are increasing the role of long-term investors in the financial system..

Investors are trying to adapt to the challenging environment they are facing today. At the same time, the radical transformation that financial markets have gone through in recent years is offering new opportunities.

Different reasons – including a changed macroeconomic environment, more stringent regulations on financial institutions, and a modified appetite for long-term assets – are contributing to the growing role of financial disintermediation to match savings with investment.

The survey seems to confirm longer asset allocation trends observed in recent years, showing a gradual globalization of portfolios with an increased interest in emerging markets and diversification into new asset classes.

The scope for institutional investors to contribute to the real economy and the financial system in the post-crisis environment, promoting growth and sustainable development, helps to explain the policy priority attached to this work stream. For example as seen in the survey:

- Institutional investors such as pension funds represent a potentially major source of long-term financing for illiquid assets such as infrastructure, due to the longer term nature of their liabilities.
- Credit opportunities has been an excellent example of institutional investors acting in a contrarian fashion and as providers of liquidity, aiding markets in price discovery and helping to reduce capital markets volatility.
- Through their size and market presence, large pension funds can influence and set new standards for best practices in the industry by applying Environment Social and Governance (ESG) criteria. These criteria are related to an investor's philosophy and process and by definition include factors that impact economics beyond what is measurable through conventional finance (e.g. market failures or externalities).[19]
- Some PPRFs have dual mandates of providing stability to the funding of social security benefits, and to economic development (like a sovereign wealth fund). Australia's Future Fund is one such example. The Future Fund invests in the Building Australia Fund, the Education Investment Fund, and Hospitals Fund, as means to advance its development agenda. This includes investment in critical infrastructure such as transportation, communications, energy, water, education, research and health.

[19] 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.

..with important implications for investors..

The increase in allocations to higher risk investments will have a profound impact on risk management. Many alternative assets for example create their own distinct risk modelling, forcing pension fund managers to change the way they plan and track their risk budgets. Pension funds need to quantify their tolerance for risk at a total fund level but also understand how that risk budget is allocated across an increasingly varied mix of assets and investments.

Alternative investments generally have lower liquidity, use unconventional strategies (hedge funds), sell in less efficient markets, have the ability to use financial leverage, and require a longer investment horizon than public bonds and equities (often due to illiquidity).

The adoption of more complex investment strategies including alternatives is challenging the traditional governance models of pension funds. For example more expertise at the level of pension board members will be required perhaps including specialists that have appropriate asset and risk management skills. In order to reduce costs and agency risks many funds are also looking at insourcing asset management. Still the risks of being different – by adopting unconventional asset allocation techniques or investments – are a challenge or even a barrier for investors. This is particularly true when communicating changes to stakeholders such as beneficiaries, trustees, or even the public, when such matters can be complex and technical. Making the transition from DB to DC schemes poses further challenges in particular when looking at alternative investments in illiquid assets.

..policymakers and regulators who need to improve their understanding and monitoring of institutional investors.

In order to better understand the barriers investors are facing regarding long-term investment and to provide solutions, policymakers need first to identify the extent to which institutional investors engage in long-term investing.

Monitoring of trends in asset allocation is needed to identify more clearly any emerging risks to financial stability. As assets grow and the systemic importance of the pension schemes increases, prudential surveillance, regulation and oversight along with sound fund governance will become increasingly important.

Yet regulatory and accounting frameworks that are conducive to a long-term approach to investment should balance the need for stability and transparency with the goal of ensuring that institutional investors can hold long-term assets on their balance-sheet. Evaluating how regulatory requirements such as the need to mark assets to market, and how such requirements affect institutional investors' ability to deliver long-term success is a critical step in the process.

Regulation thus has a major influence on the asset allocations of pension funds. For example, some Latin American pension funds have quantitative investment limits on unlisted equity, by credit rating and limitations on bonds issued by new companies and projects. Fourteen OECD countries have quantitative limitations on shares, while four have limitations on fixed income. Investment, solvency and other prudential regulations also vary across countries, affecting asset allocations.

The survey shows that data on long-term investment – and in particular infrastructure investment – by pension funds are readily available from the funds themselves. However, the methodologies and definitions used to classify such investments can differ widely, rendering comparisons and aggregation difficult. There is clearly a need to standardise definitions and classifications to facilitate international monitoring of long-term investment.

Definitions of alternative assets which ensure that the data collected and reported is comparable across pension funds is required in order to monitor the flows into different types of alternative assets and their respective cost and performance. This is vital not only for investors but also for regulators and other policymakers in order to help them better understand the exposure of pension funds in different countries and to develop appropriate regulation.

Such standards could be applied initially in national data collection exercises. While some countries collect data which matches the needs of the relevant authorities, there is no international, official, accurate data on the asset allocation of pension funds in alternative assets.

Governments and regulators could, where appropriate and needed, strengthen formal requirements to provide consistent information on investments by pension funds in infrastructure, following internationally agreed standards. This would allow for future monitoring on an international basis.

Investors have high potential demand for infrastructure assets..

As seen in the survey there seems to be a large amount of potential capacity to expand institutional investment in infrastructure, taking into account the target allocations of the funds that already have established allocations and those that are considering opening new allocations.

Some governments are moving to change the investment environment to allow for investment in infrastructure. For example, Norway's Government Pension Fund Global, considered to be the world's largest sovereign wealth fund with USD 849.6 billion in assets at the end of 2013, announced in 2014 that it would research and consider adding infrastructure investments to the portfolio. Currently, the fund is not allowed to invest in unlisted infrastructure, per Norwegian statute. A panel of experts would review the possible addition of infrastructure, with a recommendation pending in 2016.

Japan's Government Pension Investment Fund recently announced a major change to its asset allocation which will include alternative investments such as infrastructure. Both of these funds are extremely large and reflect major changes in policy.

..but are still facing major barriers.

At the recent OECD/Euromoney Roundtable on Long-term Investment Policy, institutional investors in attendance cited two factors that present the main obstacles to infrastructure investment.[20] First was the lack of a transparent and stable policy framework; regulatory risk was a top concern. Second was a lack of bankable investment opportunities. Other important issues raised included clear and predictable accounting standards, long-term metrics for performance valuations and compensations, standardisation in project documentation, and transferability of loans and portability of guarantees. The expansion of financial instruments available for LTI (e.g. bonds, equity, basic securitisation of loans), and the need for a clear risk allocation matrix to assign the potential risk owner (i.e. government or investor or both) were also important subjects raised.

Infrastructure investing exhibits different characteristics from other asset classes, which could represent barriers to entry to potential investors. High up-front costs, lack of liquidity and long asset life of the projects require significant scale and dedicated resources both to understand the risks involved and to manage them, resources that many investors are lacking. These characteristics imply that infrastructure investment – at least in the forms in which it is currently offered – may not be a suitable proposition for all investors.

[20] See the OECD LTI Project event page for further details

In addition, as pointed out by the B20, the lack of a clear benchmark for measuring investment performance is also seen by many investors as one of the main barriers to invest in infrastructure. Only limited empirical analysis has been done to assess the risk-adjusted performance and portfolio diversification benefits of listed infrastructure in a portfolio, with only a few studies on unlisted infrastructure performance.

Ultimately the primary concern for investors is the investment performance in the context of their specific objectives (such as paying pensions and annuities). Infrastructure can become an alternative asset class for private investors provided that investors can access bankable projects and an acceptable risk/return profile is offered.

Bridging the gap, matching supply and demand: policy role

Action is required on several fronts at the same time, addressing both the supply and demand sides of the economy.[21] The challenge is to put savings and financial liquidity to productive use in order to support sustainable jobs and growth.

Under the Investment Plan announced by Mr. Juncker, the incoming president of the European Commission, the aim is to mobilise at least EUR 315 billion in additional public and private investment into the real economy between now and 2017. On the 9th of December 2014 the EU Task Force on Investment published a report identifying around 2,000 projects across Europe worth some EUR 1.3 trillion of potential investments, out of which over EUR 500 billion worth of projects could potentially be implemented over the next three years. According to EU Vice-President Jyrki Katainen, the aim of this initiative is to restore investor confidence and connect the available investment and credible projects on the ground. Such partnerships between government and the private sector that use capital markets to finance development are a positive signal that governments are indeed motivated to engage institutional investors. This initiative is joined with a broader initiative to unify capital markets.

In the summer of 2014, the Obama Administration launched the Build America Investment Initiative, a government-wide effort to facilitate infrastructure investment.[22] According to a Treasury press release, the United States faces a funding gap of USD 1 trillion between now and 2020 in transportation, water, and electricity infrastructure.[23] The initiative aims to meet this funding gap by mobilising private sector investment.

The initiative includes the launch of the Build America Transportation Investment Centre, which seeks to facilitate local governments' use of innovative financing and partnerships with the private sector. At an Infrastructure Investment Summit held in September 2014 (hosted jointly by Treasury and the Transportation Department), investment advisory firms, utilities and construction companies, infrastructure investors and pension funds collectively represented a projected USD 50 billion in private capital over the next five years.

Germany's planned transition to a lower-carbon dependent energy infrastructure, including the planned closure of all nuclear energy sites will require significant investment. According to a study carried out by the German Institute of Economic Research (DIW), this transition will require annual investment of between EUR 31 billion and EUR 38 billion to 2020 in order to achieve these goals.[24]

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[21] As developed by ECB President Mario Draghi in his speech in Jackson Hole on 22 August 2014. See: http://www.ecb.europa.eu/press/key/date/2014/html/sp140822.en.html

[22] White House press release and fact sheet

[23] United States Treasury press release

[24] DIW (2013) Energiewende erfordert hohe Investititonen, in DIWWochenbericht 26.

Furthermore, since the German Finance Ministry is targeting a balanced budget for 2015, the government is looking to promote investment in infrastructure by institutions and private capital sources. The use of PPPs, project bonds, and even social impact bonds for certain types of social infrastructure may be considered.

To this end, the OECD Long-term Investment Project's programme of work is focused on building bridges between policymakers and long-term investors. For instance, OECD research on the Taxonomy of Instruments and Incentives for Stimulating the Finance of Infrastructure will provide technical background for policymakers on how investors may access infrastructure investment. The ongoing G20/OECD workflow outlined in the beginning of this document will advance the policy dialogue on institutional investment affairs. Planned events in the coming year such as the Seminar on Institutional Investors and Infrastructure Finance (in cooperation with APEC), the G20/OECD High Level Roundtable on Institutional Investors (in cooperation with the G20 under the Turkish presidency), and the OECD Annual Institutional Investors Forum will provide opportunities for institutional investors to gather and to advance the agenda.

SURVEY OF LARGE PENSION FUNDS AND PUBLIC PENSION RESERVE FUNDS

INTRODUCTION

Macroeconomic Environment in 2013 and 2014

By the end of 2013, the recovery since the economic downturn of 2008 had entered its fifth year. Institutional investors in the OECD experienced strong returns during the year, driven by a rally in developed markets equities. Stocks in the United States and Japan advanced the most in the past year, with nearly all developed market stock indexes posting strong double digit returns, annualised over the past five years.

Despite good returns in 2013, challenges still remain. Future return expectations in public equities and fixed income are low, pressuring funds to seek returns elsewhere. Emerging markets, long viewed as a key driver of future global growth, suffered a sell-off midway through the year. Lower commodity prices and a slow-down in China only dampen the outlook in emerging economies. A key concern amongst G20 ministers is the unevenness of growth, both in regions and between countries and how to set a path for sustainable expansion.

While the financial position of many pension funds and other institutions has improved due to the broad increase in asset values, there are pockets of concern amongst the group surveyed. Central banks have been extremely accommodative in promoting growth and have helped support asset values through continued low interest rates and loose monetary policies. But now investors are concerned about the long-term effects of these policies, in particular the potential distortive effects that they may have on asset values, interest rates, and the eventual unwind of quantitative easing. Such a high level of macroeconomic policy uncertainty can fuel short-termism: markets are on edge as to the next move of central banks when investors should instead be thinking more about long-term opportunities. There is a benefit of balancing long-term investment policy with short-term views; however, high levels of uncertainty can create hesitation in the financial system, leading to barriers to long-term investment.

The hesitation, on the part of institutions to properly manage asset/liability mismatches, is an example of barriers preventing long-term investment decisions. The leadership of a pension plan with unhedged liabilities might be reticent to hedge liabilities at a point when interest rates are so low, especially if the expectation is for higher future rates. Future foreign direct investment in emerging economies may be further hindered by macroeconomic conditions and policy in developed markets, providing another example of hesitation.

Taking this point further, the actions in advanced economies had impacts across the world financial system. Volatility in emerging markets increased rapidly in 2013 with the news of a potential Fed taper to its bond buying program. A salient trend amongst large institutional investors over the past decade has been the gradual expansion of allocations to emerging markets. 2013 saw a broad correction in emerging markets with equities, bonds, and currencies selling off. The long-term structural themes remain yet concerns over slowing near-term growth, a reduction of liquidity through central bank action, and political risk prompted the correction. Emerging market retail mutual funds experienced net outflows, and the survey indicated a general slow-down in institutional investment in emerging countries, yet not a reversal in trend.

Looking at more recent economic conditions, the divergence of markets continued in 2014 with the United States' recovery gaining momentum while low growth forecasts and the spectre of deflation darkened Europe's outlook. Japan wrangled with the effects of a higher sales tax rate and weakening yen. The emergence of geopolitical tensions in several regions only added to the uncertainty. Broadly speaking, the rapid fall of oil prices, precipitated by increases in production, negatively impacted growth outlooks for oil exporting countries (many emerging markets). For countries that import oil, falling prices helped to raise real income. For pension funds, particularly those that have diversified into foreign markets, performance has varied. With the higher probability of interest rates rising in the United States as macroeconomic signals improve, the potential impact of a shift in Fed policy will likely be felt in markets well beyond the United States. Higher volatility was certainly felt in 2014 and is likely to persist, especially under the assumption that geopolitical tensions would continue.

Factors Affecting Asset Allocation

Balance sheet risks facing pension funds eased somewhat during 2013, however, the threat of market volatility and low interest rates remain a top concern amongst the survey population. Some funds also cited longevity risk as a top actuarial concern. During 2013, government bond yields increased in the United States, Germany, the United Kingdom, and in many emerging markets economies. The combination of slightly higher interest rates (presumably leading to higher liability discount rates) with higher asset values contributed to a general improvement in the economic position of pension funds within the OECD. Of the funds that reported funded status in the survey, 12 indicated an improvement and four indicated a worsening between 2012 and 2013. But 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. In a report published by Bloomberg on United States Pension Funds, 26 states reported a funding ratio below 70% in 2013, eight of which were below 60%.[25] Of these 26 funds, 15 reported a funding ratio above 70% in 2008, of which seven were above 80%. Funding ratios remained a paramount concern for plan sponsors and mitigation of funding level risks an important long-term objective.

While still looking at the big-picture, 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. Figure 3 shows the split between DB and DC assets in select OECD countries.

