

# *Global Pension Funds*

## Best practices in the pension funds investment process

**amAfore**  
Asociación Mexicana de Afores



---

# *Contents*

<b>Foreword</b> .....	<b>2</b>
<b>Introduction</b> .....	<b>3</b>
<b>Diversification is a necessity</b> .....	<b>4</b>
<b>Regulations should provide the utmost flexibility</b> .....	<b>10</b>
<b>The rise of insourcing portfolio management</b> .....	<b>12</b>
<b>A sound governance structure</b> .....	<b>19</b>
<b>Conclusion</b> .....	<b>22</b>
<b>Pension funds</b>	
<b>Summary of the pension fund's main indicators</b> .....	<b>26</b>
<b>Factsheets</b> .....	<b>27</b>
<b>Contacts</b> .....	<b>131</b>

# Foreword



In 1997, the Mexican pension fund system moved from Defined Benefit (DB) plans to a mandatory public program based on a Defined Contribution (DC) scheme. AFORES are private firms responsible for the management of the accounts and savings of more than 56 million plan participants. Assets under management (AuM) for all eleven AFORES stood at USD 153bn as of Q1 2016, growing at a 13% CAGR the last five years. These assets represent 14% of local GDP, and 16% of all financial assets in Mexico. Projections suggest that AuM will reach 25% of GDP in the next 10 years.

In light of these increasing figures, however, two main challenges remain for pension funds to achieve adequate replacement ratios for workers in Mexico - a low contributions rate, as well as restrictive investment guidelines.

Particularly, the restrictions for pension fund's investments constrain AFORES to grow their assets and invest for the long term. The narrowness of mandatory limits on equity (30%) and foreign assets (20%) are forcing AFORES to concentrate their portfolios on local bonds (84% of AuM).

Following the global economic crisis, the investment industry, and with it pension funds globally, began to focus on investment strategies that could better diversify risk while sustaining returns. The economic crisis exposed just how tight the correlation was among traditional asset types. Although the concept of portfolio diversification is certainly not new, pension funds are now placing greater emphasis on diversification. Moreover, sound governance, operational efficiency, and investment regulations became a spotlight in the pension industry.

AMAFORE believes that a study providing more clarity on the investment practices of leading global pension funds will be beneficial to the Mexican pension fund industry and its regulatory authorities. Therefore, AMAFORE has assigned PwC to conduct a study of global pension funds' best practices of investment to identify the growing trends in asset allocation, governance models, regulations, and the drivers of change.

We sought to focus research on the largest, most developed pension markets to research the best practices in the pension funds investment process.

We trust you will find this publication both enlightening and compelling.

A handwritten signature in black ink, appearing to read 'C. Noriega'.

**Carlos Noriega**  
AMAFORE, President



---

# Introduction

Traditionally, pension funds have invested in the two main asset classes (bonds and equities) with a long-term investment perspective in line with the duration of their liabilities. In recent decades, pension funds have further diversified their portfolios by successfully allocating assets to alternatives, such as private equity, real estate, infrastructure and hedge funds (hereafter referred to collectively as alternatives).

In order to identify best practices and trends in asset allocation and investment strategies of pension funds, PwC conducted research, including a survey, comprising some of the largest pension funds in the United States of America (US), Canada, Australia, and Europe.

The purpose of this exercise was to compare the investment process and organization of some of the largest pension funds in those countries, analysing in greater depth the general trends observed at a global level.

The results highlight how pension funds are adapting their investment strategies to succeed in today's complex and demanding environment. We observed several key trends during our research and analysis: asset allocation strategies prove to be a viable solution, balancing in-house asset management versus outsourcing can lead to better control over performance and costs, and sound governance structures ensure sound processes and organization.

While the report identifies the best investment practices of pension funds, which will be of prime value to players within the pension fund industry, it can also be used to help regulators and other policymakers better understand the best practices of pension funds' investment processes in different countries.

By analysing the evolution of portfolio management within global pension funds, policymakers can gain insights into the drivers behind asset allocation and investment process decisions as well as the conditions required to successfully manage pension assets over the long term.

# Diversification is a necessity

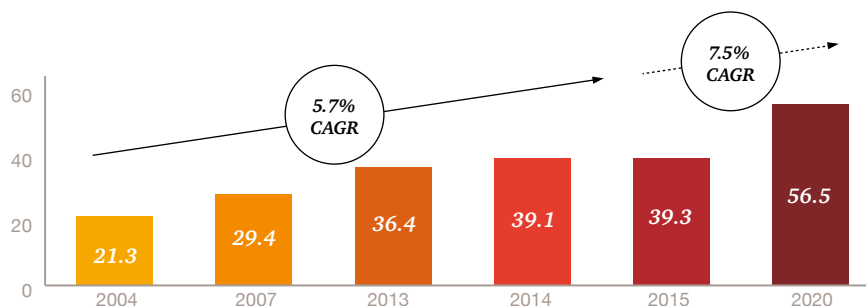
Despite persistently slow global economic growth, pension funds seem to experience a strong asset growth. Even as global growth expectations remain subdued, China's economy stalls and Europe contends with political pressures, there is a high prospect for increased allocations to pension funds as governments across the globe shift from pay as you go systems to individual and corporate responsibility models. Globally, pension funds have been rapidly accumulating assets over the past decade, growing from USD 21.3tn in 2004 to USD 39.3tn in 2015. PwC forecasts a further increase of 7.5% CAGR until 2020 (Figure 1).

While pension funds are buoyant amid economic turmoil, they still have to navigate the rapids of an ever-changing marketplace. The need to achieve superior returns, underfunded schemes, an aging client base and demanding regulatory changes are only some of the issues pension funds must cope with. In addition, pension funds, which historically have been heavily exposed to fixed income investments, are experiencing a shift in their asset allocation brought on by a decrease in sovereign bond yields in the US, the Eurozone, the United Kingdom (UK), and Japan since the global financial crisis of 2008.

*“Asset allocation must balance risk and return, and the correlations between asset classes.”*

– Australian participant

Figure 1: Evolution of global pension funds' assets in USD tn



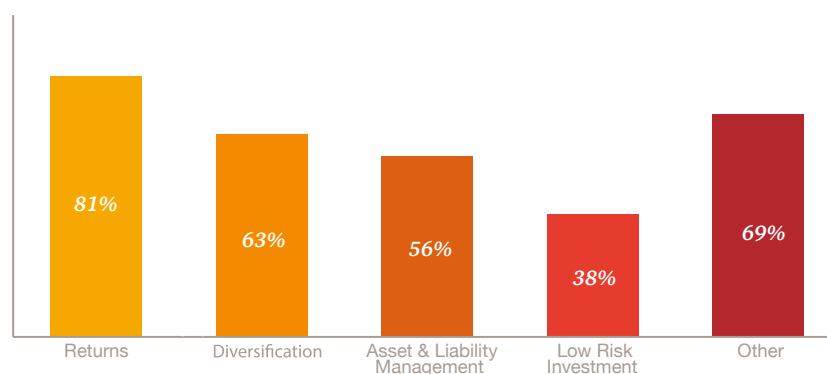
Source: PwC Market Research Centre, 2016

## The main drivers of pension fund asset allocations

In general, a pension fund's asset allocation must balance risk, return and costs. Several drivers can spur a market shift in pension asset allocations and they should not be considered independently, but rather as an ecosystem in which each influences the others. The main drivers include diversification, risk management, hedge against inflation, asset and liability management, and return on investments (ROI).

Our research has shown that returns and diversification are the most prominent criteria taken into account when deciding on asset allocation (Figure 2). Other criteria include lower costs, hedges against inflation and liquidity, especially for those whose members can roll their portfolio into another pension fund at any time.

Figure 2: What criteria do you take into account when deciding on your asset allocation?

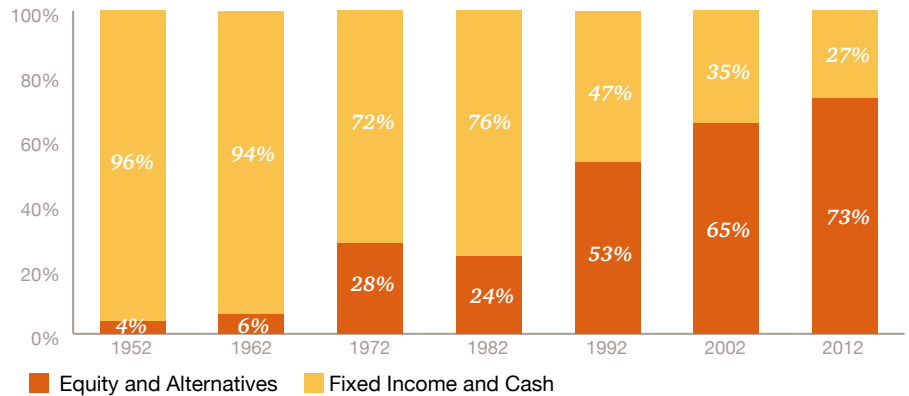


Source: PwC Market Research Centre, 2016

## A move toward alternatives

Traditionally global pension funds have invested heavily in fixed income. However, pension funds have begun shifting towards equities and alternatives over the past decades. For example, the state pension funds in the US invested 96% of their assets in fixed income and cash in 1952. By 1992, this had fallen to 47% and by 2012 to 27% (Figure 3).

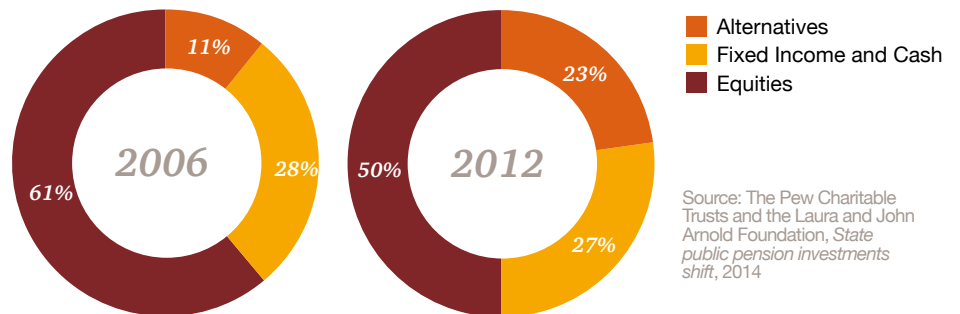
Figure 3: Evolution of US Public Pension Investments, 1952-2012



Source: US Board of Governors of the Federal Reserve System, *Financial Accounts of the United States*, 1952 to 2012

In our post global financial crisis environment, we are seeing a strong shift towards alternatives. Looking at the same example, US state pension funds doubled their alternatives exposure from 11% in 2006 to 23% in 2012 (Figure 4).

Figure 4: US Public pension funds include more alternatives

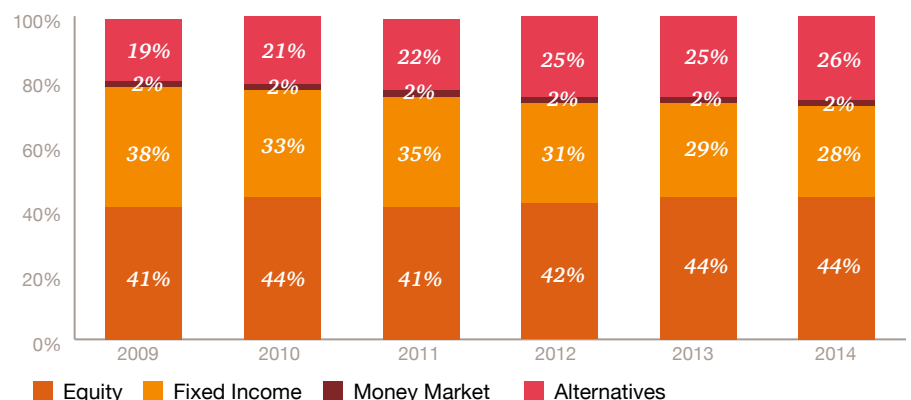


Source: The Pew Charitable Trusts and the Laura and John Arnold Foundation, *State public pension investments shift, 2014*

The same trend can be observed at the global level; alternatives in all pension fund portfolios increased from 19% in 2009 to 26% in 2014 (Figure 5).

A number of factors have motivated pension funds to shift into alternatives.

Figure 5: Evolution of asset allocation of pension funds



Source: PwC Market Research Centre, *Beyond their Borders*, 2016

# Diversification is a necessity

## Low interest rate environment and search for superior risk adjusted returns

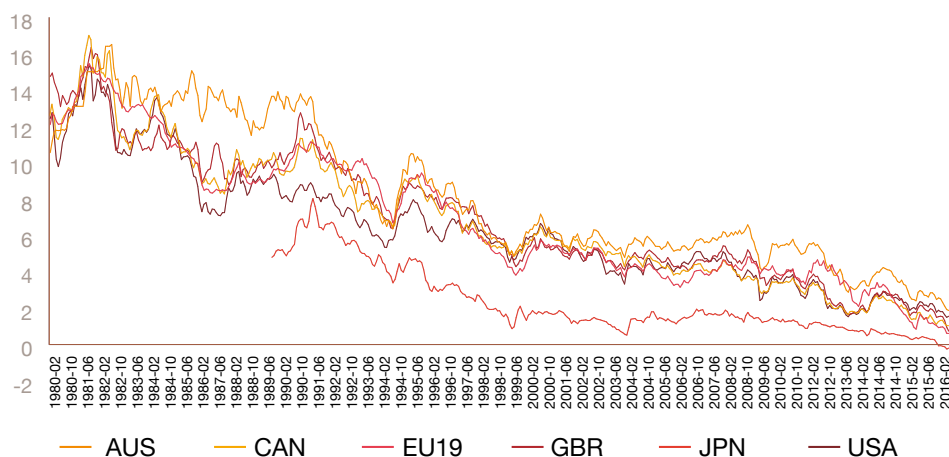
In an era of prolonged low interest rates, traditionally safe-haven income-generating assets such as government bonds are no longer attractive. Whereas from the mid- 90's until the global financial crisis, interest rates were low, post financial crisis interest rates have dipped to near zero; in some large economies interest rates are currently in negative territory. As a result, pension funds seeking higher yielding investments are turning towards asset classes with better prospective returns, such as alternatives.

According to the Pew Charitable Trusts and the Laura and John Arnold Foundation, the California Public Employees' Retirement System (CalPERS), the largest state pension plan in the US, employs this strategy. In 1992, 30-year Treasury rates hovered around 7.7%; assuming an 8.8% rate of return, CalPERS estimated it would need to beat Treasury rates by only 1.1 percentage points. But by 2012, Treasury rates had fallen to 2.9%. In response, CalPERS lowered its return assumption to 7.5%, meaning its investments would have to increase their return by 4.6% to beat the Treasury rates (Figure 7).

## The search for lower volatility and enhanced returns

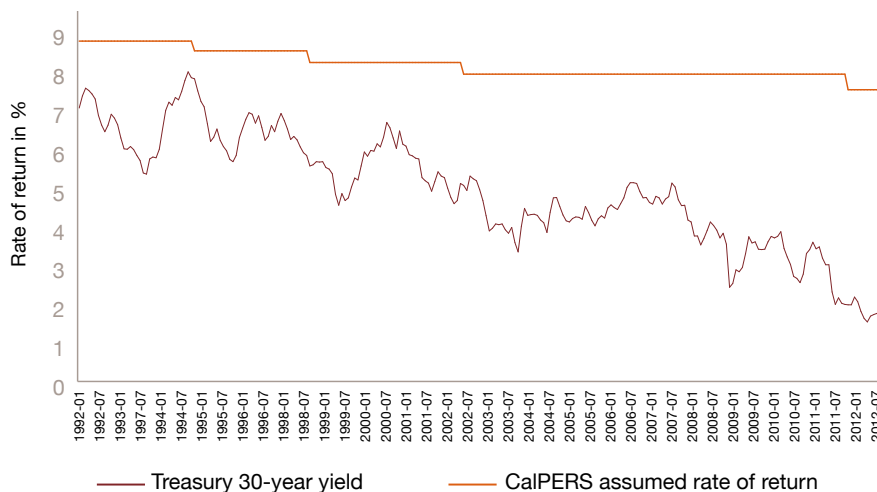
One of the potential benefits of incorporating alternatives in an investment strategy include greater diversification, both geographically and by sector, which helps to mitigate risks caused by market fluctuations in equity and fixed income. The distribution of investment risks across a broad group of assets protects investors against correlated risk and, as a result, can lead to steady long-term returns.

Figure 6: Long-term interest rates - 10-year maturing government bonds (%)



Source: OECD, 2016

Figure 7: CalPERS' increasing risk premium



Source: The Pew Charitable Trusts and the Laura and John Arnold Foundation, *State public pension investments shift*, 2014

While alternative investments tend to be more volatile than traditional ones (particularly fixed income), they actually can lower a portfolio's overall volatility. Investors are attracted to their low correlations as a way to deliver higher returns.

Many alternatives are indeed less volatile than the stock market. Their ability to adopt a variety of strategies and asset classes allows alternatives to achieve returns that have low correlations with traditional stocks and bonds. Hence, by adding alternatives to a portfolio of traditional stocks and bonds, an investment manager could actually lower its portfolio volatility.

## Exploiting the illiquidity premium

As long-term investors with significant and stable net cash inflows, pension funds have an advantage over other investors that may have shorter time horizons or lower levels of net cash flows. Hence, by investing in illiquid assets, pension funds can benefit from an illiquidity premium. An investment strategy that is open to alternatives provides access to unique and strategic opportunities not available in the public markets, and the returns may significantly surpass those obtained from traditional assets.

Alternative investments also tend to be less sensitive to the inflation risk as they often mix, for example, stable infrastructure targets and defensive investments within the energy, power, water and transportation sectors. Hedge funds and unlisted assets allow investors to construct portfolios that tend to exhibit smaller fluctuations in returns over the short term without compromising long-term expected returns. This strategy of maximising risk-adjusted target rates of return can lead to higher returns.

Our analysis of the survey of top global pension funds showed that the increase of alternative assets stems mainly from diversification efforts (Figure 8).

Of our respondents, 81% reported that diversification played a significant role in their decision to invest in alternative asset classes. All of our respondents from Australia and Canada said alternatives provide diversification benefits and a reduction in volatility, due to different exposures to risk factors. Moreover, 56% of all respondents agreed that risk-adjusted returns is another reason to invest in alternative assets followed by illiquidity premium.

On the downside, exposure to alternatives entails some tangible difficulties. As a principle, alternatives are exposed to higher risk and the investment strategy execution needs to be managed more actively. Hence, pension funds bear the cost of hiring external and/or more skilled internal staff, often with high remuneration expectations.