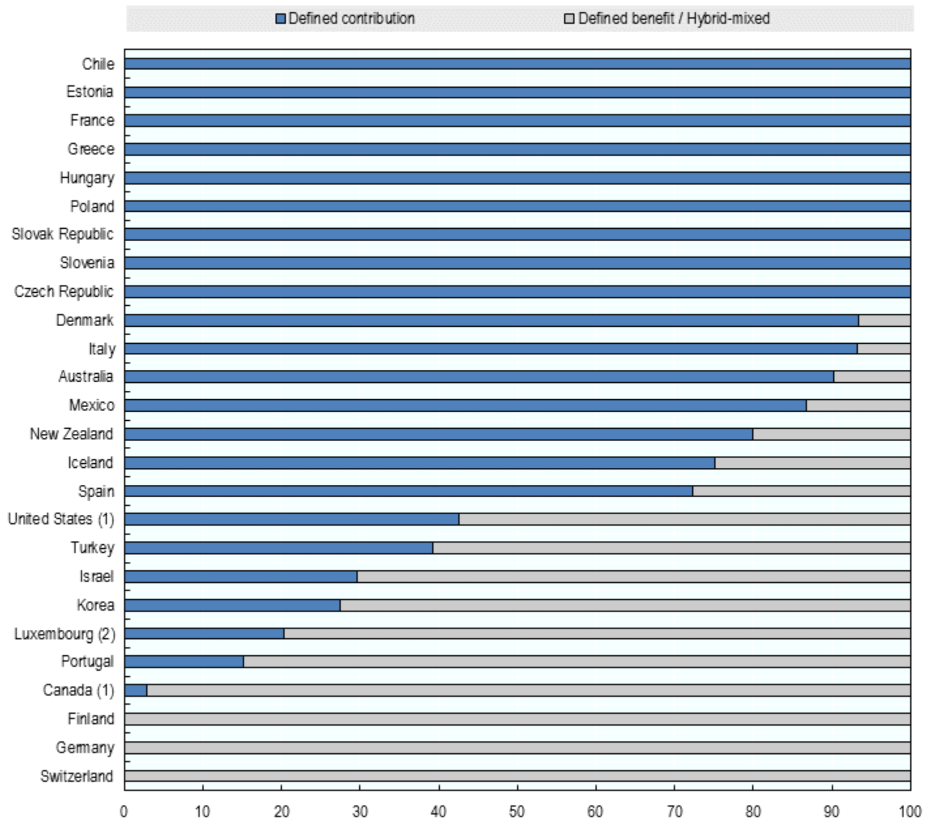
Additional factors that can influence asset allocation are capital markets expectations, risk appetite, and governance structure. Fund asset allocations can differ significantly across countries and regions due to country specific regulations, sponsor strength, and default investment allocations or daily liquidity provisions in DC plans. In other words, asset allocation is first driven by a top-down regulatory framework, followed by the individual circumstance of each fund/investor.

Factors affecting PPRFs are unique to this class of investor. A major consideration amongst PPRFs is the projected shift in population demographics. Some countries face aging populations, low birth rates or uneven age groups (like retiring baby-boomers) with fewer younger workers contributing to pay-as-you-go retirement schemes. High unemployment also becomes problematic when fewer workers support retirees. Thus the level of surplus contributions to PAYG reserves can affect the ability to take a long-term view.

25 http://www.bloomberg.com/visual-data/best-and-worst/most-underfunded-pension-plans-states#most-underfunded-pension-plans-states. "The Bloomberg municipal data and municipal fundamentals teams collected and supplemented data from each state's Comprehensive Annual Financial Report, a set of government financial statements. Data are for individual states' respective fiscal year-ends as of the date of publication of the CAFR."

Figure 3. Relative shares of DB and DC pension fund assets in selected OECD countries, 2013

As a percentage of total assets



(1) Data refer to occupational pension plans only. (2) Data refer to pension funds under the supervision of the CSSF only.

Source: OECD Global Pension Statistics

Compared to other pension funds, some PPRFs have a relative certainty of the asset base as well as amount and timing of future cash flows. Pay-as-you-go social security systems rely on the intergenerational contract of younger workers supporting older generations through contributions to the system. As such, PPRFs invest and manage surplus contributions that would only be tapped in the event that benefit payments exceed contributions, thus stabilizing the financing of the public retirement system. In theory, PPRFs are not driven to seek short-term returns that many other market participants must achieve due to their investment objectives. However, PPRFs may be subject to political pressure, which can undermine the perceived certainty and long-term investment horizon of the asset base, directly influencing their asset allocation decisions.

Generally, PPRFs maintain conservative investment programs, emphasizing long-term stability, safety and liquidity of the asset base. There is, however, a large dispersion of risk tolerances and asset allocation profiles within the survey population. Some funds run quite sophisticated investment programs that more closely resemble a funded pension scheme. But compared to a typical defined benefit pension fund, PPRFs on average tend to have larger allocations to fixed income, and smaller allocations to equities and alternatives.

Trends in Asset Allocation – 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.

Alternative Investments in DC systems

DB plans have a relatively large capacity to invest in alternative assets, as do other institutions such as endowments and foundations. Depending on the policy environment, some countries have DC systems that do include alternative investments. The development of liquid alternative investment strategies is a growing trend within the industry and has partly addressed the demand for alternatives amongst DC savings plans and daily-valued funds.

Box 1. Australia's Defined Contribution Pension Market Design and Governance

As pointed out earlier, defined contribution pensions are a large component of retirement savings in many countries. Due to DB plan closures, freezings and shifting corporate retirement benefit schemes, DC plan assets are forecasted to grow substantially faster than DB plan assets in some regions. Australia, as an example, has a relatively unique retirement savings market. Beginning with legislation in the 1990s, a compulsory occupational pension system was introduced.[26] Based on participant driven savings and investment decisions, the Superannuation scheme, currently with about AUD 1.8 trillion in assets, is forecasted to grow to nearly AUD 6 trillion by 2037, and is the fifth largest pool of retirement savings in the OECD.[27] But how, given the long-term retirement savings of workers, can DC plan participants benefit from an illiquidity premium on investments when there are often shorter-term liquidity provisions at the fund level?

The Australian Superannuation system provides an example that illiquid assets may be possible in a DC system. It is estimated that around 5% of Superannuation assets are invested in direct infrastructure (ASFA). Furthermore, some funds offer exposure to other alternative investments such as hedge funds, private equity and direct real estate (Denmark's PFA is another example of a DC plan offering alternative investments). The allocations in the below figure represent several pre-mixed options in two separate Superannuation schemes.

Key summary points of Superannuation design:

- Portability. Participants may liquidate investments with one Fund and move savings to another. Cash must be delivered within 30 days of a redemption request
- System of choice. There are over 300 funds, with the largest 20 comprising over half of total assets. The market is highly competitive due to portability, depth and breadth of options
- Many funds offer alternative investments in pre-mixed options, providing a DB-like investment profile
- Fund options include a mix of real return and growth assets which are consistent with the growth and preservation of wealth for retirement. Funds act as trustees and outsource nearly all investment management and are responsible for due diligence, manager selection, monitoring, and reporting

Special considerations:

- Financial education of participants is important, especially related to alternative and illiquid investments. The need to maintain a long-term view is crucial, particularly with members in the accumulation phase

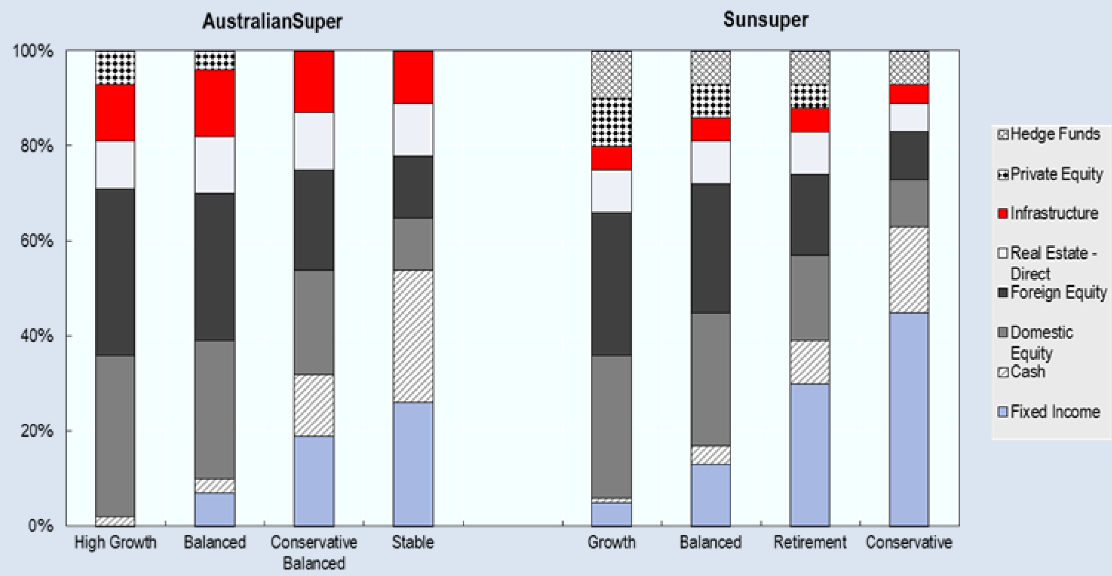
[26] See OECD report on Pension Fund Investment in Infrastructure: A Comparison Between Australia and Canada for a detailed description of the Australian institutional investment landscape

[27] The Association of Superannuation Funds of Australia (ASFA) report on Public Infrastructure: Provision, Funding, Financing and Costs

Liquidity, governance, and prudential considerations:

- The Superannuation Industry has benefitted from net inflows, which has helped offset fund outflows from member switching, however as the industry matures, cash flows will need to be modelled much more closely
- Illiquid investments are not a concern from a long-term perspective; however, modelling the asset-liability behaviour of participants is paramount in order to preserve adequate fund liquidity. Fund trustees weigh the trade-offs of illiquid assets vs. liquidity preservation
- Prudential regulations under SPS 530 require funds to formulate and implement a Liquidity Management Plan, to carefully analyse liability profile, perform comprehensive stress-testing, and establish liquidity reserves[28]

Box 1. Figure 1. Target asset allocation of select pre-mixed fund options



Source: SunSuper Annual Report 2012-13, AustraliaSuper Investing For Your Future, Annual Report 2013. Figures are based on strategic allocations for selected pre-mixed options.

Hedge Funds

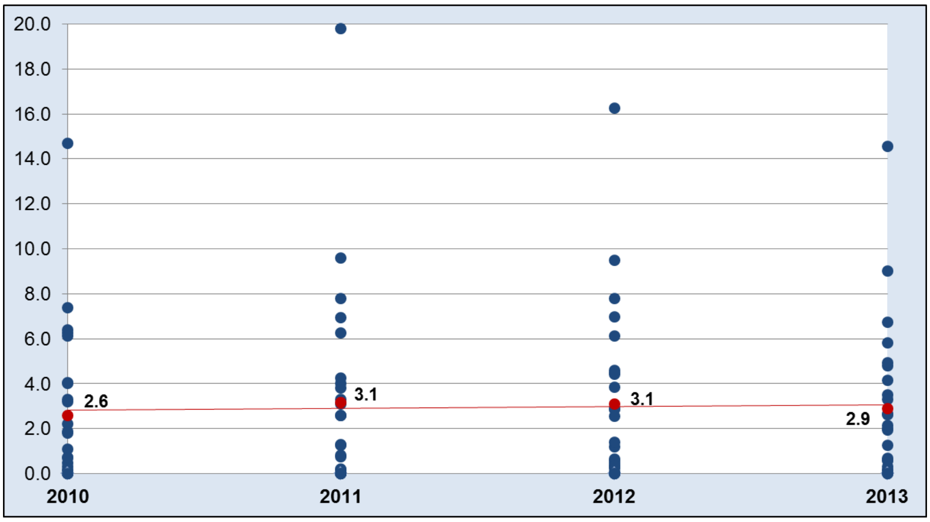
CalPERS grabbed headlines in 2014 when it announced that it would divest from hedge fund investments in subsequent years. CalPERS was an early institutional investor in hedge funds over ten years ago. While it is certainly noteworthy when a large and influential fund like CalPERS changes policy in such a way, what may come out of the CalPERS announcement is continued pressure on hedge fund fees, which are high relative to traditional investments. Nevertheless the trend over the past four years, based on the survey data, is a slight increase in average hedge fund allocations.[29] From the survey data, 25 funds reported exposure to hedge funds, each point in Figure 4 represents a fund's allocation with the red line marking the trend (average). Since 2010, this group of funds' allocation to hedge funds increased by 0.3 percentage points, on average. Industry researchers that track hedge fund flows such as BarclayHedge or Preqin reported assets under management reached new high levels in 2014.

[28] Australian Prudential Regulation Authority: [Prudential Practice Guide, SPG 530 – Investment Governance]

[29] Allocations to hedge funds may be affected by changes in portfolio asset values, currencies, or fund flows.

Figure 4. Hedge fund allocations amongst the sample population

As a percentage of total investment



Source: OECD.

Credit Opportunities

In an environment where credit is rationed – where banks are constrained to lend – there is still capacity for pension funds and institutions to act as intermediaries. 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 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 950 million in new capital to opportunistic fixed income mandates in 2013. As explained in the 2013 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".[30]

- The United Kingdom's BT Pension Scheme initiated a Credit Opportunities portfolio in 2009 to participate in the recovery of credit markets. By 2013, the allocation occupied 3.3% of the total portfolio.

[30] The City of New York Comprehensive Annual Financial Report of the Comptroller for the Fiscal Year Ended June 30, 2013, page xx

Opportunistic Strategies and Alternative Asset Allocation Techniques

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. So called opportunistic strategies or multi-asset class strategies allow for investment managers 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.

Types of strategies and examples may include:

- Global Macro Hedge Funds and global allocation strategies have a broadly defined investment mandate which can include currencies, commodities, stocks, and bonds, amongst others. Some funds have had a history of expressing contrarian views on markets. These strategies may use different approaches to asset allocation such as risk parity, scenario-based analysis, risk budgeting, or factor-based analysis. Viewed in isolation, these investment products may resemble a cross-sectional slice of a total investment portfolio, however, the goal is to generate alpha by selectively allocating across a broad set of opportunities, or to provide portfolio protection through the utilization of complementary asset allocation techniques.

- Fixed income absolute return or multi-sector strategies. A major challenge facing pension funds is the low interest rate environment. This product category offers a vast selection of styles, but the general strategy is to increase portfolio yield by investing in multiple sectors of the global fixed income market, without using a benchmark as a constraint on investment mandate. The objective is to increase yield (usually by increasing credit risk) without completely sacrificing the downside protection that bonds can provide. Such strategies are particularly popular in the retail fund sector and DC market.

Some specific examples:

- In 2013, the United States' OPERS completed funding of Risk Parity and Global Tactical Asset Allocation managers, which together comprise 7% of the target asset allocation.

- Canada's OTPP has an 8% allocation to absolute return strategies, which are primarily executed by the Tactical Asset Allocation & Natural Resources and Fixed Income & Alternative Investment teams (in-house). External hedge funds are also included in this category.

- 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).[31] AP1 initiated a new investment in a Risk Parity strategy.