*“We believe that alternative and illiquid assets such as unlisted property and infrastructure can also provide the Fund with diversification benefits and a reduction in volatility, due to different exposures to risk factors and the appraisal based valuations of unlisted assets.”*

– Australian participant

## Regional specifics

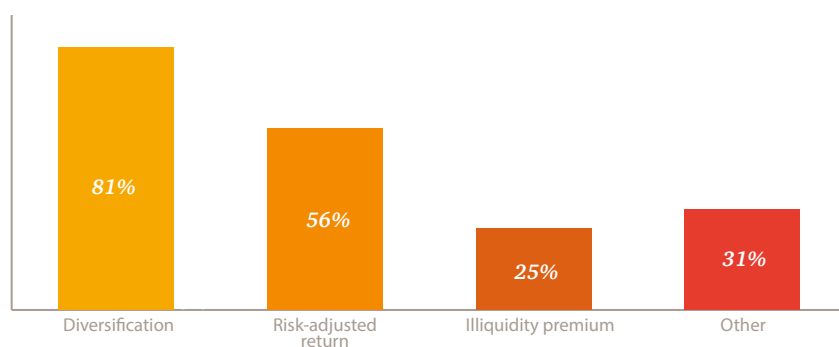
Globally, pension funds are increasing their exposure to diverse alternative investments to varying degrees according to their region. In general, the pension funds we analysed demonstrated a penchant for real estate assets. Based on secondary research, including the pension funds’ annual reports, the following regional specifics were observed:

*The Nordics:* Northern-European pension funds have a preference for direct real estate investments in the local market, and have some allocations to real estate assets in the US through indirect investments. Another focus is infrastructure investments that support the economy through providing capital to domestic industries, and thereby boosting trade and employment. The four analysed Nordic funds’ exposure to alternatives varies from 3% (Government Pension Fund Global) to 32% (Varma Mutual Pension Insurance Company).

*The US:* The biggest American public retirement vehicle, the Federal Retirement Thrift, with over USD 458bn of AuM, has no exposure to alternative investments. Such an investment strategy is a rarity, as six other US funds—including the California Public Employees Retirement System (CalPERS) and the California State Teachers’ Retirement System (CalSTRS)—with combined assets of over USD 716bn have allocated an average of 29% of their portfolios to alternative investments. Their main preferences are private equity and real estate.

*Canada:* The aggregated AuM of the six analysed Canadian pension funds amount to over EUR 717bn, with an average exposure to alternatives at

**Figure 8: What are the reasons that motivate you to invest in alternative assets?**



Source: PwC Market Research Centre, 2016

# Diversification is a necessity

31%, the highest proportion of all analysed markets. The main focus is on private equity and real estate. Canadian funds are increasing their international real estate exposure, especially towards the US market, as domestic opportunities become scarcer; some significant investments have also been made into infrastructure.

**Netherlands:** Dutch pension funds invest an average of 17% of their assets into alternatives, with a strong inclination towards private equity and real estate. In the case of the latter asset class, pension funds prefer the domestic market, and if investing abroad, they chose the US. During the past five years, investments into hedge funds were mixed: some funds, like Pensioenfond Metaal & Techniek (PMT), and Pensioenfond Zorg en Welzijn (PFZW), have divested from this asset class, while others, like Stichting Pensioenfond (ABP), have increased their exposure. Initially, this was viewed as a way to diversify risk and stabilize the funding ratio. But as costs became excessive and investment strategies became too complex, Dutch funds began selling all hedge fund assets which led to considerable cost reductions. Aside from its unique approach to hedge funds, another particularity characterizes the Dutch market: investors take a keen interest in niche asset classes, i.e. films and rights to TV series.

**Australia:** The Antipode pension funds prefer infrastructure and real estate investments, in both cases with a strong focus on the domestic market. There is a growing interest in international opportunities, especially in the US and the UK. Overall, more than a fifth (22%) of the assets managed by the seven analysed funds (USD 258bn) are invested in alternatives.

## Geographical diversification

Not only is asset class diversification crucial, but geographical diversification is also key in order to mitigate country or regional risks. Traditionally, pension funds have focused strongly on their domestic markets, but this is changing as more and more pension funds are investing abroad.

In 2008, foreign investments of pension funds accounted for 25% of their total investments, but jumped to 31% in 2014.<sup>1</sup> The trend will likely gain further momentum.

The overseas investments of North American (excluding the US) pension funds stood, on average, at 16%<sup>2</sup> of their total portfolios in 2008 and reached 21%<sup>3</sup> in 2014. Canadian pension funds allocated 26% of their

assets to overseas markets in 2008, and increased the percentage to 30% by 2014. Meanwhile, Mexican pension funds dedicated just 6% of their total portfolio to foreign investment in 2008. This figure doubled within six years.

In Europe, the average share of pension fund portfolios allocated to foreign markets increased from 32% in 2008 to 34% in 2014. The Netherlands, Finland and Portugal invest more than 50% of their assets abroad.

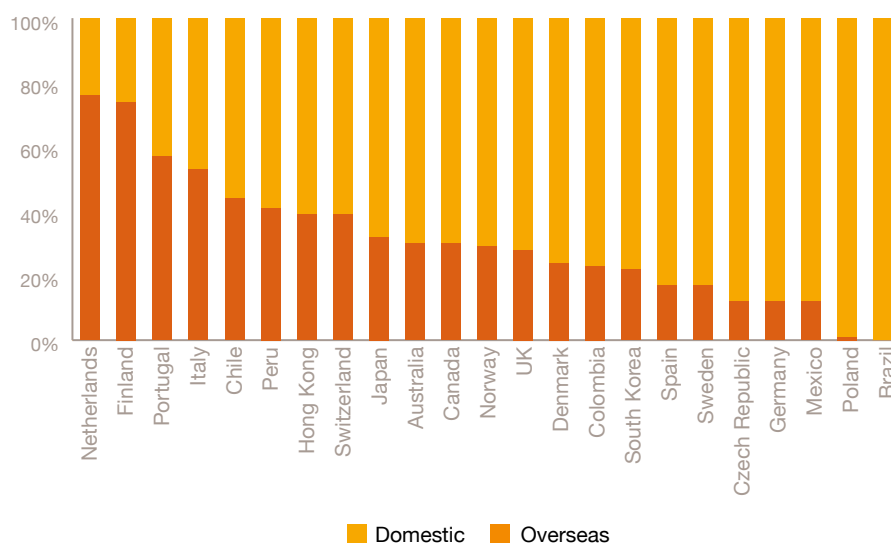
In South America, Chile and Peru are the region's most aggressive foreign investors, with Chile allocated 44% of total pension assets to foreign markets in 2014 and Peru invested 41% in foreign markets the same year.

<sup>1</sup> Aggregated data for the majority of OECD countries excluding the US.

<sup>2</sup> This figure does not comprise the US market as data is not readily available.

<sup>3</sup> Ibid.

Figure 9: Overseas investments of pension funds for selected countries in 2014



Source: PwC Market Research Centre, 2016

---

## Motivations for investing abroad

The reasons for foreign exposure in pension strategies vary depending on risk tolerance, currency fluctuations, inflation and local market conditions. As a principle, pension fund managers invest in foreign markets as a way to increase returns and reduce volatility through diversification.

In countries with higher currency fluctuations, investments in the local market are volatile, hence, overseas investments hedge currency rate changes. Likewise, high inflation can motivate investments in assets abroad. Pension funds in countries with relatively stable markets, however, are driven to foreign exposure by higher returns and/or an opportunity to diversify their portfolios which, in parallel, decreases the risk associated with alternative investments. Pension funds in smaller markets search outside their country as domestic investments are limited.

The following examples, based on the pension funds' annual reports, show a growing foreign exposure of pension funds: In 2015, Pensionsforsikringsanstalten (PFA), the second largest pension fund in Denmark invested 81% of its assets abroad; CalPERS has established international diversification as its primary investment guideline; and in 2015 Stichting Pensioenfond (ABP), the largest Dutch pension fund, invested 86% in foreign assets, mostly in the US market.

## Best practices for investing beyond borders

### 1. Developing asset management teams abroad

Establishing “outposts” abroad is one of the strategies for gaining foreign exposure:

- In 2015, **Norges Bank Investment Management**, which manages the Government Pension Fund Global (GPF) for Norway, opened dedicated real estate investment offices in Singapore and Tokyo, and plans to further increase the headcount outside Norway in coming years.<sup>4</sup>
- **Alberta Investment Management Corp.**, Canada's fifth-largest pension fund manager by assets, recently opened an office in London to optimize its investments abroad. The fund's first foreign office focuses on private European assets in the UK and across Europe.<sup>5</sup> The London office gives better access to new ventures.
- The **OPSEU Pension Trust**, one of Canada's largest pension fund managers, opened an office in Sydney in 2013.<sup>6</sup>
- The same year, the **Ontario Teachers' Pension Plan**, which invests the retirement savings of 300,000 active and retired teachers in Canada's most-populous province, opened its doors in Hong Kong to boost strategic Asian investments.<sup>7</sup>

### 2. Acquiring or partnering with asset managers

An alternative approach comprises acquiring or partnering with asset managers already experienced in targeting foreign markets:

- **Thirty major non-profit pension funds in Australia** collaboratively own IFM Investors. It is one of the country's biggest investment firms, with a client base consisting of more than 190 global institutional investors, managing around USD 70 billion in assets across infrastructure, debt, equity and private capital. With presences in New York, London, Berlin and Tokyo, IFM Investors offers its shareholders a global investment perspective.
- In 2015, the **CPPIB** partnered with Unibail-Rodamco to grow its German retail real estate platform<sup>9</sup> and acquired Antares Capital, the US sponsored lending portfolio of GE Capital.<sup>10</sup>

---

<sup>4</sup> NBIM's website.

<sup>5</sup> Bloomberg, Alberta Pension Fund opens its first foreign office in London, January 2014.

<sup>6</sup> Osler, *The Leading Role of Canadian Pension Funds at Home and Abroad*, January 2014.

<sup>7</sup> Ontario Teachers' Pension Plan's web site.

<sup>8</sup> Citywire, *Australian pension manager acquires stake in Asia boutique*, May 2012.

<sup>9</sup> CPPIB press release, May 2015.

<sup>10</sup> The New York Times, *G.E. to Sell Buyout Financing Business for \$12 Billion*, June 2015.



# Regulations should provide the utmost flexibility

## Regulations and limits - No restrictions for developed pension fund markets

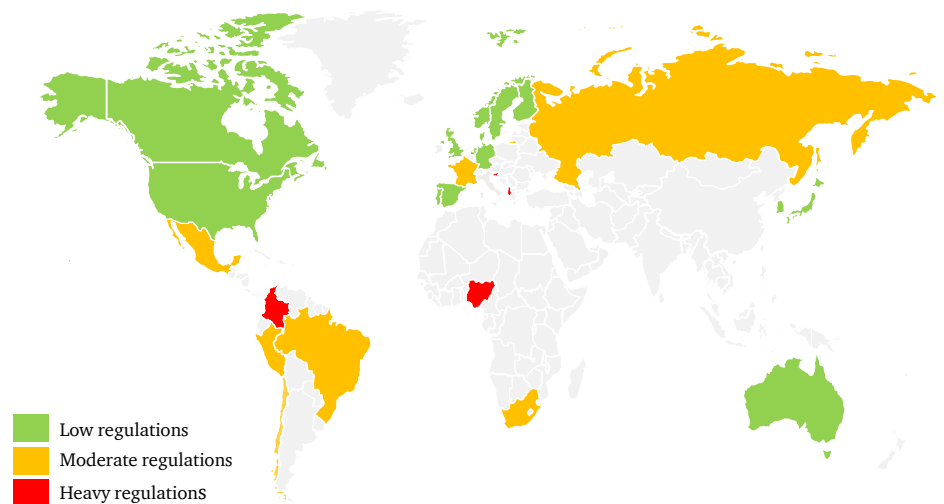
When looking at regulations regarding investments around the world, we can see clear differences between the more mature pension markets, with high-performing pension funds, and the smaller pension markets.

The heat map (Figure 10) illustrates the countries with mature pension markets, such as Australia, UK, Canada, the US, Netherlands, and Japan, where pension fund investments are less regulated. On the other hand, we can see that investments are more heavily regulated in countries with less developed pension markets.

That said, the trend is beginning to shift due to recent modifications in the legal frameworks of some countries and regions, as well as the lowering of entry barriers which makes it easier for pension funds to gain exposure to alternative assets. Examples include:

- In Colombia, pension funds will be allowed to invest up to 20% of their assets in real estate, commodities, private equity, hedge funds and other alternative investments in 2016.
- In the South African Development Community, an amendment to regulation limits now allows pension funds to allocate up to 10% of their assets to private equity.

Figure 10: Portfolio Limits on Pension Fund Investments, in 2015



Source: PwC Market Research Centre based on OECD, *Annual Survey of Investment Regulation of Pension Funds*, 2015

Our analysis of the pension funds in the largest and most developed pension markets confirmed that highly developed pension markets provide stronger flexibility when it comes to investments.

Of our respondents, 93% said their regulators have set very low or no investment limits. In the US, for example, each state/pension boards are

responsible for setting investment guidelines and restrictions, therefore, making it a fragmented regulatory structure.

As a general observation, regulators in the biggest pension markets do not pose limits on pension funds' investments into various asset classes. There are, however, a few rare exceptions (Figure 11).

Figure 11: Portfolio investment limits on Pension Fund Investments

Countries	Portfolio investment limits
Australia	Superannuation funds are required to have an investment governance framework in place based on prudent investment principles including diversification.
Canada	No limit
Netherlands	No limit
Nordics	- Denmark: 70% in Equity; 70% in retail IFs; 10% in private IFs - Finland: 15% private IFs - Norway: 10% private IFs; 5% loans - Sweden: 10% Bonds issued by private sector; 10% loans
USA	Some specific investments (e.g. tobacco, firearms, etc.)

Source: OECD, *Annual Survey of Investment Regulation of Pension Funds*, 2015; and OECD, *Regulation of Insurance Company and Pension Fund Investment*, 2015; and PwC Market Research Centre, 2016.



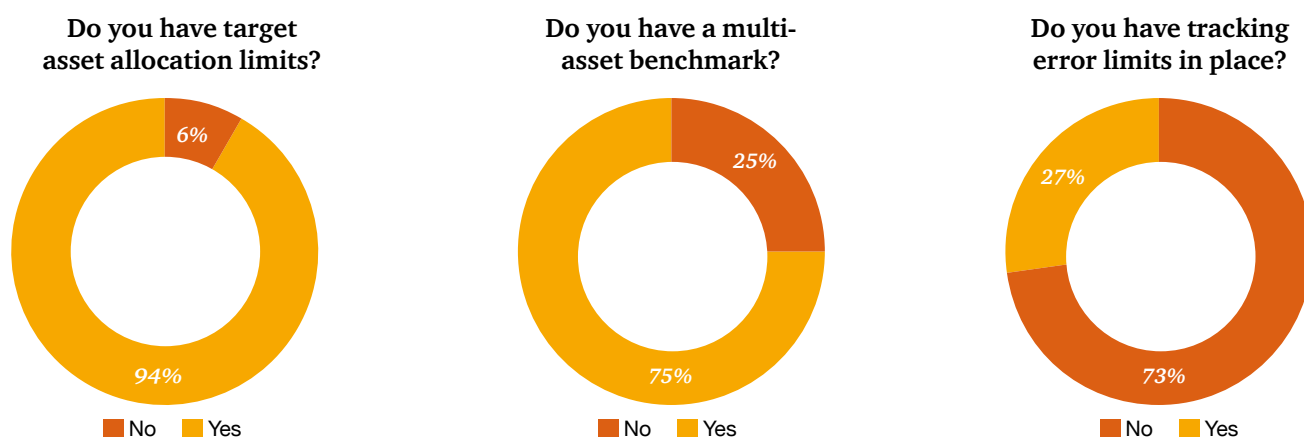
In the larger markets, the regulators mostly impose only flexible limits, or better yet, guidelines. The real limits tend to pertain to specific investments, e.g. in the US, investments into tobacco and firearms have limitations.

When limits are set, most of the time they are initiated internally by the

pension funds as a matter of self-regulation and guidelines. These guidelines, which include risk exposure and target portfolio ranges, are set out in pension funds' Investment Policies. Some limits pension funds impose on themselves include target asset allocation limits or ranges, as well as benchmarks.

*“The target asset allocation limits are not very strictly applied.”*  
– Dutch participant

Figure 12: Internal investment limits



Source: PwC Market Research Centre, 2016

The use of asset class targets and benchmarks is widely adopted for asset allocation. In our sample of global pension funds, 94% said they use target asset allocation limits, and 75% have a multi asset benchmark in place; 27% of those who have multi asset benchmarks have tracking error limits (Figure 12). It is a common practice to use internal benchmarks as well as peer and reference portfolios.

Pension funds set target portfolio ranges, taking into account risk limits, liquidity and diversification. These are not set operationally, but rather in accordance with the fund's policies. For example, the Healthcare of Ontario Pension Plan (HOOPP) sets an asset mix for each of its portfolios (Figure 13).

Figure 13: HOOPP Investment Strategy ranges

Liability Hedge Portfolio			
	Min	Target	Max
Government Bonds	45%	55%	110%
Real Return Bonds	5%	12.5%	65%
Real Estate	5%	12.5%	25%
Short-term & Cash	(50%)	(28.5%)	20%
Return Seeking Portfolio			
	Min	Target	Max
Public Equities	0%	28.5%	40%
Private Equity	2%	5%	15%
Corporate Credit	0%	10%	85%
Hybrid Strategies	0%	5%	45%