- The Canada Pension Plan Investment Board (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. Opportunistic investment strategies and volatility-based strategies are examples of a more dynamic asset allocation strategy.

[31] AP3 Annual Report, page 13

Perhaps the most noteworthy example of alternative asset techniques is OMERS' adoption of risk parity at the total fund level. The box below provides an expanded discussion on the subject.

Box 2. Risk Parity – OMERS Experience

In 2013, Canada's OMERS implemented the last segment of a multi-year portfolio restructuring project when it adopted an unconventional model for portfolio allocation in public markets. Modern Portfolio Theory (MPT) and its associated Mean Variance Optimisation (MVO) are the classic models underpinning asset allocation. But given some of the shortcomings of traditional techniques like MVO, some funds are using different approaches to supplement their investment processes.[32] At the total portfolio level, OMERS has separated its beta and alpha management and has adopted a Risk Parity approach for asset allocation in public markets. Risk Parity is a strategy that builds on the concept that asset classes have different contributions to risk and that by balancing these risks, more consistent long-term returns are possible.[33]

For instance, the contribution to risk for a typical 60% equity / 40% bond allocation yields a portfolio with 95% of the risk allocated to stocks (OMERS background paper, p. 5). Such an allocation exposes the total fund to a significant amount of equity risk: the ups and downs of stock markets are thus the main driver of risk and return. In a risk parity portfolio, the contribution to risk of other categories such as nominal and/or real fixed income or commodities is increased to balance equity risk, while equity risk itself is reduced. The beta portfolio is rebalanced regularly to a target volatility of 10% annually. The technique incorporates economic scenarios and is designed to perform during growth, weak growth, inflation, or deflationary scenarios (OMERS background paper, p. 7). The alpha segment of the portfolio is managed separately and in a flexible fashion, giving active managers more discretion.

Liability Driven Investments and De-Risking Glide-paths

It should seem obvious that asset-liability management is a major consideration when evaluating asset allocation of DB plans. But the extent to which a fund engages in Liability Driven Investment (LDI) strategies is often hidden in reporting. For instance, derivatives can play a major role in matching fund liabilities yet gathering data on derivatives positions can be extremely challenging. Though either due to regulatory requirements or internal policies, funds are recognizing the need to invest assets in order to minimise funding level volatility, while balancing these goals with return objectives.

With interest rates still near secular lows, increasing hedge ratios can be a difficult decision to make. The concept of linking funded status or the hedge ratio to asset allocation (sometimes called de-risking) leads to a more dynamic strategic asset allocation, and helps to codify the decision process. Japan's Pension Fund Association has a dynamic process that strives to adjust return-seeking assets based on the funding level of the plan, keeping in mind the market environment and impact. The strategy emphasises the need to maintain a long-term view on investment decisions, but recognises the economic realities faced by changes in the balance of assets and liabilities.

[32] For greater detail on this subject, see: "Shedding Light on the Future: Asset Allocation and Risk Management in a Post-Credit Crisis World", NEPC, LLC.

[33] For a full description of OMERS' strategic changes, see the report: "Background Paper on OMERS Investment Strategies, Managing Risk to Earn More Consistent Long-Term Returns"

Figure 5. Japan Pension Fund Association's policy asset mix

As a percentage of total investment (1)

Funding level	Bonds	Equities
Less than 100%	57%	43%
100%-105%	62%	38%
105%-110%	67%	33%
110%-115%	75%	25%
115% or more	80%	20%

(1)The allowance from the above policy target, due to market fluctuations, etc. is ±5%

Source: (PFA website)

Another example of de-risking strategy is the UK's BT Pension Scheme, as explained from BT's 2012 Annual Report: "Over the life of the Scheme, the Trustee expects to reduce the level of return-seeking assets and increase the level of liability-matching assets in order to reflect the maturity of the Scheme. With the assistance of BTPSM, the Trustee actively monitors the assets and liabilities on an ongoing basis and is well positioned to respond quickly to changes in markets and/or funding levels."[34]

Emerging Markets

Most funds have established allocations in emerging markets equities. Changes in asset allocation in emerging markets over the past few years has come from gradually expanding these allocations, and by adding exposures to emerging markets debt, particularly in local currency bond markets, or in alternative strategies such as private equity or hedge funds. Volatility in recent time periods has slowed investment into emerging economies; however, the overall trend of increasing investments did not reverse.

- In 2013, the United States' MassPRIM completed a search for emerging markets small cap equities and emerging markets local currency, filling new allocations.
- Finland's Ilmarinen increased share allocations in Europe and China, while emerging markets excluding China was reduced from a high achieved in 2012.
- In recognizing the importance of emerging markets in the global economy, Sweden's AP2 (a PPRF) invested for the first time in direct Chinese equities. The fund also established a special in-house unit to manage emerging markets investment, which will eventually include emerging markets debt. Total exposure of the fund to emerging markets has increased from 6% in 2010 to 13% in 2013.

Green and ESG Investments

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. Definitions of green investments, or ESG criteria, can vary from one fund to another. Some types of investments reported included specially screened equities, green bonds, and alternatives such as environmental technology infrastructure.

ESG criteria are related to an investor's philosophy and process and by definition include factors that impact economics beyond what is measurable through conventional finance (e.g. market failures or

[34] BT Pension Scheme, Annual Report and Accounts, December 31, 2012, Page 9

externalities).[35] Through their size and market presence, large pension funds can influence and set new standards for best practices in the industry. The United Nations-supported Principles of Responsible Investment (PRI) is a growing network of institutional investors, asset managers, and other signatories that promotes responsible investment. Many of the LPFs and PPRFs that responded to the survey adhere to the standards.

A total of sixteen funds out of the total 71 that submitted completed questionnaires reported green investments. France's ERAFP reported 27% of the total portfolio was invested in socially responsible equities. Sweden's AP2 invested 2.6% of the total fund in green alternatives such as forestry and farmland. The Netherland's ABP invested 2.7% of the fund in green equities and alternatives.

Table 3. Total Green Investments of LPFs and PPRFs in 2013

As a percentage of total investment

Country head office	Name of the fund or institution	Total investments in 2013 (in USD m.)	Green investments (as a % of total investments)			
			Green equity	Green bonds	Alternative green asset classes	Other green investments
Netherlands	ABP (1)	445,303	1.5	0.0	1.2	..
Netherlands	PFZW	189,397	1.4	..	..	..
United States	New York City Combined Retirement System	150,853	0.3	..	..	..
South Africa	GEPF	133,428	..	0.2	0.6	..
Brazil	Previ (2)	71,997	..	..	..	0.0
Netherlands	PMT	66,595	..	..	0.1	..
United Kingdom	USS (3)	66,442	0.0	0.0	0.0	0.7
Denmark	PFA Pension	54,515	0.2	..	0.1	..
United States	United Nations Joint Staff Pension Fund	51,366	..	0.2	..	..
Sweden	AP2	41,207	..	0.6	2.6	..
Sweden	AP4	40,456	2.7	..	..	..
Sweden	AP3	40,234	0.0	0.9	0.0	0.0
France	ERAFP (4)	23,832	27.0	0.0	..	..
New Zealand	New Zealand Superannuation Fund	20,629	0.0	0.0	0.0	..
Spain	Fonditel	3,941	0.9	0.0	0.1	0.0
Brazil	FAPES	3,479	0.2	0.0	0.0	0.0

Note: Some funds have green investments (in "green" indices for instance) but cannot separate these investments from their other investments in their portfolio, as is the case for Keva in Finland.

(1) The alternative green asset classes include hedge funds, natural resources, private equity, infrastructure and inflation-linked bonds. (2) Green investment are defined by Previ as assets (such as stocks, exchange-traded funds and mutual funds) in which the underlying business(es) is/are somehow involved in operations aimed at improving the environment. (3) Other green investments include renewable and lower carbon infrastructure, cleantech private equity, and a listed environmental technology fund. (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.

".." means not available.

Source: OECD

[35] 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.

Some fund specific examples of green investments and practices:

- In 2013 ERAFP measured the carbon impact of its portfolio for the first time. The fund also engages in other research to understand the impact of investments beyond what conventional finance may capture. In 2012, the fund completed an audit of share holdings to identify firms facing allegations of violations of international standards and human rights.

- South Africa's Pension Funds Act includes in it regulations that call on funds to consider ESG criteria in the investment process. GEPF, South Africa's largest pension fund, provides a definition: "prudent investing should give appropriate consideration to any factor which may materially affect the sustainable long-term performance of a fund's assets, including factors of environmental, social and governance character".[36] Furthermore, the Code for Responsible Investment in South Africa (CRISA) provides guidelines for institutional investors on how to integrate ESG factors into investment processes. South Africa is an example where ESG factors are part of the regulatory framework for investment and governance.

PART A1 – GENERAL OVERVIEW OF LARGE PENSION FUNDS

Large Pension Funds Size

The total amount of assets under management for the Large Pension Funds (LPFs) covered by the survey was over USD 3.8 trillion at the end of 2013 (Table 4). Within the OECD countries for which we received data, the Netherlands has two of the largest funds, ABP at USD 445.3 billion and PFZW at USD 189.4 billion. Amongst the largest are three funds based in the United States: CalPERS at USD 283.5 billion, CalSTRS at USD 166.3 billion, and the New York City Combined Retirement System at USD 150.9 billion. South Africa's GEPF at USD 133.4 billion and Singapore's Central Provident Fund at USD 202.0 billion also ranked high in the list. This year's survey includes responses from 50 funds representing approximately 22 countries in the OECD and outside the OECD, complemented by additional information collected in publicly available reports for 25 additional funds.

Table 4 also shows large selected pension funds in four major non-OECD countries: Brazil, Colombia, South Africa, and Nigeria. South Africa's GEPF at USD 133.4 billion and Brazil's Previ at USD 72.0 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 9.7% on average between 2012 and 2013 (through asset appreciation and/or fund flows). The largest increase was observed for Mexico's Afore XXI Banorte with 107.9% (which is attributed to the merger of two plans), and Russia's VTB with 84.1% (driven by a large surge in participation). Nigeria's largest RSA Fund also grew at a fast 35.9%. Funds based in Denmark (ATP) and Brazil (FAPES, Petros), for the most part, declined in total assets from the previous year, but most LPFs were buoyed by good investment returns in 2013.

In terms of total assets relative to the national economy, Singapore's Central Provident Fund had the highest ratio at 69.1% of GDP, followed by ABP at 53.6% of GDP (which with PFZW represented 76.4% of the Dutch GDP), South Africa's GEPF at 41.3%, Denmark's ATP with 36.5% of GDP, Keva with 19.6% of GDP in Finland, and AFP Provida with 17.2% of Chile's GDP. The weighted average of LPF assets accounted for 16.4% of the national GDP in the countries covered in this publication.

[36] http://www.nbi.org.za/Lists/Events/Attachments/55/ABertrand_GEPF_7Dec2011.pdf

Table 4. Total assets of selected LPFs in 2013

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 (ABP)	445.3	53.6	3.3
United States	California Public Employees' Retirement System (CalPERS) (2,3)	283.5	1.7	14.0
Singapore	Central Provident Fund (2)	202.0	69.1	9.8
Netherlands	Pensioenfonds Zorg en Welzijn (PFZW)	189.4	22.8	6.0
United States	California State Teachers' Retirement System (CalSTRS) (2,3)	166.3	1.0	9.9
United States	New York City Combined Retirement System	150.9	0.9	16.1
South Africa	Government Employees Pension Fund (GEPF)	133.4	41.3	14.6
United States	Florida Retirement System Pension Plan (2,3)	132.4	0.8	7.9
Canada	Ontario Teachers' Pension Plan Board (OTPP)	130.5	7.4	9.1
Denmark	Arbejdsmarkedets Tillægspension (ATP) (2)	125.2	36.5	-14.6
Japan	Pension Fund Association	112.8	2.5	10.5
Sweden	Alecta	94.2	16.6	10.8
United States	Ohio Public Employees Retirement System (OPERS)	87.7	0.5	9.2
Germany	Bayerische Versorgungskammer (2)	80.9	2.1	..
United States	New Jersey Fund (2)	76.8	0.5	..
Brazil	Previ	72.0	3.5	1.9
Canada	Alberta Investment Management Corp. (AIMCO) (2)	69.6	3.9	..
United States	Retirement Funds of Washington State (2,3)	68.0	0.4	..
Netherlands	Pensioenfonds Metaal en Techniek (PMT)	66.6	8.0	2.8
United Kingdom	Universities Superannuation Scheme (USS)	66.4	2.5	14.8
Canada	Ontario Municipal Employees Retirement System (OMERS)	61.8	3.5	6.9
United Kingdom	BT Pension Scheme (2,3,4)	60.9	2.4	2.2
United States	Massachusetts PRIM Board (2)	57.7	0.3	11.4
Australia	AustralianSuper	57.3	4.2	23.2
Denmark	PFA Pension	54.5	15.9	0.8
Australia	AMP Superannuation Savings Trust (2,3)	54.4	3.9	..
Finland	Keva (5)	52.2	19.6	7.8
United States	United Nations Joint Staff Pension Fund	51.4	0.3	15.0
Chile	AFP Provida	45.1	17.2	7.7
United States	Los Angeles County Employees Retirement Association (LACERA)	44.7	0.3	..
Finland	Ilmarinen	44.5	16.7	9.3
Chile	AFP Habitat	42.7	16.3	..
Mexico	Afore XXI Banorte (6)	39.2	3.2	107.9
Chile	AFP Cuprum	33.7	12.9	10.7
Australia	UniSuper Management Pty Ltd (UniSuper) (2,3)	33.7	2.4	19.2
United Kingdom	Railways Pension Trustee Company (2)	33.1	1.2	6.4
United Kingdom	BP Pension Scheme (2)	31.4	1.2	..
United States	South Carolina Retirement System Investment Commission (RSIC) (2,3)	28.7	0.2	..
Brazil	Petros (2)	27.8	1.4	-1.7
Mexico	Banamex	26.9	2.2	..
Australia	Sunsuper	24.0	1.7	24.9
France	Établissement de Retraite Additionnelle de la Fonction Publique (ERAFP)	23.8	0.8	16.7
Brazil	Fundação dos Economiários Federais (FUNCEF)	22.4	1.1	5.4
Colombia	AFP Porvenir (7)	17.3	4.7	..
United States	State Universities Retirement System (2,3)	16.3	0.1	..
Israel	Menora-Mivtachim	16.1	5.3	21.4
Peru	AFP Integra (2)	15.2	7.7	..
Italy	Cometa	11.4	0.5	12.5
Germany	Bayer-Pensionskasse (2)	11.3	0.3	..
Peru	AFP Profuturo (2)	9.8	5.0	..
Germany	Hoechst Pensionskasse (2)	9.3	0.2	..
Turkey	Ordu Yardımlaşma Kurumu (OYAK)	8.5	1.2	15.8
United States	New Hampshire Retirement System (2,3)	6.4	0.0	..
Italy	Fonchim	6.0	0.3	13.7
Nigeria	RSA Fund (8)	5.7	1.1	35.9
Russia	Lukoil - Garant (2)	4.3	0.2	2.3
Spain	Fonditel (9)	3.9	0.3	..
South Africa	Sentinel Retirement Fund (10)	3.7	1.2	..
Brazil	Fundação de Assistência e Previdência Social do BNDES (FAPES)	3.5	0.2	-7.0
Italy	Fonte	3.3	0.2	..
Portugal	Pension funds managed by CGD (11)	3.0	1.3	6.2
Russia	VTB	2.1	0.1	84.1
Spain	Previsión Social, Empleados del Grupo Endesa, f.p. (Endesa)	2.0	0.1	9.5
Nigeria	CPFA Fund (8)	2.0	0.4	22.5
Spain	Fondo de Pensiones de Empleados de Bankia (Bankia) (12)	1.9	0.1	35.3
Portugal	Banco BPI Pension Fund	1.5	0.6	15.2
Nigeria	AES Fund (8)	0.9	0.2	27.1
Spain	Santander Empleados Pensiones, FP (Santander)	0.2	0.0	19.8
Russia	Trade-industrial pension Fund	0.1	0.0	..
Spain	Comisiones Obreras (CCOO)	0.0	0.0	10.9
Total selected pension funds (13)		**3,871.3**	**16.4**	**9.7**