Source: HOOPP's Statement of Investment Policies Procedures, 2016

# The rise of insourcing portfolio management

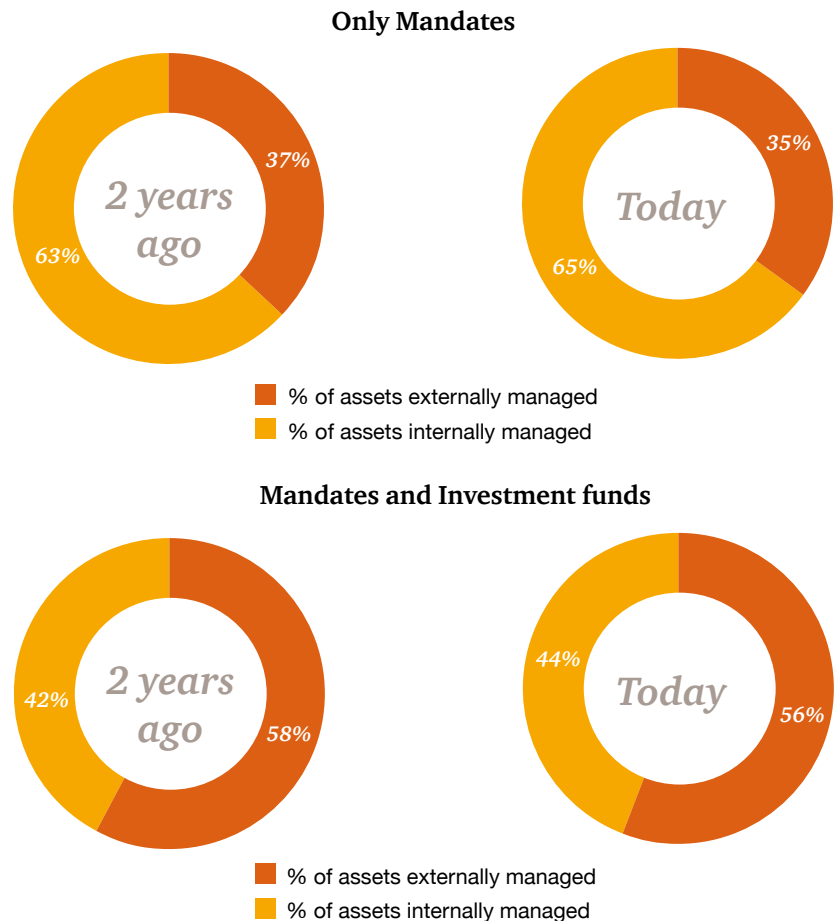
## Advantages and challenges of insourcing

To insource or outsource portfolio management across various asset classes? That is the question pension funds are asking nowadays. While the topic is hotly debated, insourcing within certain asset classes has emerged as a possibility to external portfolio management. Bringing the portfolio management and certain investment activities in-house allows pension funds to maintain tighter control over their fiduciary duty, costs and portfolio performance, as well as being able to better comply with investment criteria such as environmental, social and governance (ESG).

Our survey has revealed that figures for outsourcing asset management are decreasing. If you only look at mandates as outsourcing, respondents said that, on average, two years ago 37% of their assets were managed externally. This figure decreased to 35% as at 2016 (Figure 14).

If you look at mandates plus investment funds, respondents said that, on average, two years ago 58% was externally managed. This figure has decreased to 56% as at 2016.

Figure 14: Asset allocation – In-house vs. Outsourcing



Source: PwC Market Research Centre, 2016

*“Desire to bring more decision making in house - mainly due to value for money and potential misalignment with overall strategy.”*

– Canadian participant

## Best practices for insourcing

Our secondary research showed that when it comes to portfolio management, with the exception of the Netherlands, most pension funds are internalizing asset management for certain asset classes.

In the Nordic countries, we are seeing an increase in the use of in-house investment staff. Sweden’s intensive focus on keeping costs low has pushed

the pension fund Alecta to make all of its investments internally, building an in-house investment team for each asset class.

In the US, the trend leans toward internal management control and lower fees. The in-house management of many investments costs about one-third of what external managers are charging. When necessary, investment staff are supported by a select pool of managers on an as-needed-basis. For example, the in-house investment staff of Employees Retirement

System of Texas (ERS) is responsible for the portfolio management, the company and investments analysis, and the monitoring of external investment managers. To assist the staff with investment decisions, the Trustees have employed nationally recognized investment managers and have appointed an Investment Advisory Committee composed of prominent members of the financial and business community of Texas.

In-house management is the preferred strategy in Canada. In 2010, HOOPP decided to rely exclusively on internal management in order to cut external investment manager fees—the strategy continues to pay off<sup>12</sup>. In 2011, OMERS calculated that for every CAD 1 it spends on internal investment management, it makes CAD 25; if it employed external managers, that figure would drop to CAD 10<sup>13</sup>. According to Investments & Pensions Europe (IPE), the top 10 Canadian pension funds manage about 80% of their assets internally—the practice is considered a key factor in cost savings for Canadian pension funds and is credited as a main reason for their success.

Although Australian Superannuation funds traditionally outsource their assets to external managers, there is a very recent trend for pension funds in this country to insource certain investment functions. Since 2012, AustralianSuper has been focusing on building world-class in-house investment capabilities, allowing the Fund to maximize long-term returns and keep costs low through direct investment. First State Super, CBUS and Qsuper have been insourcing for the past couple of years because the funds have become so large they can afford to take on professional investors as employees rather than relying on external fund managers. They see this as a way to keep millions in fees that would normally be paid to fund managers. The Association of Superannuation Funds plans to publish a guide in November 2016 that it hopes will encourage more Super funds to employ additional investment professionals in-house – a shift designed to capture more of the profits flowing to fund management companies.

*“In-house directly managed assets provide for greater control and flexibility; it’s also cheaper than external.”*

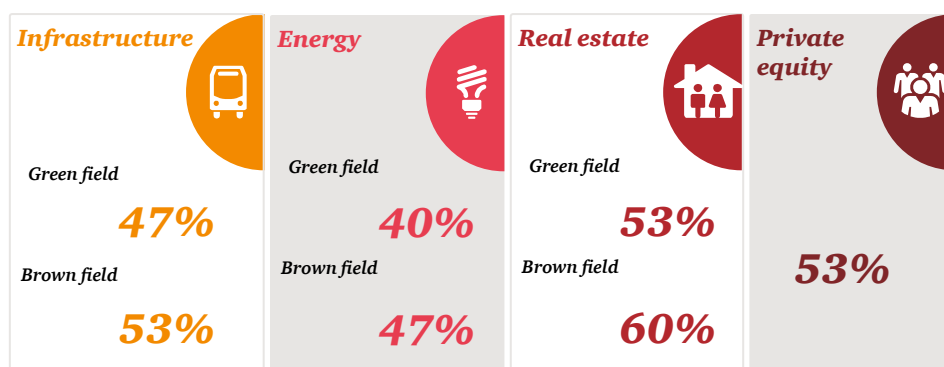
– Australian participant

### ***In-house expertise across different alternative asset classes***

Historically, the prevailing model for in-house investing has been to manage traditional assets internally and to outsource alternatives. However, our study showed that most pension funds are now increasingly internalizing certain portfolio management activities in the alternative asset space. For example, 53% of respondents said that Private Equity is managed in-house. For the Canadian pension funds, this was the case for 100% of respondents.

In addition to reducing costs, in-house management offers other benefits. Funds develop deep relationships and knowledge by managing multiple assets/strategies internally, which leads to more informed decisions. This knowledge is particularly useful for pension funds that play an active role in assessing the potential for investing in sub-categories of the alternatives landscape. Using an in-house staff allows a pension fund to train its team of investors, who can make decisions that align tightly with the pension fund’s strategy and philosophy and that take a longer-term perspective. Moreover, the ongoing cultivation of relationships on the part of in-house staff

**Figure 15: Percentage of in-house management in specific alternative asset classes**



Note: Green field - occur when a pension fund begins a new venture by constructing new facilities in a country outside of where the company is headquartered. Brown field - occur when a pension fund purchases an existing facility to begin new production.  
Source: PwC Market Research Centre, 2016

Especially in Real Estate, most pension funds have started to invest through in-house management or via a separate subsidiary or a stand-alone investment division. Managing these assets internally allows pension funds to target strategies where they can leverage their internal knowledge and skills, add value and generate meaningful cost savings, as is the case for Norges Bank Real Estate Management (Norway), Cbus Property (Australia), and Bouwinvest Real Estate Investment Management BV, (Netherlands).

with investors allows pension funds to be directly and proactively involved with ESG-related issues.

When a pension fund takes the decision to delegate work to its in-house staff, it should be very clear about what they will gain and lose from doing so — insourcing in today’s dynamic investing environment requires highly specialized talent.

<sup>12</sup> Source: IPE, Canada’s model evolves, 2016

<sup>13</sup> Source: FT, How to cut costs in running pensions, 2011

# The rise of insourcing portfolio management

## Size and qualifications of in-house teams

The number of in-house employees is also related to the total assets of the pension funds. When extracting a sample from our 35 pension funds, we can see a positive relationship between number of employees and total assets (Figure 16).

Pension funds maintain in-house asset management teams for various reasons including lower management costs, enhanced relationships with selected companies, ability to access and engage with expert partners directly, and maximization of long-term returns.

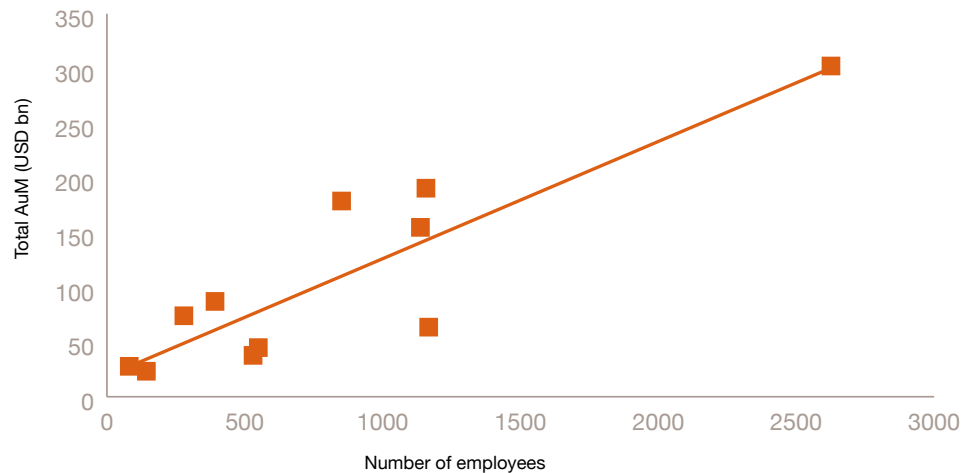
Building an in-house team, however, is not that simple. When hiring asset/portfolio managers, pension funds look for appropriate certification and experience, along with a successful track record.

Our surveyed pension funds have, on average, 51 (median: 31) in-house portfolio members. Canada has the largest (average of 92) and Australia has the lowest (average of 18).

*“The focus is on skills and capability, as well as cultural alignment.”*

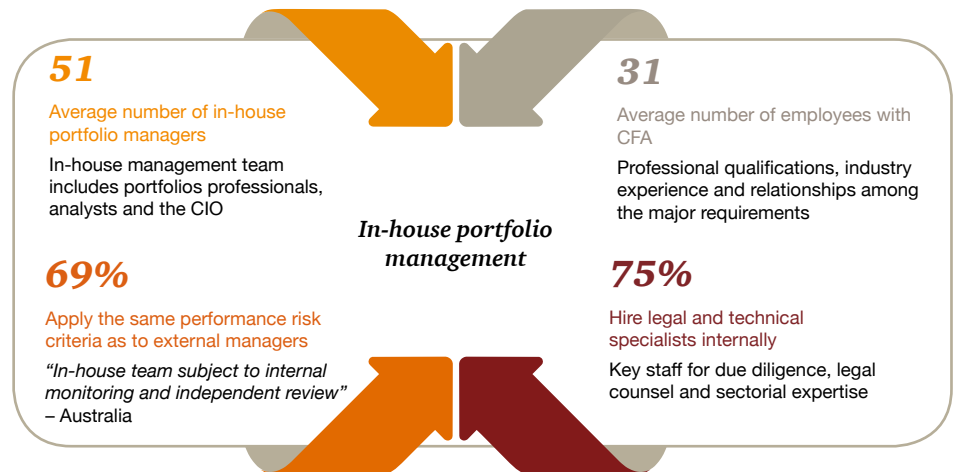
– Australian participant

Figure 16: Size of in-house team vs. total AuM



Source: PwC Market Research Centre, 2016

Figure 17: In-house expertise and practices



Source: PwC Market Research Centre, 2016

CFA charter holders are highly regarded. The average number of employees with CFA, in our sample, is 31 (median 19). Again, Canada has the largest (average of 63) and Australia has the lowest (average of 9).

While a pension fund can reduce the cost of external management fees, it may also see a spike in internal expenses if an increase in headcount is necessary.

Sixty-nine percent of respondents report they apply the same performance risk criteria as to external managers, and therefore the internal team is subject to rigid monitoring and independent reviews. Seventy-five percent hire legal and technical specialists internally.

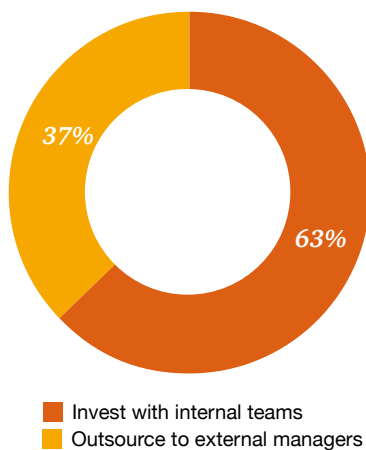
## Structuring investment teams to fit with the strategy

When pension funds have acquired and retained the right in-house staff with experience, expertise and knowledge, investments are better informed and controlled. Moreover, internal staff can capture higher yields and premiums when investing directly, as fees are forgone. Forty percent of our respondents explicitly state that they invest directly because of cost effectiveness.

Pension funds in our sample showed that direct investments by internal staff are preferred. Only 37% of the respondents outsource direct investments to external managers. However, direct investments require strong compliance processes and a dedicated officer/team overseeing these.

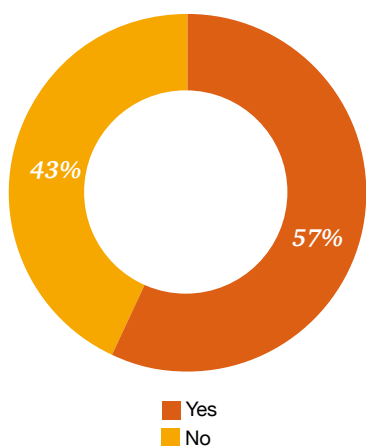
Moreover, as in-house knowledge and expertise grow, pension funds can be more involved in their investments. Fifty-seven percent of the respondents have in-house members represented on the boards of the companies in which they invest. The breakdown is quite diverse, though. Interestingly, all of the Canadian pension funds we surveyed have members on boards. Sixty percent of the Australian pension funds we surveyed have members on boards.

Figure 18: How do you normally conduct direct investments?



Source: PwC Market Research Centre, 2016

Figure 19: Do you have in-house members represented on the boards of the companies in which you invest?

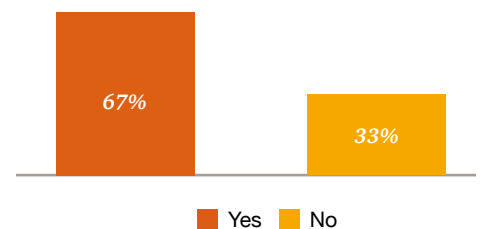


Source: PwC Market Research Centre, 2016

## Specific approach for alternatives

When it comes to the organization of in-house teams, the pension funds we surveyed clearly prefer to maintain a specific organizational infrastructure for alternative investments (Figure 20). Sixty-seven percent reported having specific teams apart from their traditional assets infrastructure, such as a general alternative investment team, or more specifically, Private Equity and Real Estate teams. All of the US funds surveyed engage in the practice of having specific infrastructures.

Figure 20: Do you have a specific organizational infrastructure to invest in alternative assets?



Source: PwC Market Research Centre, 2016

**“Private equity and Real Assets have their own distinct leadership & support teams.”**

– US participant

# The rise of insourcing portfolio management

Real estate and private equity teams are often separated from the core investment team and established with distinct leadership and support. They are involved in the investment and manager selection, monitoring, and reporting to the Chief Investment Officer (CIO). They are supported and overseen by independent operational, risk and compliance functions.

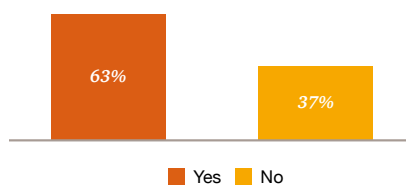
An increasing number of pension funds rely on the model of separate entities. This means they set up a separate entity, which is wholly-owned by the pension fund, but conducts investments only in one or several specific alternative asset classes. Examples include Cbus, with its Cbus Property (Australia), and the Government Pension Fund Global (Norway). The latter invests in three asset classes outside Norway: fixed income, equity and real estate. The real estate operations have been reorganized as a separate unit that consists of 104 people (about 20% of employees) with its own leader group; it is called Norges Bank Real Estate Management. A subsidiary can also be created for the purpose of opening an investment office in a foreign country in order to increase the size and number of investment opportunities for the fund's portfolio.

Other pension funds have clear policies in the form of mandates, which establish the role of alternative assets in a broad strategy and specify how to implement the strategy.

## Project origination teams

Our interviews showed that 63% of the respondents said they have a specialized project origination team (Figure 21).

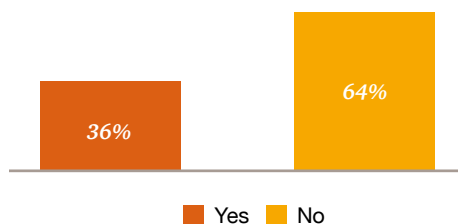
*Figure 21: Do you have specialized project origination teams?*



Source: PwC Market Research Centre, 2016

Of our full sample, 64% does not divide responsibilities between origination and supervision teams (Figure 22). This means that they have either a single team performing both tasks or two teams that work together.

*Figure 22: Do you divide responsibilities between your origination and supervision teams?*



Source: PwC Market Research Centre, 2016



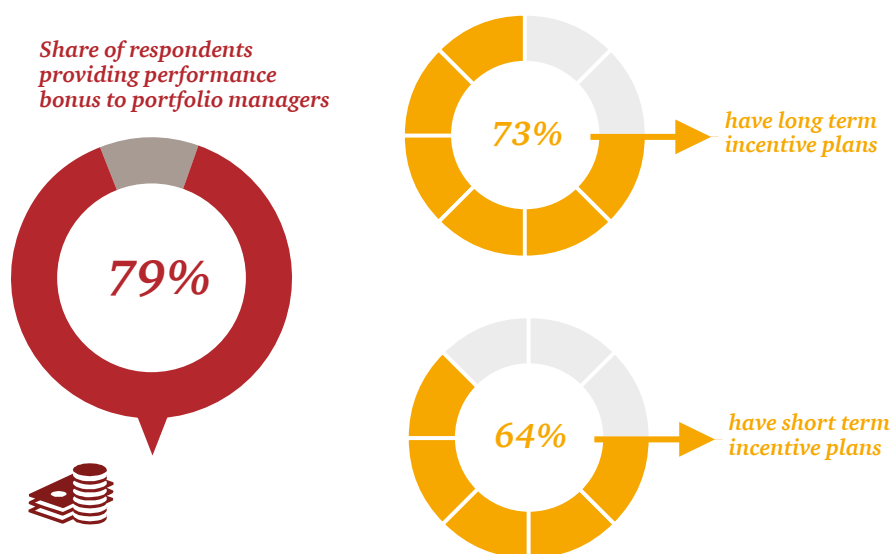
**Feeding outperformers – incentives are a must**

To develop their teams, pension funds must provide employees with the resources, training and career opportunities necessary to achieve the highest professional standards. As the continuous improvement of expertise in financial products is vital, pension funds should offer ample exposure to new developments. In order to retain high-level talent, pension funds must pay competitive salaries to people who might otherwise choose to work in the commercial fund management sector.