“..” means not available

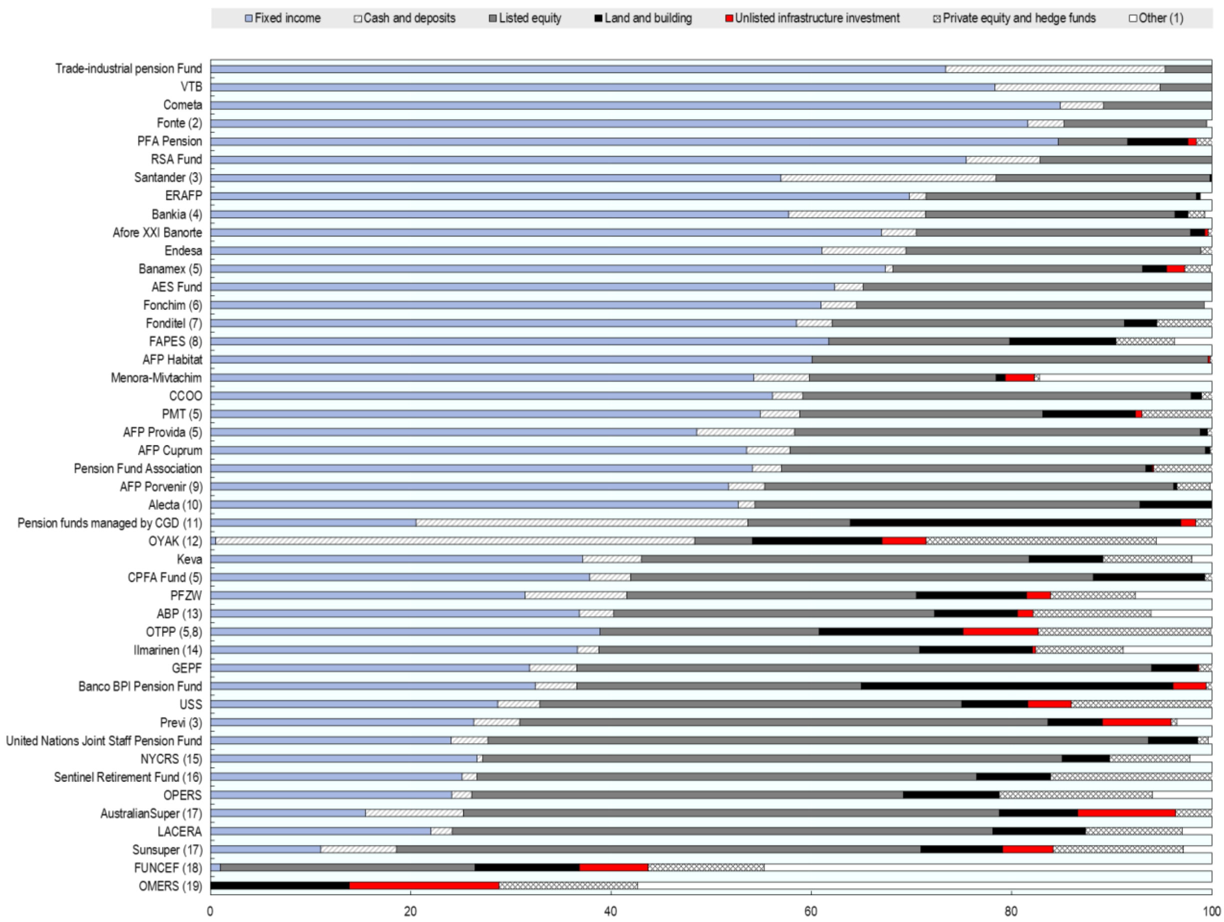
(1) Data correspond to all forms of investment with a value associated to a pension fund/plan. (2) Data have been gathered from publicly available reports. (3) Data refer to the end of June. (4) The increase in total assets is calculated between the end of December 2012 and the end of June 2013. (5) The 2012 value that was used to calculate the increase of the assets comes from a publicly available report. (6) The increase in assets between 2012 and 2013 is due to the acquisition of Afore Bancomer by Afore XXI Banorte in 2013. (7) Data only refer to the moderate plan of the mandatory pension fund. (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, Mundial Confiança, and Petrogal. (12) Data are given for the most representative plan of Bankia Pensiones. (13) Weighted average for assets as a % of GDP and % increase.
Source: OECD.

LPFs Asset Allocation

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

Figure 6. Asset allocation of LPFs - actual 2013

As a percentage of total investment



(1) The "Other" category includes loans, commodities and other investments. (2) Investments in index type futures are classified as other investments. (3) Other investments include investments in real estate funds. (4) Data only refer to the most representative plan of Bankia Pensiones. Other investments include investments in convertible bonds and UCIT Alternative investments funds. (5) Other investments have been excluded from the calculations of the asset allocation because they were negative in 2013. (6) Other investments include derivatives and outrights. (7) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. (8) Investments in cash and deposits have been excluded from the calculations of the asset allocation because they were negative in 2013. (9) Data only refer to the moderate plan of the mandatory pension fund. (10) Other investments include the market value of currency and interest rate hedges. (11) Data in this figure are an aggregate of the allocation of the CGD Staff's Pension Fund, and the pension funds of Fidelidade, Galp Energia, Império-Bonança and Mundial Confiança. (12) Other investments include trade and other receivables, inventories, prepaid expenses, assets all other tangibles except land and buildings, intangibles, other current and noncurrent assets, and loans to members. (13) Other investments include derivatives with a positive market value, music right, and investment funds. (14) Other investments include derivatives. (15) Other investments include securities lending. (16) Data only refer to the Pensioner Portfolio. (17) Data refer to the balanced plan only. (18) Other investments include private equity, fixed income, venture capital, in quotes of other investment funds and court-order. (19) Public Market Assets (Index-linked bonds, Public Equities, Fixed Income, Commodities) are in the "other" category.
Source: OECD.

The simple average portfolio for the LPFs shows that 52.1% of total assets were invested in fixed income and cash, 31.5% in equity, and 16.4% in alternative/other investments. 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 Trade Industrial Pension Fund and VTB both had high allocations to fixed income and cash at around 95% of total assets. Italy's Cometa fund invested 89.2% of assets in fixed income and cash, while other conservative portfolios PFA Pension (Denmark) and ERAFP (France) invested 84.7% and 71.5%, respectively, in fixed income and cash. Funds based in Italy, Portugal 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 66.0%, followed by the United States' New York City Combined Retirement System at 57.8%, South Africa's GEPF at 57.4% and the United States' LACERA at 54.0%.

Traditional asset categories such as stocks and bonds comprised the majority of assets in funds domiciled in Latin America (exception of Brazil), Russia, Spain and Italy. For example, Chile's three 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. 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 42.7%, and Turkey's OYAK at 40.3%. OMERS' long-term target for alternative investments is 47% of total assets. Five other funds had over 25% allocated to alternatives. They include: FUNCEF, Sunsuper, Banco BPI Pension Fund, OTPP, and pension funds managed by CGD. Only six funds out of the total 50 in this section reported zero exposure to alternative investments.

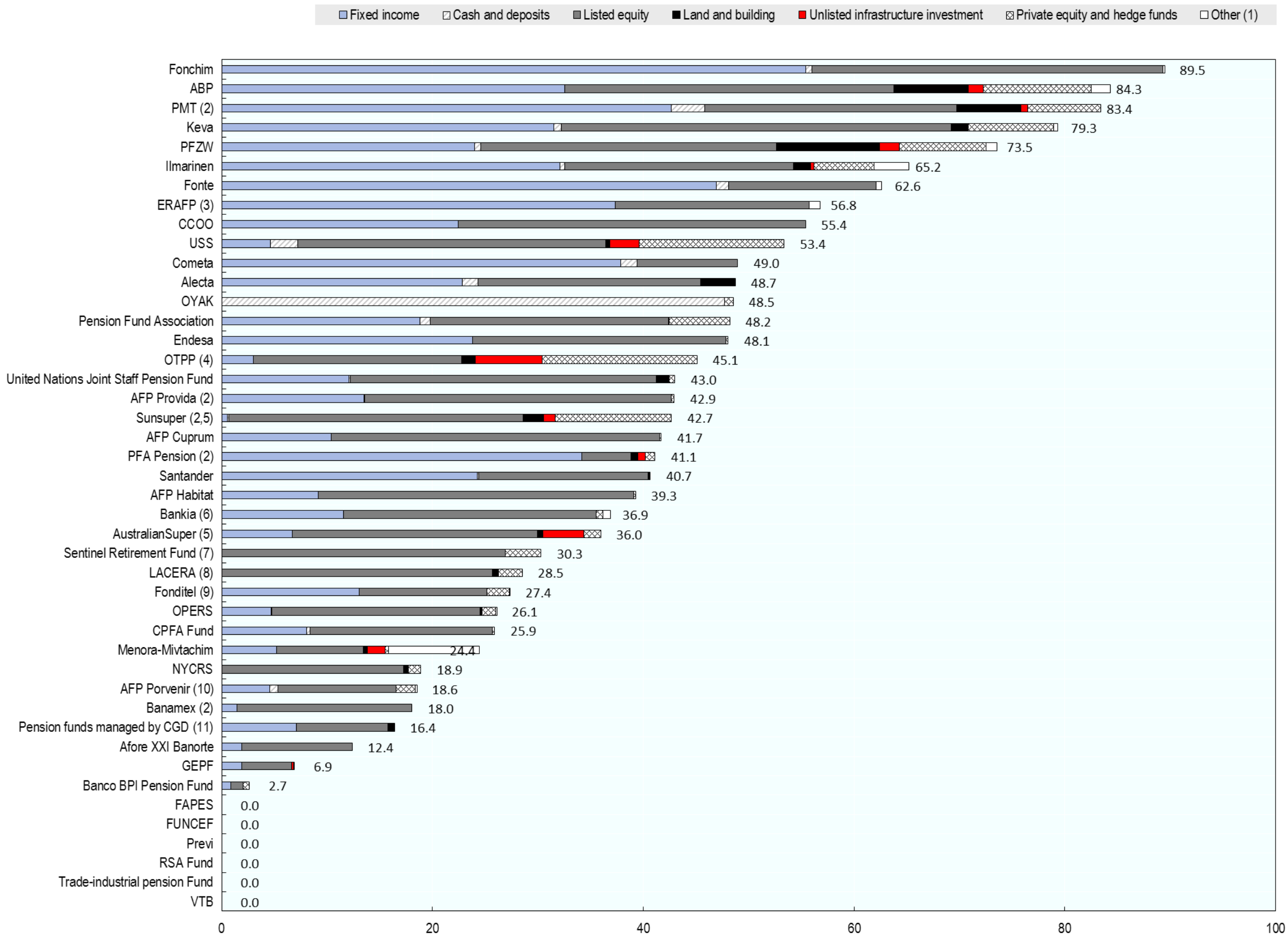
Two Portuguese funds had high allocations to real estate: Banco BPI at 31.1% and pension funds managed by CGD at 33.0%. OYAK, OTPP, South Africa's Sentinel Retirement Fund and the United States' OPERS had the highest allocations to private equity/hedge funds at 23%, 17.2%, 16.1%, and 15.2%, respectively. As part of the alternative asset allocation, some funds also started to invest in infrastructure (see Part B – Infrastructure Investment).

LPFs 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 36.6% of assets abroad.

Figure 7. Share of selected large pension funds' foreign investment by asset class, 2013

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 2013. (3) Cash and deposits are not all domestic. Some deposits are in money market funds governed by French law in the European Union. (4) Investments in cash and deposits and other investments have been excluded because they were negative in 2013. (5) Data refer to the balanced plan only. (6) Data are given for the most representative plan of Bankia Pensiones. (7) Data only refer to the Pensioner Portfolio. (8) Foreign investments refer to investments outside Canada and the United States. (9) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España. Foreign investments refer to investments outside the European Union. (10) Data only refer to the moderate plan of the mandatory pension fund. (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.
Source: OECD.

Fonchim invested 89.5% in foreign markets, the most of any fund surveyed. ABP and PMT also held a large amount of foreign assets at 84.3% and 83.4%, respectively. 10 funds invested more than half of total assets in foreign markets.

Finland's Keva had the highest allocation to listed foreign equities at 37.0%, followed by Italy's Fonchim at 33.3% and Spain's CCOO at 33.0%. Fonchim had a large allocation to foreign fixed income, investing 55.4% of total assets, followed by Italy's Fonte at 46.9%. USS and Canada's OTPP had large allocations to foreign private equity, while the Netherlands' PFZW allocated nearly 10% of assets to foreign properties.

LPFs Performance – Investment Rate of Return in Local Currency

Table 5. Nominal and real annual investment rate in selected LPFs in 2013

In percentage

Country head office	Name of the fund or institution	Nominal					Real				
		2010	2011	2012	2013	*4-year average*	2010	2011	2012	2013	*4-year average*
Australia	AustralianSuper (1)	6.1	-1.4	13.2	17.5	*8.6*	3.4	-4.3	10.7	14.4	*5.8*
Australia	UniSuper Management Pty Ltd	5.1	..	..	..	..	2.4	..	..	..	..
Australia	Sunsuper (2)	6.0	-2.2	14.6	18.6	*9.0*	3.3	-5.1	12.1	15.4	*6.1*
Brazil	FAPES	..	8.6	24.7	-3.0	..	..	2.0	17.8	-8.4	..
Brazil	FUNCEF	..	10.7	9.3	6.9	..	..	3.9	3.3	0.9	..
Brazil	Previ	..	7.6	12.6	7.1	..	..	1.1	6.4	1.1	..
Canada	OMERS	11.4	3.2	10.0	6.0	*7.6*	8.8	0.9	9.1	4.7	*5.8*
Canada	OTPP	14.3	11.2	13.0	10.9	*12.3*	11.7	8.7	12.1	9.5	*10.5*
Chile	AFP Cuprum (3)	..	0.0	6.8	7.6	..	..	-4.2	5.3	4.4	..
Chile	AFP Habitat (4)	..	..	..	7.8	..	..	..	..	4.6	..
Chile	AFP Provida (3)	12.0	-1.2	7.2	4.4	*5.5*	8.8	-5.4	5.6	1.3	*2.5*
Colombia	AFP Horizonte-Col	18.8	..	..	..	..	15.2	..	..	..	..
Colombia	AFP Porvenir (5)	..	..	..	0.0	..	..	..	..	-2.0	..
Denmark	PFA Pension	8.0	11.1	10.5	-0.9	*7.1*	5.0	8.4	8.4	-1.7	*4.9*
Finland	Ilmarinen	..	-4.0	7.5	9.8	..	..	-6.7	5.0	8.1	..
Finland	Keva	..	..	..	7.5	..	..	..	..	5.8	..
France	ERAFP	..	-1.1	17.3	6.5	..	..	-3.5	15.8	5.8	..
Germany	BASF Pensionskasse	..	0.7	9.7	..	..	..	-1.3	7.5	..	..
Israel	Menora-Mivtachim	..	-0.8	11.8	10.2	..	..	-2.9	10.0	8.2	..
Italy	Cometa	2.1	0.8	7.7	3.9	*3.6*	0.2	-2.4	5.3	3.2	*1.5*
Italy	Fonchim	2.4	-1.3	8.3	6.7	*3.9*	0.5	-4.5	5.8	6.0	*1.9*
Italy	Fonte	..	..	..	4.3	..	..	..	..	3.6	..
Japan	Pension Fund Association (4)	..	-4.3	16.0	24.3	..	..	-4.1	16.1	22.3	..
Mexico	Afore XXI Banorte	12.7	6.6	14.0	3.6	*9.2*	8.0	2.7	10.1	-0.4	*5.0*
Mexico	Banamex	..	..	..	4.2	..	..	..	..	0.2	..
Netherlands	PFZW	12.6	8.4	13.4	3.7	*9.4*	10.5	5.9	10.2	2.0	*7.1*
Netherlands	PMT	11.6	7.0	12.6	1.1	*7.9*	9.5	4.5	9.4	-0.6	*5.6*
Netherlands	ABP	13.5	3.3	13.7	6.2	*9.1*	11.3	0.9	10.5	4.5	*6.7*
Nigeria	AES Fund	..	2.5	16.5	18.6	..	..	-7.1	4.1	9.9	..
Nigeria	CPFA Fund	..	7.7	18.7	20.2	..	..	-2.4	6.0	11.3	..
Nigeria	RSA Fund	..	4.3	15.3	5.7	..	..	-5.5	3.0	-2.1	..
Portugal	Banco BPI Pension Fund	3.1	-7.3	20.6	16.7	*7.7*	0.6	-10.5	18.3	16.5	*5.5*
Portugal	Pension funds managed by CGD (6)	..	1.0	6.5	5.5	..	..	-2.5	4.5	5.3	..
Russia	Lukoil - Garant	..	1.8	7.5	..	..	..	-4.1	0.9	..	..
Russia	Trade-industrial pension Fund	..	..	..	6.6	..	..	..	..	0.1	..
Russia	VTB	..	2.1	8.7	5.9	..	..	-3.8	2.0	-0.5	..
South Africa	GEPF	12.2	11.9	21.8	17.9	*15.9*	8.4	5.5	15.2	11.9	*10.2*
South Africa	Sentinel Retirement Fund (7)	..	..	..	19.7	..	..	..	..	13.6	..
Spain	Bankia (8)	..	-2.0	6.3	7.7	..	..	-4.3	3.3	7.5	..
Spain	CCOO	0.6	2.0	7.3	9.0	*4.7*	-2.3	-0.4	4.3	8.7	*2.5*
Spain	Endesa	0.3	1.1	7.7	9.4	*4.6*	-2.6	-1.2	4.7	9.1	*2.4*
Spain	Fonditel (9)	0.5	-5.3	9.0	4.2	..	-2.5	-7.5	5.9	3.9	..
Spain	Santander	..	-1.5	6.6	7.4	..	..	-3.8	3.6	7.1	..
Sweden	Alecta	..	-2.1	11.4	10.2	..	..	-4.3	11.5	10.0	..
Turkey	OYAK	..	14.1	14.2	15.3	..	..	3.3	7.6	7.4	..
United Kingdom	BT Pension Scheme	..	1.7	7.5	..	..	..	-2.4	4.7	..	..
United Kingdom	USS (10)	11.7	0.4	11.4	12.8	*9.0*	7.7	-3.6	8.5	10.6	*5.6*
United States	CalPERS	..	1.1	13.3	..	..	..	-1.8	11.4	..	..
United States	LACERA	..	..	..	15.0	..	..	..	..	13.3	..
United States	Massachusetts PRIM Board	..	-0.3	13.4	..	..	..	-3.2	11.5	..	..
United States	New York City Combined Retirement System (4)	..	1.3	13.2	16.1	..	..	-1.7	11.3	14.4	..
United States	OPERS	..	0.2	14.4	13.9	..	..	-2.7	12.4	12.2	..
United States	United Nations Joint Staff Pension Fund (4)	..	-3.9	12.7	15.5	..	..	-6.7	10.8	13.8	..

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.

(1) Returns are for the balanced plan. (2) Data in 2013 refer to the balanced option. (3) Returns are provided for the Fund C. (4) Returns are gross investment rates of return. (5) Data only refer to the moderate plan of the mandatory pension fund. (6) 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. (7) Data only refer to the Pensioner Portfolio. (8) Data are given for the most representative plan of Bankia Pensiones. (9) Data in 2013 refer to Fonditel's biggest pension plan (Empleados de Telefónica de España) while data for 2010 to 2012 are aggregates of several plans. (10) Investment rates of return are not net, since the net asset value of some investments used to calculate the returns embeds fees.
Source: OECD.

In general, investment returns were good in 2013: equity markets in the United States, Europe and Japan posted strong returns. Fixed income markets were more mixed: yields increased in many markets yet credit sectors performed better than government bonds. Emerging markets experienced an increase in volatility as investors feared a slow-down in China and the Fed taper of monetary stimulus. Differences in pension fund returns show a wide variation owing to heterogeneity in size, 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 6.5% real in 2013. 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. Japan, followed by funds based in Australia, the United States and South Africa led the group. Trailing four-year real returns were positive for all funds.

PART A2 – GENERAL OVERVIEW OF PUBLIC PENSION RESERVE FUNDS

Public Pension Reserve Funds Size

The total amount of Public Pension Reserve Funds (PPRFs) assets at the end of 2013 were equivalent to USD 5.6 trillion within the countries for which we received or looked for data (Table 6). 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 1.2 trillion. Korea, China, Canada and Sweden had also accumulated large reserves. Of the countries surveyed, eleven had established their funds in the previous decade or later. The United States Social Security Trust Fund is the oldest, established over 70 years ago.

The overall trend since 2010 has been a slow but steady increase in total assets in the OECD countries surveyed.

Table 6 also shows four major non-OECD countries that are G20 members: Argentina, China, India, and Indonesia. China's National Social Security Trust Fund reached USD 203.5 billion at the end of 2013, showing an increase of over USD 27 billion from last year. Argentina's fund, founded in 2007, reached USD 50.7 billion.

The reserves put aside by the PPRFs for which we received data increased by 7.1% on average between 2012 and 2013 (based on local currency values). Chile's Pension Reserve Fund and Argentina's Sustainability Guarantee Fund both increased by over 30% since last year (see last column of Table 6). New Zealand's Superannuation Fund increased 20.2%. A significant amount – nine funds in total – experienced gains between 10 and 20% including funds in China, Japan, Canada, Australia and India (changes in value may result from investment gains/losses or fiscal transfers). Spain was the only fund to report a decline in assets from the previous year. During 2013, 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 32.4% of GDP, followed by Sweden at 29.0% (aggregate AP funds), Japan at 26.9% of GDP and the United States at 16.5% (Table 6). The weighted average of PPRF assets accounted for 18.3% of GDP in the selected countries in 2013.

Table 6. Total assets of selected PPRFs in 2013

Country head office	Name of the fund or institution	Founded in	Total investments or assets (1)		
			USD bn.	% of GDP	% increase (compared to the previous year)
Selected countries					
United States	Social Security Trust Fund	1940	2,764.4	16.5	1.2
Japan	Government Pension Investment Fund	2006	1,223.9	26.9	14.7
Korea	National Pension Service (2)	1988	404.5	32.4	8.9
China (People's Republic of)	National Social Security Fund (2)	2001	203.5	2.1	12.3
Canada	Canada Pension Plan Investment Board	1997	189.3	10.7	16.6
Sweden	National Pension Funds (AP1-AP4 and AP6) (3)	2000	164.7	29.0	10.4
India	Employee Provident Fund (2,4)	1952	116.2	6.1	15.8
Australia	Future Fund	2006	85.6	6.2	17.2
Canada	PSP Investments (2,5)	1999	75.0	4.2	..
Spain	Social Security Reserve Fund	1997	74.1	5.3	-14.7
France	AGIRC - ARRCO (2)	n.d.	71.6	2.5	..
Argentina	Sustainability Guarantee Fund	2007	50.7	11.3	34.6
Canada	Quebec Pension Plan	1966	43.1	2.4	17.4
Norway	Government Pension Fund - Norway (GPFN)	2006	28.9	5.8	13.3
Belgium	Zilverfonds	2001	27.5	5.2	4.1
New Zealand	New Zealand Superannuation Fund	2001	20.6	11.4	20.2
Portugal	Social Security Financial Stabilisation Fund	1989	16.1	7.1	6.9
Indonesia	Jamsostek (6)	1977	12.3	1.7	12.9
Chile	Pension Reserve Fund	2006	7.3	2.8	36.4
Poland	Demographic Reserve Fund	2002	5.9	1.1	7.2
Mexico	IMSS Reserve (7)	n.d.	1.7	0.1	7.0
Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska	2011	0.2	0.9	0.6
Total selected countries (8)			**5,587.1**	**18.3**	**7.1**
Memo item: Sovereign Wealth Funds with a pension focus (9)					
Norway	Government Pension Fund - Global (GPFG)	1990	849.6	171.5	33.6
Russia	National Wealth Fund (2)	2008	88.6	4.3	7.8

(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. The 2012 data for AP1 come from a publicly available report. (4) Data refer to the end of March 2013, 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 2013. (6) Jamsostek was founded in 1977 as a state entity which develops employment accident, health care, death and provident fund schemes for employees. Since the beginning of January 2014, the state pension fund was converted into BPJS Ketenagakerjaan, which is the workers' social security provider agency. (7) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries. (8) Weighted average for assets as a % of GDP and % increase. (9) 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 and various other sources.

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 2013, the fund held USD 849.6 billion in assets, accounting for 171.5% 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).

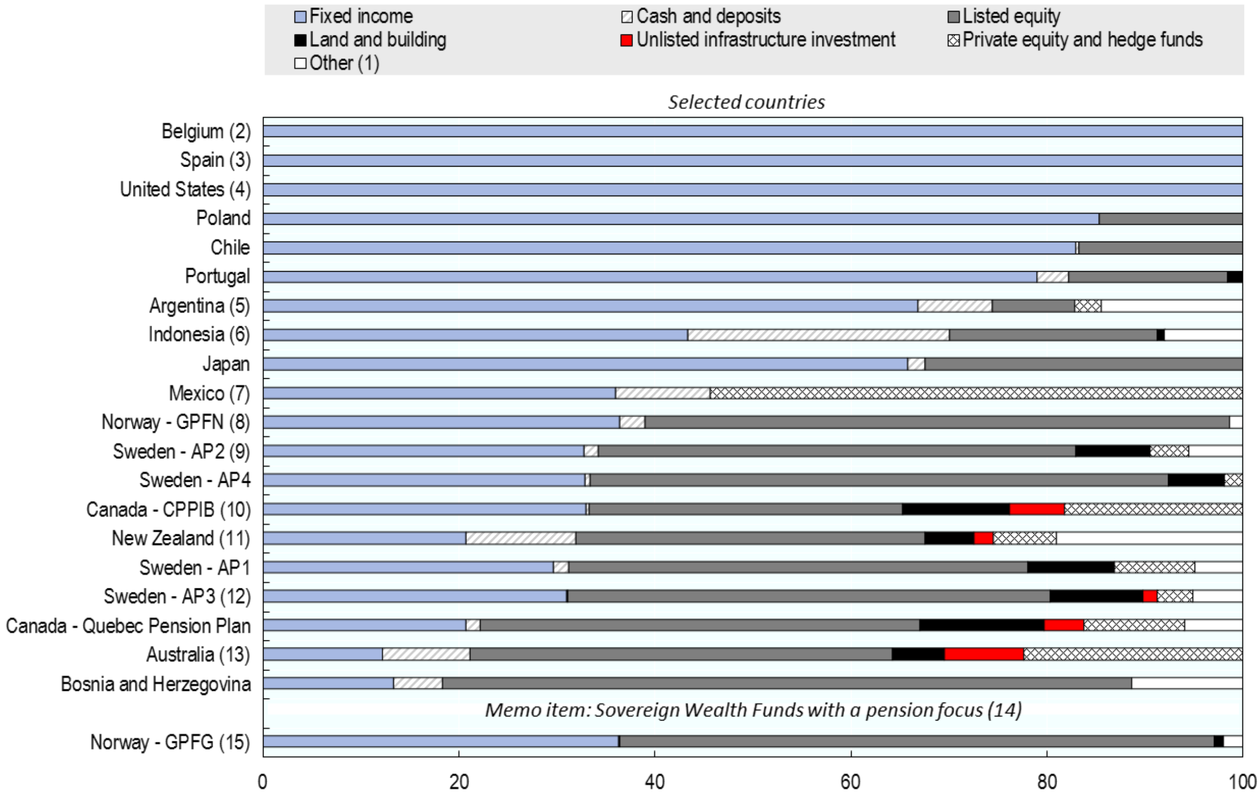
PPRFs Asset Allocation

A few PPRFs had to increase liquidity and reduce risk due to fiscal pressures. Major changes in investment strategies took place in Ireland, Spain, and Portugal. Spain's Social Security Reserve Fund migrated nearly all assets (97%) to Spanish government bonds by the end of 2012. 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 82.3% by the end of 2013.

Ireland's National Pension Reserve Fund, which was included in last year's survey, is not in this year's report as the fund is not a PPRF any longer. Over the past several years, the fund has been transitioning from a globally diversified pension reserve fund into one that will focus on investment in Ireland, under the Ireland Strategic Investment Fund initiative. The fund's support of social security and preservation of living standards for retirees is now not consistent with other PPRFs as its mandate now appears to be more similar to a sovereign wealth fund.