*“Although all employees’ incentives are tied to the total fund performance, the major component for most is generally based upon the specific asset class they cover.”*

– US participant

*Figure 23: Performance bonus and incentive plans*



Source: PwC Market Research Centre, 2016

Seventy-nine percent of the respondents said they provide performance bonuses to portfolio managers (Australia: 60% pay bonuses). This is used as an incentive for the portfolio managers. Seventy-three percent of pension funds surveyed use long-term incentive plans, and 64% use short-term incentive plans. All of the Canadian funds surveyed use both methods.

For example, Sweden’s pension fund Alecta uses a two-tiered incentives plan that contains the following:

- *A general incentive programme:* In place since 2012, this programme is available to all employees in Sweden. The outcome of the programme is based on the achievement of goals stated in the annual business plans, and the maximum pay-out is kSEK 12 per employee in the form of enhanced pension premiums.

- *An investment management incentive programme:* This plan was designed specifically for personnel in the investment management sector and has an evaluation period of three years. It covers 42 employees in total and caps possible outcomes and targets, which are determined by the Board on the basis of:

- › total return on investment assets;
- › return relative to competitors; and
- › return on the active management within the equity, fixed income and real estate investments.

Canadian Pension Plan Investment Board (CPPiB) compensation packages include a base salary, a short-term incentive plan (STIP), and a long-term incentive plan (LTIP).

The STIP offers awards based on annual performance versus individual objectives and value-added investment performance over four years. Awards for both are calculated as a percentage of salary with an applied multiplier. As an added incentive, payouts can be deferred for up to two years with the deferred amounts increasing or decreasing according to the fund’s performance.

*“No incentives are linked to individual investments, but rather to the performance of the fund’s total returns, and the investment portfolio for which the staff member has responsibility.”*

– Australian participant

# The rise of insourcing portfolio management

LTIP incentives are established as a set percentage of salary with a multiplier applied. The awards are vested and paid out after four years, with the award increasing or decreasing according to CPPib’s compound rate of return over the period.

The award value increases or decreases based on CPPib’s compounded rate of return for the four-year period (Figure 24).

In 2015, two pension funds in New York adopted new incentive plans aiming at attracting and retaining top quality staff. Noting that costs to manage assets externally are much higher than increasing internal staff, the State of Wisconsin Investment Board has increased their incentive payments and considers this an investment rather than an expense.

## Local expertise as a main reason for outsourcing

Although in-house teams grow in preference, pension funds make use of external managers and outside investment vehicles in various ways.

Our survey showed that expertise is ranked as the most important reason for outsourcing. Return / performance is the second most important reason, followed by risk and fees. Organizational reasons and partnerships with other entities are some examples which were given in “the other” category.

When investing abroad in new markets, the support of local partners and experts can be particularly valuable. Moreover, pension funds search out managers which help them to mitigate the reputational risk that they may have for participating in greenfield projects. External parties, however, must ensure fair valuations on assets, and practices

Figure 24: CPPib’s STIP and LTIP payout formulas

### Short-Term Incentive Plan (STIP)

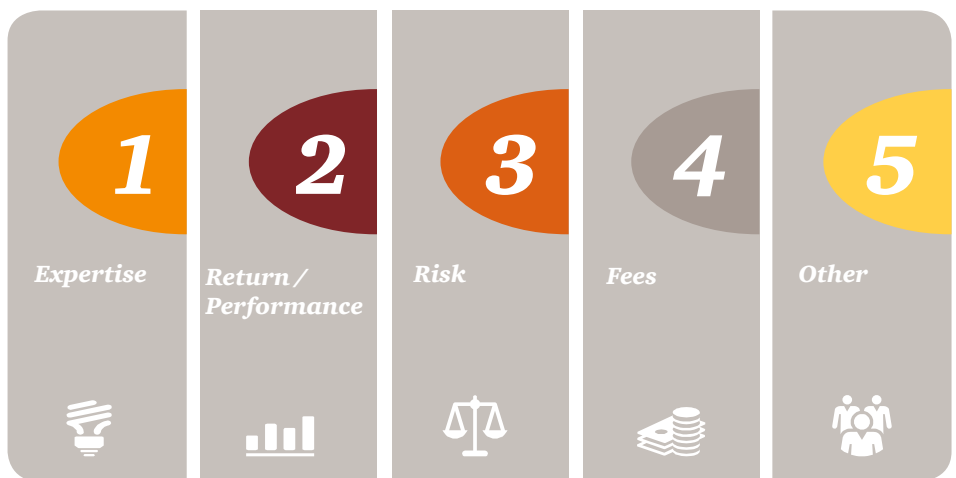
$$\text{Annual Individual Objective Target (\$)} \times \text{Individual Performance Multiplier (0 to 2)} + \text{Four-Year Component Target (\$)} \times \text{Four-Year Investment Performance Multiplier (0 to 2)} = \text{STIP Payout (\$)}$$

### Long-Term Incentive Plan (LTIP)

$$\text{Target LTIP Award (\$)} \times \text{Four-Year Investment Performance Multiplier (0 to 3)} + \text{CPP Fund Four-Year Compounded Rate of Return} = \text{LTIP Payout (\$)}$$

Source: PwC Market Research Centre based on Rotman International Journal of Pension Management

Figure 25: Reasons ranked for using external asset managers



Source: PwC Market Research Centre, 2016

*“We need to commission expertise which we either don’t have yet or can’t reasonably aspire to build to access core exposures.”*  
– Australian participant

according to the pension fund’s policies. Therefore, decisions on investments should be made in close alignment with the internal investment team.

The right external manager can also complement the pension fund’s internal investment team. These managers work with the pension fund’s investment staff collaboratively to share value-added services and research that complements

and enhances pension fund’s in-house skill sets, infrastructure and best practices. Using external talent gives funds a degree of flexibility they might not otherwise have. The use of external talent to fill in where needed allows pension funds to specialize in certain areas, or to utilize the best expertise and knowledge in the marketplace.



---

## *A sound governance structure*

In the aftermath of the financial crisis, pension funds and their boards are under much more scrutiny in terms of proper governance. Their strategies, processes and especially investment decisions must adhere to much stricter rules on transparency, structure, monitoring and supervision.

An increasing number of pension funds boards — for example, the Dutch Pensioenfond Metaal en Techniek (PMT) — establish and follow governance codes. They focus on the importance of identifying and separating responsibilities, using expert advice, performing risk-based internal controls, adhering to regular reporting and disclosure procedures, and ensuring suitability of the pension fund board members.

The most common practice in pension fund governance is management by a board of directors or trustees who possess the skills and experience diverse enough to make sound decisions in the pension funds' best interest. Typically, a pension fund's board is comprised of various committees, including investment, risk and audit, which either advise the management or have a mandate to make decisions on specific matters. The investment and the risk committees are inherent to all boards, however, the nomenclature can differ among pension funds. Some entities have additional committees, for example, the Australian QSuper's board is comprised of audit & risk, investment, remuneration, and product, services & advice committees. The Dutch pension fund Stichting Bedrijfstakpensioenfond voor de Bouwnijverheid (bpfBOUW) has the following committees: general affairs, audit, investments, retirement affairs, outsourcing/risk management, and asset & balance

sheet management.

In general, the board is responsible for defining the policy of pension fund and operating its scheme(s); it is common practice to separate the operational and oversight responsibilities. For instance, in the Teacher Retirement System of Texas (TRS) management and operations duties are performed independently by trustees who are responsible for administration of the system according to the state constitution and laws. Another example is the Ontario Municipal Employees Retirement System (OMERS), which has split the fund's governance into two boards – OMERS Sponsors Corporation, which provides strategic oversight and decision-making, including designing benefits and contributions rates, and determines the composition of the two boards, and OMERS Administration Corporation, which is in charge of the plan's administration and is responsible for investment management.

A board often consists of representatives of various stakeholders: employees, employers, external experts and pensioners. There is a trend to also include pensioners in order to ensure a more proportional representation within the board to guarantee their involvement and improve managerial effectiveness. The Danish Pensionsforsikringsanstalten (PFA) even consults its customers for advice – it has established a customer board of 70 executive employees from its largest corporate customers. Initiatives like this oblige funds to create long-term value for each of their clients.

# A sound governance structure

## Decision-making in the investment process

Pension funds in our sample reported the investment process is a key element in their governance models. The division of responsibilities and the decision-making process involved in selecting investment assets play big roles in the successful development and growth of pension funds.

Our research showed many similarities between traditional investment decisions and alternative investment decisions. The aggregated responses pointed to a 5-step investment process for both traditional and alternative assets. These steps are very similar for both asset classes (Figure 26).

However, there is a marked difference in the times devoted to each step. For traditional assets, the timeframe ranges from weeks to months, (rarely immediate), and ongoing. All respondents stated that the time allotted to this process is highly variable. For alternative asset classes, however, the process takes longer, but, like traditional assets, the work is also ongoing. Specifically, there is more work involved in researching, constructing the right portfolio, selecting the right manager, and reviewing the board.