Figure 8. Asset allocation of PPRFs – actual 2013

As a percentage of total investment



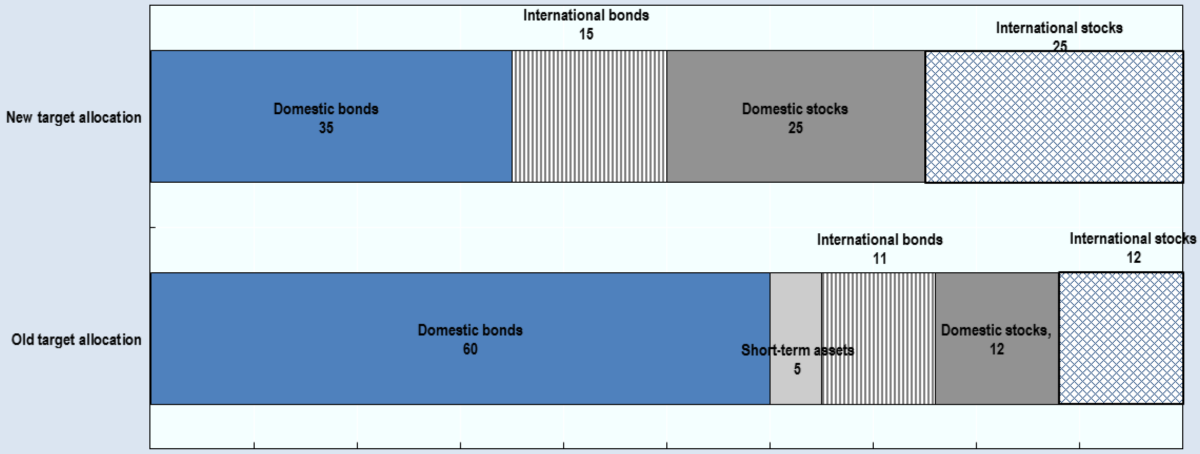
(1) The "Other" category includes loans, commodities and other investments. (2) Zilverfonds invested in Belgian Government bonds only. (3) The Spanish Social Security Reserve Fund invested all the assets in sovereign bonds of a selection of countries, such as France, Germany, the Netherlands and Spain. (4) Assets were invested in interest-bearing securities of U.S. Government for purchase exclusively by the Social Security trust funds (special issues). (5) Other investments include listed infrastructure investments. (6) Other investments include investments in mutual funds. (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, and receivables. (9) "Fixed income" includes, apart from bonds and certificates, investments in fixed income funds (including alternative credit funds, emerging market debt funds, etc.). 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". (10) Structured products are included in "Cash and deposits". (11) Other Investments include Timberlands, Farmland, Insurance linked securities and derivatives. (12) Other investments include derivatives, convertibles, and insurance-linked securities. (13) The category "unlisted infrastructure investment" includes listed and unlisted infrastructure investments. (14) 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. (15) Other investments include financial derivatives, unsettled trades, receivables, and lending (repo).
Source: OECD

Some PPRFs have dual mandates of providing stability to the funding of social security benefits, and to economic development (like a sovereign wealth fund). Australia's Future Fund is one such example. The Future Fund invests in the Building Australia Fund, the Education Investment Fund, and Hospitals Fund (which are collectively known as the Nation-building Funds). This includes investment in critical infrastructure such as transportation, communications, energy, water, education, research and health.

Box 3. Japan's Government Pension Investment Fund Asset Allocation Changes

Japan's Government Pension Investment Fund (GPIF) is essentially a pay-as-you-go system, but the recent change in asset allocation reflects a fiscal plan that uses reserve assets much as a pension fund would. Changes in investment policy will help GPIF achieve long-term real return objectives and is noteworthy because of GPIF's size, and also because the changes are consistent with the trends in asset allocation amongst PPRFs over the past four years. A change in the economic outlook as the main driver for such a policy shift.[37] The previous target allocation was formulated in expectation of lasting deflation, while the new asset allocation is designed to respond to increasing interest rates. Policy will be continually reviewed and changed as needed.

Box 3. Figure 1. New Target versus Old Target
As a percent of total assets



Under the new target allocation, the fund is to invest 50% of its assets in equities, equally split between domestic and foreign stocks. The target allocation for domestic bonds is reduced from 60% to 35% of total assets, while foreign bond allocation is set to increase from 11% to 15% of total assets. Overall, target allocation to bonds is reduced from 71% to 50%, and allocation to equities is raised from 24% to 50%. Alternative investments (e.g. infrastructure, private equity) will be capped at 5% of total assets, while classified as one of the four categories present in the target allocation according to their risk-return profile.

The simple average portfolio for the PPRFs included in the survey shows that 55.3% of the total assets were invested in fixed income and cash, 30.0% in listed equities, and 14.7% in alternative/other investments. Belgium and the United States invested 100% of the portfolio in domestic fixed income.[38] Mexico increased short and medium term corporate bonds to improve the risk/return relationship of the fund. Portfolio duration must be under two years, by Mexico's regulatory regime. New Zealand reduced cash holdings and increased equities by 12.0 percentage points between 2012 and 2013. Australia, Canada,

[37] See document published on the Government Pension Investment Fund, Japan website: http://www.gpif.go.jp/en/fund/pdf/adoption_of_new_policy_asset_mix.pdf

[38] By law, the U.S. Social Security Trust fund must be invested in U.S. government obligations (debt instruments of the U.S. government).

Norway and Sweden all maintain relatively low allocations to fixed income in favour of larger allocations to alternative investments. Most 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).

Given shifts in demographics, longevity risks, and sluggish growth (lower contributions), PPRFs may need to alter asset allocation in order to meet future obligations. Consistent with the trends in asset allocation amongst PPRFs over the past four years (funds have increased return-seeking assets such as equities and alternatives), 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 during 2014 (see box).

Alternative investments in PPRF portfolios include hedge funds, real estate, unlisted infrastructure, private equity, and other categories such as natural resources. The Swedish funds AP2, AP3 and AP4 have all increased their allocations to alternatives over the past few years. From 2010 to 2013, AP3 increased from 13.6% to 19.5%, and AP4 increased from 5.9% to 7.5%, respectively. AP4 established a new allocation to hedge funds in 2012 and increased allocations to unlisted real estate. AP1 increased allocation to private equity and real estate in 2013, consistent with its long-term investment strategy. PPRFs also invest in infrastructure assets mainly though listed and unlisted equity (see section B).

PPRF's Foreign Investment

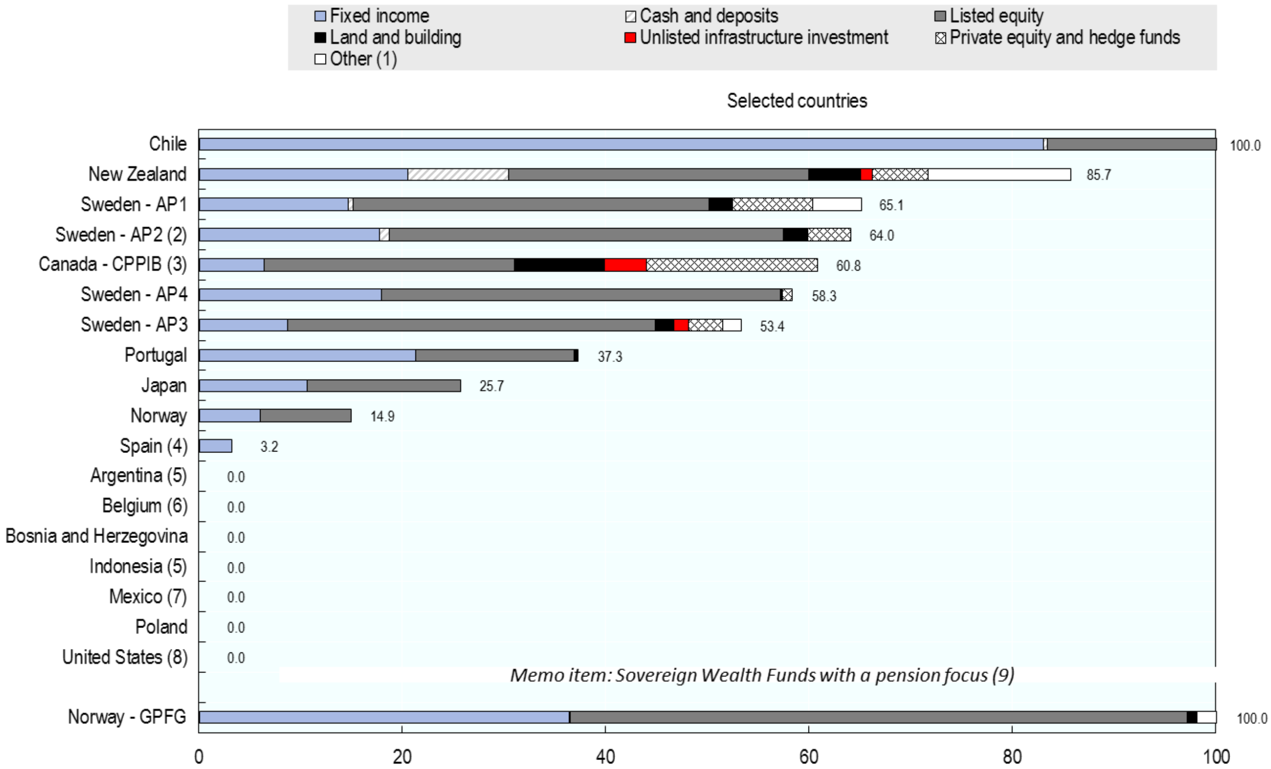
With some major exceptions, most funds maintain exposure to foreign markets through both equity and fixed income instruments (Figure 9). Some funds also invest in foreign alternatives. Chile's entire portfolio was fully invested abroad, including the recently established equity allocation, which includes developed and emerging markets stocks. In 2012, Chile also diversified its foreign holdings into emerging markets stocks and bonds for the first time. Four additional funds invested over 60% of total assets in foreign markets.

Canada invested nearly 30% of the portfolio in overseas alternatives, and had a high allocation to private equity and hedge funds, in particular. New Zealand also invested a significant amount in foreign alternatives, allocating 11.7%.

Despite the limitation of some funds that prohibit foreign investment, emerging markets investing is a wave that PPRFs are riding, along with many other institutional investors. Of the ten funds surveyed that reported foreign equity exposure at the end of 2013, seven had allocations to emerging markets equities. PPRFs also diversified fixed income holdings into emerging markets. Of the eleven funds surveyed that reported foreign fixed income exposure, six reported allocations to emerging markets debt.

Figure 9. Foreign investment by asset class in selected PPRFs in 2013

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 2013. (3) Investments in cash and deposits have been excluded because they were negative in 2013 in the domestic market. (4) The Spanish Social Security Reserve Fund invested all the assets abroad in sovereign bonds of a selection of countries, such as France, Germany and the Netherlands. (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) Assets were invested in interest-bearing securities of U.S. Government for purchase exclusively by the Social Security trust funds (special issues). (9) 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.

PPRFs Performance – Investment Rate of Return in Local Currency

In 2013, developed market equities surged while fixed income returns were much lower or flat. Thus portfolios with the largest allocation to global equities performed the best. For those funds that invest in alternatives, diversification in real estate, infrastructure, and private equity contributed strongly to fund performance as these sectors experienced strong returns during the year. Looking more closely at fixed income, credit investments such as high yield bonds performed better than government issued securities as interest rates crept up in most markets.

Returns were positive in 2013 across all funds surveyed, with some posting exceptionally strong results. For the funds in which 2012 and 2013 returns were both available, the average return was 10.1% (real) in 2013, compared to 8.3% in 2012. New Zealand's fund returned 24.1% real in 2013, the highest amongst the funds surveyed. Deviations from benchmarks, termed "strategic tilting" by the fund contributed strongly to returns, which are based on the long-term investment views of the fund, in comparison to the shorter term vicissitudes of the markets (recall the earlier discussion about how some LPFs are adopting the use of opportunistic asset allocation strategies, this example in New Zealand is along the same vein).

Argentina’s fund also posted strong results, returning 20.6% real. Performance was driven by strong returns in infrastructure holdings.

Volatility in government bond yields in the Eurozone periphery subsided during 2013, helping those regions that primarily invest in fixed income. Despite the slight uptick in some government bond yields, those funds that invest exclusively in fixed income eked out positive returns, continuing the track record of low but stable returns in the United States, Spain and Belgium.

Funds with high equity allocations such as Bosnia & Herzegovina’s Pension Reserve Fund (70.4%) Norway’s GPFN (59.7%), Sweden’s AP4 (59.1%), AP3 (49.3%), AP2 (48.9%), and AP1 (46.9%), and the Québec Pension Plan (44.9%) all posted returns above 11% real in 2013, with the exception of Bosnia & Herzegovina which experienced a period of price deflation. Australia’s Future Fund, one of the reserve funds with the largest allocation to private equity and hedge funds in the survey, returned 14.1% real last year.

Five-year real returns, which capture results during the recovery period from the GFC to the end of 2013, are positive for nearly all funds, with the exception of the Pension Reserve Fund in Chile.

Table 7. Nominal and real average annual investment rate of returns in selected PPRFs over 2009-2013 (in percentage)

Country	Name of the fund or institution	Nominal						Real					
		2009	2010	2011	2012	2013	*5-year average*	2009	2010	2011	2012	2013	*5-year average*
Selected countries													
Argentina	Sustainability Guarantee Fund	..	26.4	12.1	22.7	33.8	*..*		14.0	2.3	10.7	20.6	*..*
Australia	Future Fund	11.1	9.5	1.6	12.8	17.2	*10.3*	8.8	6.7	-1.5	10.4	14.1	*7.6*
Belgium	Zilverfonds	4.4	4.3	4.3	4.2	4.0	*4.3*	4.2	1.2	0.8	2.0	3.0	*2.2*
Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska	..	..	-0.7	2.6	6.0	*..*			-3.2	0.8	7.5	*..*
Canada	Canada Pension Plan Investment Board	7.6	9.1	5.6	10.0	13.5	*9.1*	6.2	6.6	3.2	9.1	12.1	*7.4*
Canada	Quebec Pension Plan	..	14.0	2.6	10.3	15.3	*..*		11.4	0.3	9.4	13.9	*..*
Chile	Pension Reserve Fund	-17.7	-5.7	14.8	-3.4	10.5	*-1.0*	-15.5	-8.4	9.9	-4.8	7.2	*-2.8*
France	AGIRC (1)	10.6	3.4	-1.4	10.2	5.9	*5.6*	9.6	1.6	-3.8	8.7	5.2	*4.1*
France	ARCCO (1)	11.6	3.1	-2.4	11.6	6.7	*6.0*	10.6	1.3	-4.8	10.1	6.0	*4.5*
Indonesia	Jamsostek	..	..	..	..	10.0	*..*					1.7	*..*
Japan	Government Pension Investment Fund (2)	7.9	0.4	-1.9	8.7	17.1	*6.2*	9.7	0.8	-1.7	8.8	15.2	*6.4*
Korea	National Pension Service	10.4	10.4	2.3	..	..	*..*	7.4	7.1	-1.8			*..*
Mexico	IMSS Reserve (3)	6.7	6.6	5.0	4.3	4.6	*5.4*	3.0	2.1	1.1	0.7	0.6	*1.5*
New Zealand	New Zealand Superannuation Fund	18.9	15.1	1.2	19.2	26.1	*15.8*	16.6	10.6	-0.7	18.1	24.1	*13.4*
Norway	Government Pension Fund - Norway	33.5	15.3	-3.9	12.2	15.6	*13.9*	30.9	12.2	-4.1	10.6	13.3	*12.0*
Poland	Demographic Reserve Fund	8.9	6.6	1.8	10.2	3.0	*6.1*	5.0	3.4	-2.7	7.7	2.3	*3.1*
Portugal	Social Security Financial Stabilisation Fund (2)	6.3	0.1	-11.0	23.3	6.9	*4.5*	6.3	-2.4	-14.1	21.0	6.7	*2.8*
Spain	Social Security Reserve Fund (2)	4.6	4.0	4.1	4.2	4.2	*4.2*	3.8	1.0	1.7	1.3	3.9	*2.3*
Sweden	AP1	20.2	10.3	-1.9	11.3	11.2	*10.0*	19.5	7.8	-4.1	11.4	11.0	*8.8*
Sweden	AP2	20.6	11.2	-2.1	13.3	12.7	*10.9*	19.9	8.7	-4.3	13.4	12.5	*9.7*
Sweden	AP3	16.3	9.0	-2.5	10.7	14.1	*9.3*	15.6	6.5	-4.7	10.8	13.9	*8.2*
Sweden	AP4	21.6	10.9	-0.7	11.2	16.4	*11.6*	20.9	8.4	-2.9	11.3	16.2	*10.5*
Sweden	AP6	11.3	9.4	-6.9	9.2	..	*..*	10.7	6.9	-9.0	9.3		*..*
United States	Social Security Trust Fund	4.9	4.6	4.4	4.1	3.8	*4.3*	2.1	3.1	1.4	2.3	2.3	*2.2*
Memo item: Sovereign Wealth Funds with a pension focus (4)													
Norway	Government Pension Fund - Global	..	..	-2.6	13.4	15.9	*..*			-2.8	11.8	13.6	*..*

".." means not available.

(1) AGIRC and ARRCO are unfunded mandatory supplementary plans for white-collar and blue-collar workers respectively, with reserves. (2) Returns are gross investment rates of return. (3) Data only refer to reserves used to pay early retirement due to invalidity or work-related injuries. (4) 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 and other sources.

PART B – INFRASTRUCTURE INVESTMENT

For this part of the report -the infrastructure investment survey- 35 funds out of the total 71 funds that returned completed questionnaires are included. These 35 funds account for USD 2.3 trillion in assets under management. Out of the total 35 funds, 8 are PPRFs. The funds taken into consideration are investing in infrastructure and provided information on their infrastructure investment allocation.

Table 8. Detailed infrastructure investment of selected large pension funds and public pension reserve funds, 2013

As a percentage of total assets

Country head office	Name of the fund or institution	Total investments in 2013 (in USD m.)	Infrastructure investment (as a % of total investments)		
			Unlisted Equity	Listed Equity	Debt
Netherlands	ABP	445,303	1.5	..	..
Netherlands	PFZW	189,397	2.4	..	..
Canada	CPPIB	189,296	5.5	0.1	..
United States	New York City Combined Retirement System (1)	150,853	0.0	..	..
South Africa	GEPF	133,428	0.1	..	..
Canada	OTPP	130,548	8.4	..	..
Japan	Pension Fund Association	112,782	0.1	..	..
Australia	Future Fund	85,597	8.0	..	..
Brazil	Previ	71,997	6.9	4.3	..
Netherlands	PMT	66,595	0.6	..	..
United Kingdom	USS	66,442	4.4	0.2	0.5
Canada	OMERS	61,757	14.9	0.0	0.0
Australia	AustralianSuper	57,295	9.8	..	..
Denmark	PFA Pension	54,515	0.8	0.0	0.0
Finland	Keva	52,156	0.0	0.4	1.0
Argentina	Sustainability Guarantee Fund	50,680	0.0	..	13.6
Chile	AFP Provida	45,103	..	0.3	1.1
Finland	Ilmarinen	44,504	0.3	..	..
Canada	Quebec Pension Plan	43,112	4.0	..	..
Chile	AFP Habitat	42,722	0.2	..	..
Sweden	AP4	40,456	0.0	7.0	..
Sweden	AP3	40,234	1.4	0.4	..
Mexico	Afore XXI Banorte	39,182	0.3	..	..
Mexico	Banamex	26,892	1.8	..	0.9
Brazil	FUNCEF	22,379	6.9	2.2	0.7
New Zealand	New Zealand Superannuation Fund	20,629	1.9	2.8	0.0
Australia	Sunsuper	17,515	5.1	..	0.4
Israel	Menora-Mivtachim	16,122	2.9	..	..
Turkey	OYAK	8,485	4.4	..	..
Chile	Pension Reserve Fund	7,335	0.0	3.7	5.5
Spain	Fonditel (3)	3,941	0.1	..	..
Brazil	FAPES	3,479	0.0	4.5	5.3
Portugal	CGD Staff's Pension Fund	2,361	1.6	1.6	..
Spain	Endesa	2,013	0.0	7.4	6.8
Portugal	Banco BPI Pension Fund (2)	1,475	3.3	18.1	21.4

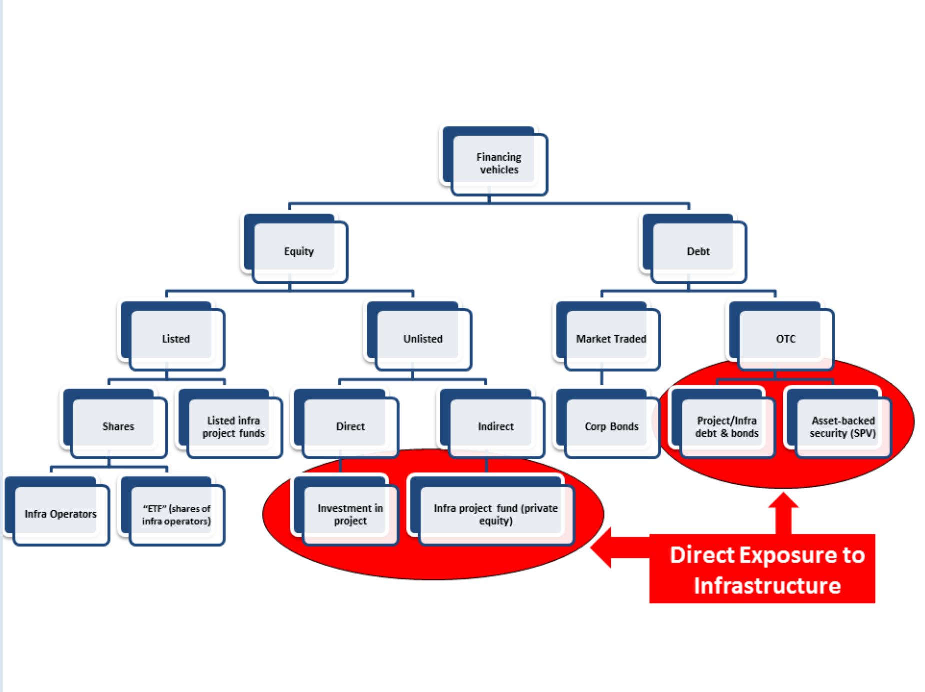
".." means not available.
(1) The fund started to invest in infrastructure in 2013. (2) Infrastructure investments include assets belonging to the sectors Transport, Telecommunications, Utilities and energy. (3) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España.
Source: OECD.

Box 4. Investing in Infrastructure

Pension funds can access infrastructure through a growing number of channels. Some new alternative forms of investment include banks partnering with institutional investors, securitisation, direct-lending, and co-investment platforms (see Box 5 and 6). Besides these emerging alternatives, the following are the typical ways investors gain exposure to infrastructure:

- *Debt financing*: lending to the owners or operators of the infrastructure (e.g. through project bonds or general obligations bonds).
- *Listed infrastructure companies*: Investment in equity of companies which are exposed to infrastructure. Investors may gain exposure through passive investments in stock indexes or actively managed strategies.
- *Infrastructure funds:* Pensions can invest in publicly-listed equity funds trading on a stock exchange (e.g. Brookfield fund, Macquarie Power and Infrastructure Corporation) or in un-listed equity funds that focus on infrastructure investments (i.e. Cube Capital, Alinda).
- *Direct investment (or Co-Investment along infrastructure funds)* in equity of a single-asset project company, or a portfolio of infrastructure assets that provide diversification amongst geographies and sectors

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.



Source: OECD A Taxonomy of Instruments and Incentives to attract Institutional Investors in long-term infrastructure investments (forthcoming)

Although the majority of funds surveyed stated they are actively investing in infrastructure as shown in Table 7, these total allocations are not comparable, as they relate to different forms of investment.

Infrastructure Allocation in the Total Portfolio

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 35 funds that indicated investment in infrastructure assets, 28 reported exposure to unlisted infrastructure assets, and 14 had dedicated target allocations to the asset category (see Table 8).

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.[39] Canada's OMERS reported an allocation to unlisted infrastructure assets of nearly 15% of the total fund, while Australia's AustralianSuper was at nearly 10%, followed by Canada's OTPP at 8.4% and the Canadian Pension Plan investing 5.6% of total assets in unlisted infrastructure.

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.[40] Depending on the composition of industries in local bond and equity markets, infrastructure related issues may be a large component of overall market capitalization, as is the case in some developing markets.

Portugal's Banco BPI Pension Fund had a high allocation to infrastructure assets (42.8% 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 (3.3% of the total portfolio) for the first time in 2013.

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

- The AustralianSuper Fund, a defined contribution savings plan, includes infrastructure investments in several of its pre-mixed options. Global infrastructure investments include water, energy and communication utilities; transport assets such as airports, toll roads and ports, and social infrastructure such as hospitals and schools. The fund invests directly in infrastructure assets, and also maintains the allocation through external investment managers.

- Borealis Infrastructure, a separate investment arm of the OMERS Administration Corporation, manages infrastructure assets on behalf of OMERS and other institutional investors. Borealis oversees a portfolio of over USD 20 billion in global infrastructure investments, which posted a return of 12.4% in 2013 for OMERS. Of the funds surveyed, OMERS had the highest allocation to

[39] 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.

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

unlisted infrastructure at nearly 15% of total assets. As part of OMERS' five year strategic plan, the fund will shift allocations from more volatile capital markets into private markets and into situations of direct ownership and management of assets, likely increasing allocations to infrastructure investments.

- CalPERS' infrastructure strategic plan is comprehensive and includes targets for a mix of projects with different return characteristics (e.g. defensive investments with reliable cash flow, to projects with greater operational risk). Term sheets include stipulations for debt or equity investments. Based on a series of roundtables and research performed by CalPERS in 2011 and 2012, efforts will be made to invest in projects based in the state of California, including transportation, ports, energy, and water, amongst other geographies.

- South Africa's GEPF does not have a separate allocation to infrastructure, but does invest in infrastructure assets which are included in its Developmental Investments mandate, as per the GEPF Developmental Investment Policy. GEPF is the largest investor in the Pan African Infrastructure Development Fund (PAIDF), which invests directly in infrastructure assets or in securities of companies that own, operate or manage infrastructure assets on the continent of Africa. PAIDF targets transportation, telecommunications, energy, water, and sanitation in its portfolio of investment.

Table 9. Infrastructure investment in 2013 – portfolio allocation

Country head office	Name of the fund or institution	Infrastructure allocation	Where does it fit in the portfolio allocation	Actual Allocation to Unlisted Infrastructure (2013)	Target Allocation to Unlisted infrastructure (if separate)
Netherlands	ABP	Separate	Infrastructure	1.5%	3.0%
Netherlands	PFZW	Separate	Infrastructure	2.4%	3.0%
Canada (1)	CPPIB	Non-separate	n.d.	5.5%	..
United States	New York City Combined Retirement System (1	Non-separate	Real Assets	0.0%	..
South Africa	GEPF	Non-separate	Private equity	0.1%	..
Canada	OTPP	Separate	Infrastructure	8.4%	8.5%
Japan	Pension Fund Association	Non-separate	Fixed Income	0.1%	..
Australia	Future Fund (2)	Separate	Infrastructure and Timberland	8.0%	..
Brazil	Previ	Non-separate	Equity	6.9%	..
Netherlands	PMT	Separate	Infrastructure	0.6%	1.0%
United Kingdom	USS	Separate	Infrastructure	4.4%	5.0%
Canada	OMERS	Separate	Infrastructure	14.9%	21.5%
Australia	AustralianSuper (3)	Separate	Infrastructure	9.8%	11-14%
Denmark	PFA Pension (4)	Separate	Infrastructure	0.8%	..
Finland	Keva	Non-separate	Equity and Fixed Income	0.0%	..
Argentina	Sustainability Guarantee Fund (5)	Separate	Infrastructure	13.6%	5-20%
Chile	AFP Provida	n.d.	n.d.	..	..
Finland	Ilmarinen	Separate	Infrastructure	0.3%	..
Canada	Quebec Pension Plan	Separate	Infrastructure	4.0%	5.0%
Chile	AFP Habitat	Non-separate	Private equity	0.2%	..
Sweden	AP4	Non-separate	Global equities and Swedish equities	0.0%	..
Sweden	AP3	Separate	Real Estate	1.4%	2.0%
Mexico	Afore XXI Banorte	Separate	Infrastructure	0.3%	5.0%
Mexico	Banamex	Non-separate	Private Equity and Fixed Income	1.8%	2.5%
Brazil	FUNCEF	Non-separate	Private Equity, Equity and Fixed Income	6.9%	..
New Zealand	New Zealand Superannuation Fund	Separate	Infrastructure	1.9%	..
Australia	Sunsuper (3)	Separate	Infrastructure	5.1%	4-5%
Israel	Menora-Mivtachim	Non-separate	Other investment funds	2.9%	..
Turkey	OYAK	Non-separate	Equity	4.4%	..
Chile	Pension Reserve Fund	Non-separate	Equity and Fixed Income	0.0%	..
Spain	Fonditel (6)	Non-separate	Private Equity	0.1%	..
Brazil	FAPES	Non-separate	n.d.	0.0%	..
Portugal	CGD Staff's Pension Fund	Separate	Infrastructure	1.6%	1.6%
Spain	Endesa	Non-separate	Hedge Funds, Equity and Fixed Income	0.0%	..
Portugal	Banco BPI Pension Fund	Non-separate	Equity and Fixed Income	3.3%	..

"n.d." means not available.

(1) 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. (2) Based on information collected during the 2013 survey. (3) AustralianSuper and Sunsuper Target Allocations are based on four premixed fund options for plan participants. (4) PFA Pension is a Defined Contribution scheme, thus a target allocation does not exist at the fund level. (5) Argentina's Sustainability Guarantee Fund invests in infrastructure through private debt instruments. (6) Data refer to Fonditel's biggest pension plan: Empleados de Telefónica de España.
Source: OECD.

Analysis of Infrastructure Investment

Overall investment in infrastructure in 2013 was still limited: if we consider total assets under management of funds from which data was received (i.e. 71 funds for USD 7.8 trillion) infrastructure investment in the form of unlisted equity and debt considered as direct exposure (see box 4), was USD 80.0 billion, representing 1.0% of the total assets under management of the entire survey population.

Looking more in detail at the 35 funds taken into consideration for this part of the survey, total investment in infrastructure at the end of 2013, considered as direct exposure (USD 80.0 billion) represented 3.4% of total assets of these 35 funds.

This low investment in infrastructure has been on average stable. In 2010, the 28 funds that provided data on infrastructure investments reported a total direct exposure of USD 41.9 billion, which represented 2.9% of total assets of funds investing in infrastructure, surveyed at that time.[41] Last year, infrastructure assets comprised 3.4% of total plan assets amongst the funds that reported infrastructure exposure.

Unlisted equity (i.e. infrastructure funds or direct investments in projects) is the largest category of infrastructure investment at USD 70.8 billion, and 3.0% of total assets surveyed. The average low investment is in line with what was reported in previous years: last year 27 funds reported exposure to unlisted equity, totalling USD 64.0 billion, and 3.0% of total assets.

Despite the low and stable average some funds are increasing their allocation to infrastructure. The Québec Pension Fund increased unlisted infrastructure exposure from 2.1% of the total portfolio in 2010 to 4.0% in 2013. The Australia Future Fund's allocation to infrastructure increased by 3.9 percentage points from 2010 to 2013.

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 but three funds that reported a separate target allocation to infrastructure were below targets at the end of 2013 (see table 8).

Five LPFs and one PPRF 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, envisions ramping up its target allocation to direct infrastructure from 0.4% in 2013 to 2.3% of plan assets by 2018 (based on self-reported projections), representing an eventual commitment of over USD 7 billion.

Seven LPFs, including France's ERAFP, Spain's Bankia, Endesa, and Fonditel, and Mexico's Banamex, which categorises infrastructure in private equity, planned to establish new target allocations to infrastructure. Three PPRFs: Sweden's AP1, Bosnia and Herzegovina, and Japan's GPIF would open new allocations to infrastructure in coming years.

Table 10. Infrastructure investment in 2013

	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	70,303	3.0	0.9
Debt	9,681	0.4	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.

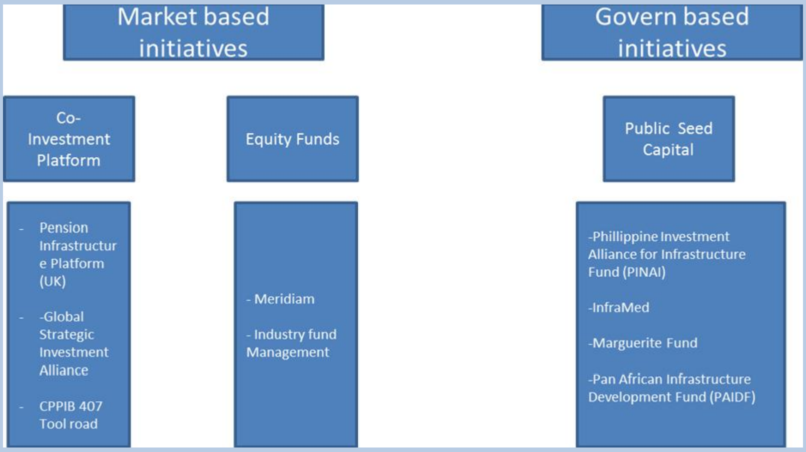
[41] Figures may be understated given that for fixed income the majority of the funds do not report such details on their allocation and infrastructure unlisted equity is often included in other asset classes. Some funds also report their allocation to infrastructure through listed equity (i.e. infrastructure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

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. This reflects the nature of the survey including some of the largest funds that have the size and expertise for direct investments. However this year's survey recorded an increase in direct investment over the past three years of data collected.

Box 5. Recent initiatives in the equity market for infrastructure

A recent OECD study, circulated to the G20 in April 2014, analysed new initiatives - government and market based - that have emerged to overcome some of the early drawbacks of institutional infrastructure investment vehicles.



With regard to *unlisted infrastructure funds*, it is recognised that a spectrum exists for the level of fees and terms and conditions of unlisted funds, similar to the spectrum of risk and return characteristics that exists for the different infrastructure investments. For example, funds investing in greenfield projects in emerging economies where risks are greater and the requirements for expertise are greater would be expected to charge higher fees than funds that invest in brownfield core economic infrastructure assets in developed countries. As a result of growing investor dissatisfaction, investment managers have had to make adjustments to the terms and conditions of their funds.

Investors have also opted to build in-house expertise to strengthen internal capabilities to *invest directly or pool resources together into co-investment vehicles*. Co-investment platforms have emerged as a way for investors to align interests, achieve larger scale and invest in assets without the expense of fund managers. The United Kingdom's Pension Investment Platform (PIP), Canada-based Global Strategic Investment Alliance (GSIA) and Canada Pension Plan Investment Board (CPPIB) -led syndicate model all provide examples of different co-investment structures that may help institutional investors access infrastructure investments more efficiently.

Recent initiatives have seen governments or development institutions providing assistance in setting up infrastructure funds and contributing directly through seed funds. Equity funds formed as *partnerships of public and private institutions* could become important sources of finance and providers of organizational capacity and expertise in support of the financing of infrastructure projects. Initiatives such as the establishment of the Pan African Infrastructure Development fund, the Philippine Investment Alliance for Infrastructure fund and the Marguerite fund in Europe provide examples of how funds can be set up with government involvement to help attract institutional investment in the much needed investment areas of the emerging economies and greenfield infrastructure.

Source OECD (2014) "Pooling of Institutional Investors Capital, selected Case Studies in Unlisted Equity Infrastructure" Report to the G20, April 2014.

Of the total USD 70.3 billion allocated to unlisted infrastructure, a subset of funds broke down their allocation into direct investments and funds. In this sample, unlisted infrastructure funds accounted for 29% of the total, direct and co-direct investments 68%, and other unlisted investments were 3% of the total. Some funds have ramped up their direct infrastructure exposures. Notably, Canada's OMERS reported three significant direct equity investments during the year, which included natural gas and power distribution in Europe and a Toronto based healthcare enterprise.

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 same funds was USD 9.7 billion or 0.4% of total assets in 2013. Of the funds surveyed, eleven reported exposure to direct loans and bonds. The UK's USS reported 0.5% of the total portfolio was invested in infrastructure loans. Chile's AFP Provida invested 1% of the portfolio in infrastructure loans. Spain's Endesa and Brazil's FAPES reported over 5% invested in infrastructure bonds. In 2012, Germany's BASF opened a target allocation to infrastructure loans and bonds at 4% of the total portfolio, providing some evidence that there is interest in this sub-set of the infrastructure investment category.

Argentina's Sustainability Guarantee Fund, one of the only PPRFs to report exposure to direct infrastructure fixed income, reported 13.6% 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, mentioned in an earlier section, may also be included as infrastructure investment. Sweden's AP4 and AP3 both reported exposure to green bonds issued mostly by development banks. Some of these debt instruments back clean water and energy projects which could fall under the category of infrastructure. Green bond issuance is forecast to increase over coming years.

Box 6. Recent initiatives in the debt market for infrastructure

Although data is scarce there seems to be a clear trend that sees banks cooperating with institutional investors in channelling debt funds to infrastructure (the “originate-to-distribute” model). The available evidence indicates four alternative structures:

1. The partnership/co-investment model

2. The securitisation model

3. The debt fund model and

4. The direct lending model (direct origination of infrastructure loans by institutional investors)

In the *partnership/co-investment model*, an institutional investor invests in infrastructure loans originated by a Mandated Lead Arranger (MLA) Bank. The MLA organises a syndicate and retains a pre-agreed percentage of each loan in its loan portfolio, selling the remaining portion to institutional investors. With this co-investment, an institutional investor can build a portfolio of infrastructure loans and can rely on the servicing of the loans in the portfolio provided by the originating bank. Recent examples are the partnership set up between Natixis and insurance company Ageas and the partnership between Crédit Agricole and Crédit Agricole Assurances.

The *securitization model* is based on the creation of a SPV that purchases from banks pools of infrastructure investments that become collateral for bond investors. These investors buy asset backed Securities issued by the same SPV. The advantage of this model is that these kind of loans structured as bonds can be tailored to the specific needs of institutional investors given the flexibility in creating portfolios originated in different sectors and countries[42]. As an example of this technique, in 2012 Natixis has structured a mechanism that enables institutional investors to invest in infrastructure loans via a securitisation vehicle.

In the *debt fund model*, an institutional investor provides funding to a resource pool (the fund) managed by an asset manager that acts, in all senses, as a delegated agent for the investors with full responsibility for the selection/screening process and monitoring of the investments. These funds typically define the asset allocation strategy *before* the fundraising phase and, for this reason, show lower degrees of flexibility compared to the securitization or the partnership model. On the other hand, this solution is probably the easiest way to approach the infrastructure market also for less experienced institutional investors that do not have dedicated teams to invest in infrastructure assets. Examples of the debt fund model are the infrastructure debt platform of BlackRock, the Senior European Loan Fund of Natixis AM and AEW Europe, the mid-market loan fund set up by Amundi, the MIDIS debt platform set up and managed by Macquarie

Direct lending is a fourth possible way that institutional investors can use to invest in debt infrastructure, although it is limited only to those who have internalised specialised teams of analysts dedicated to this asset class. This fourth option sees the institutional investor lending money directly to an infrastructure project. Examples are Allianz Global Investors and, in the UK, Legal & General and M&G (Prudential).

Source OECD (2014) “Private Financing and Government Support to promote long-term investments in Infrastructure” OECD Working Paper, Report to the G20 September 2014

[42] (Buscaino et al. 2012).

ANNEX

Complete Listing of Funds Included in this Report

Large Pension Funds: Data gathered through questionnaires during the 2014 exercise (base year: 2013)

	Country head office	Name of the fund or institution
1	Australia	AustralianSuper
2	Australia	Sunsuper
3	Brazil	Previ
4	Brazil	Fundação dos Economiários Federais (FUNCEF)
5	Brazil	Fundação de Assistência e Previdência Social do BNDES (FAPES)
6	Canada	Ontario Teachers' Pension Plan Board (OTPP)
7	Canada	Ontario Municipal Employees Retirement System (OMERS)
8	Chile	AFP Provida
9	Chile	AFP Habitat
10	Chile	AFP Cuprum
11	Colombia	AFP Porvenir
12	Denmark	PFA Pension
13	Finland	Keva
14	Finland	Ilmarinen
15	France	Établissement de Retraite Additionnelle de la Fonction Publique (ERAFP)
16	Israel	Menora-Mivtachim
17	Italy	Cometa
18	Italy	Fonchim
19	Italy	Fonte
20	Japan	Pension Fund Association
21	Mexico	Afore XXI Banorte
22	Mexico	Banamex
23	Netherlands	Stichting Pensioenfonds ABP (ABP)
24	Netherlands	Pensioenfonds Zorg en Welzijn (PFZW)
25	Netherlands	Pensioenfonds Metaal en Techniek (PMT)
26	Nigeria	RSA Fund
27	Nigeria	CPFA Fund
28	Nigeria	AES Fund
29	Portugal	Banco BPI Pension Fund
30	Portugal	CGD Staff's Pension Fund (1)
31	Portugal	Fidelidade (1)
32	Portugal	Galp Energia (1)
33	Portugal	Império-Bonança (1)
34	Portugal	Mundial Confiança (1)
35	Russia	VTB
36	Russia	Trade-industrial pension Fund
37	South Africa	Government Employees Pension Fund (GEPF)
38	South Africa	Sentinel Retirement Fund
39	Spain	Fonditel
40	Spain	Previsión Social, Empleados del Grupo Endesa, f.p. (Endesa)
41	Spain	Fondo de Pensiones de Empleados de Bankia (Bankia)
42	Spain	Santander Empleados Pensiones, FP (Santander)
43	Spain	Comisiones Obreras (CCOO)
44	Sweden	Alecta
45	Turkey	Ordu Yardımlaşma Kurumu (OYAK)
46	United Kingdom	Universities Superannuation Scheme (USS)
47	United States	New York City Combined Retirement System
48	United States	Ohio Public Employees Retirement System (OPERS)
49	United States	United Nations Joint Staff Pension Fund
50	United States	Los Angeles County Employees Retirement Association (LACERA)

(1) Pension funds managed by CGD

Source: OECD.

Public Pension Reserve Funds and Sovereign Wealth Funds with a pension focus: Data gathered through questionnaires during the 2014 exercise (base year: 2013)

	Country head office	Name of the fund or institution
1	Argentina	Sustainability Guarantee Fund
2	Australia	Future Fund
3	Belgium	Zilverfonds
4	Bosnia and Herzegovina	Pension Reserve Fund Of Republic of Srpska
5	Canada	Canada Pension Plan Investment Board
6	Canada	Quebec Pension Plan
7	Chile	Pension Reserve Fund
8	Indonesia	Jamsostek
9	Japan	Government Pension Investment Fund
10	Mexico	IMSS Reserve
11	New Zealand	New Zealand Superannuation Fund
12	Norway	Government Pension Fund - Global (GPFG)
13	Norway	Government Pension Fund - Norway (GPFN)
14	Poland	Demographic Reserve Fund
15	Portugal	Social Security Financial Stabilisation Fund
16	Spain	Social Security Reserve Fund
17	Sweden	AP1
18	Sweden	AP2
19	Sweden	AP3
20	Sweden	AP4
21	United States	Social Security Trust Fund

Source: OECD.

Large Pension Funds: Data gathered through publicly available reports during the 2014 exercise (base year: 2013)

	Country head office	Name of the fund or institution
1	Australia	AMP Superannuation Savings Trust
2	Australia	UniSuper Management Pty Ltd (UniSuper)
3	Brazil	Petros
4	Canada	Alberta Investment Management Corp. (AIMCO)
5	Denmark	Arbejdsmarkedets Tillægspension (ATP)
6	Germany	Bayerische Versorgungskammer
7	Germany	Bayer-Pensionskasse
8	Germany	Hoechst Pensionskasse
9	Peru	AFP Integra
10	Peru	AFP Profuturo
11	Portugal	Petrogal (1)
12	Russia	Lukoil - Garant
13	Singapore	Central Provident Fund
14	United Kingdom	BT Pension Scheme
15	United Kingdom	Railways Pension Trustee Company
16	United Kingdom	BP Pension Scheme
17	United States	California Public Employees' Retirement System (CalPERS)
18	United States	California State Teachers' Retirement System (CalSTRS)
19	United States	Florida Retirement System Pension Plan
20	United States	New Jersey Fund
21	United States	Retirement Funds of Washington State
22	United States	Massachusetts PRIM Board
23	United States	South Carolina Retirement System Investment Commission (SCRSIC)
24	United States	State Universities Retirement System
25	United States	New Hampshire Retirement System

Source: OECD.

Public Pension Reserve Funds and Sovereign Wealth Funds with a pension focus: Data gathered through publicly available reports during the 2014 exercise (base year: 2013)

	Country head office	Name of the fund or institution
1	Canada	PSP Investments
2	China (People's Republic of)	National Social Security Fund
3	France	AGIRC
4	France	ARRCO
5	India	Employee Provident Fund
6	Korea	National Pension Service
7	Russia	National Wealth Fund
8	Sweden	AP6

Source: OECD.

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

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