Figure 26: Pension Fund's investment decision-making process

### For traditional asset classes



### For alternative asset classes



Source: PwC Market Research Centre, 2016

One interesting fact which we could observe during our research was that infrastructure, real estate and private equity investments have no daily pricing. The common practice is to have quarterly valuations on those asset classes.

While the ultimate responsibility for ensuring adherence to the terms of the arrangement and protecting the best interest of the beneficiaries should lie in the hands of the board, the decision-making process for investments is concentrated in the

investment committee. This committee, including the CIO, is responsible for setting strategic asset allocation ranges, performance monitoring, reaching investment objectives and risk/liquidity constraints, approving investment guidelines, asset class strategies and large direct investments, and giving recommendations to the board. The final investment decision should be the result of an agreement between the investment committee and the board of directors, as the board is accountable for investment decisions and controls. For example, in the Finnish pension fund Varma, the pension fund's investment plan must be confirmed by the board of directors annually. The Missouri State Employees' Retirement System (MOSERS) uses a decision-making process which is particularly exemplary for other global pension funds.

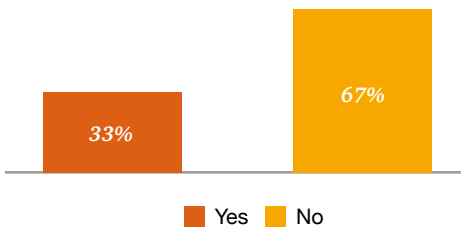
Figure 27: MOSERS's decision-making process



Source: PwC Market Research Centre based on MOSERS' Annual Reports 2010-2015

Some pension funds engage consultants to decide on investments, but this is not a common practice. In our survey, only 33% of respondents reported they would use consultants to decide on their asset allocation (Figure 28).

**Figure 28: Do you use consultants to decide on the asset allocation of the pension fund's investments?**



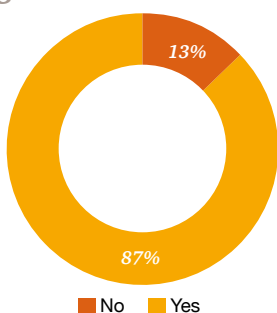
Source: PwC Market Research Centre, 2016

However, as pension funds increasingly invest directly in more complex asset classes, it is common practice that board members require services of independent consultants to have a better understanding of the information which internal teams provide.

**In-house risk management is preferred**

Alternatives require stricter control and risk management. Our research showed that pension markets have increased their in-house risk management in recent years.

**Figure 29: Do you have a dedicated internal risk management unit?**

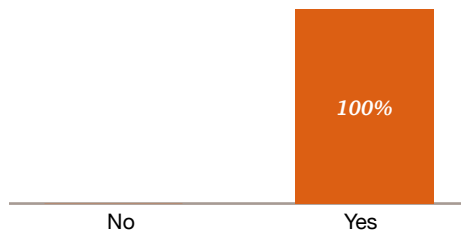


Source: PwC Market Research Centre, 2016

The vast majority of respondents (87%) have dedicated internal risk management units (Figure 29). In fact, 100% of US, Canadian and Dutch respondents said they have a dedicated internal risk management unit. At the lower end of the spectrum, 60% of Australian respondents reported having dedicated internal risk management units.

As liquidity issues increase with alternative investments, pension funds have to adhere to liquidity risk. Our research shows 100% of respondents have specific liquidity risk frameworks (Figure 30).

**Figure 30: Do you have a specific liquidity risk framework?**

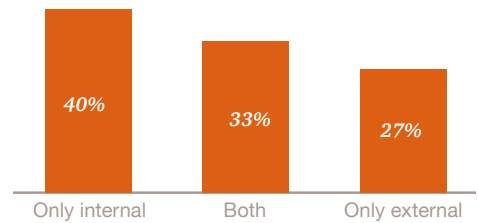


Source: PwC Market Research Centre, 2016

*“Most risk models are developed internally. If not available internally, only then we will look at external options.”*  
 – Canadian participant

Internal risk management is growing, and expertise with metrics and models is increasing as well. The majority (73%) of pension funds use internal risk models or supplement internal models with external ones (Figure 31).

**Figure 31: Do you rely on externally developed models for risk management?**



Source: PwC Market Research Centre, 2016

External models are primarily used to provide insight rather than result in decisions. By keeping the majority of risk management in-house, while getting support from external models, pension funds can use external models as confirmatory models. They can also be used by various investment teams on an ad-hoc basis. The type of external models pension funds use varies widely. Examples include: BarraOne, Aladdin (Blackrock), Northfield, Style Research, and Bridgewater Systematic Bias Finder.

As pension funds and the environment in which they operate become more complex, and as investments become more diversified, the management of pension funds' assets becomes a critical issue. In the recent years, we have witnessed a trend of global pension funds choosing between outsourcing and in-house management of their assets.

*“Models are used to provide insight rather than result in decisions.”*  
 – Australian participant

---

## Conclusion

Even as the financial services industry is in the midst of major change, two things are quite certain for pension funds: their investor base is aging and the low investment rate environment seems set to continue. Given this state of affairs, pension funds that want to meet their pay out obligations and see future growth will have to take long-term, progressive, and prudent measures to do so.

Diversification is absolutely necessary. Whereas pension funds have traditionally invested in fixed income solutions, they are increasingly looking at equity and alternatives as a way to bolster returns. Geographical diversification is also vital as correlated risk within a country can decrease returns. A best practice would be pension funds that diversify in mixed assets as well as other geographical regions. Hence, regulations within a country may allow pension funds to have the maximum possible flexibility, while still controlling risks. This would allow pension funds to adapt to

market volatility. Regulators could give pension funds the utmost possibility to invest in diverse asset classes and geographies in order to deliver risk-adjusted returns.

In addition to investment strategies—and to augment them—pension funds are increasingly looking at bringing certain asset management activities in-house to keep tighter control of their fiduciary duty, while making sure that the project selection is in the best interest of their affiliates. Further, pension funds have the obligation to their affiliates regarding the structure of fees that they pay to external managers. Best practices show to look beyond returns on investment to consider the ROI after costs. Pension fund managers should compare these figures to respective benchmarks—cost sensitivity is crucial for success. Where possible, pension funds should consider internalising part of their asset management as a viable option if their analysis shows a higher cost for outsourcing asset management activities, especially when there is a mismatch between fees and

performance. That said, integrating robust in-house investment teams which enable pension funds to commit to their long term strategy is a top priority for global pension funds, and on the same time poses the challenge of attracting talent with the right skill set and being able to remunerate them at market prices.

To succeed in today's dynamic and precarious market, pension funds will have to strike the right balance. For example, in some cases, due diligence of investments is outsourced, but investment decisions are made internally.

It will be important for pension funds to have strong governance structures that hinder conflicts of interest on the one hand, but also ease red tape associated with investing, on the other hand. They will have to weigh traditional strategies against alternative ones, and consider the benefits of internal management over external management. Achieving a balance in these vital areas will inevitably improve performance.



# Appendix

## Methodology

Our research was conducted on a sample of North American, European, and Asia-Pacific pension funds, across nine different countries. In total, we analyzed 34 pension funds with more than USD 4.3tn AuM in 2015. Pension funds included 7 pension funds each from Australia, Canada, and the Netherlands, 6 from the US, as well as 4 from the Nordics, and 3 from the UK.

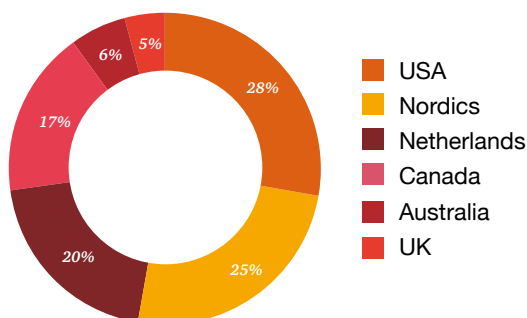
The size of the pension funds varied from USD 10bn to USD 853bn. The US' pension funds accounted for the largest share of assets in our sample – USD 1.2tn (28%) – followed by the Nordics with USD 1.0tn (25%).

Moreover, the pension funds had different organizational structures, and included both public and private pension funds.

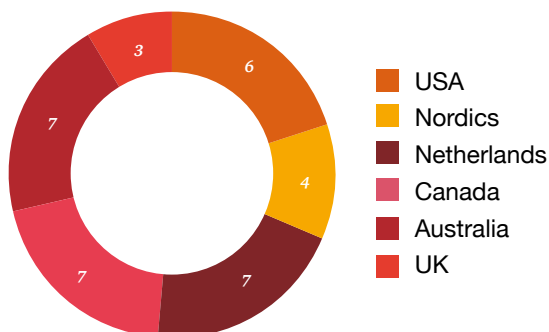
Our data collection involved desktop research<sup>1</sup>, as well as interviews and an online survey based on 57 questions. The responsible from our PwC network in the US, Canada, Australia, and the Netherlands conducted the interviews and survey with representatives from the surveyed pension funds.

Following the data from our respondents and the intensive desktop research, we analyzed the information in order to draw patterns of the best practices in global pension funds' investment processes and future trends.

Share of countries by AuM



Share of countries by number



<sup>1</sup> Annual reports (2010-2015), pension fund websites, specific reports, news articles, etc.

# *Fact Sheets by pension fund*

# Summary of the pension funds' main indicators

Name of the pension fund	Country	Inception date	Employees (2015)	Alternative Investments (2015)	Total Return (2015)	Total AuM <sup>14</sup> (USD bn, 2015)
Australian Super	Australia	2006	279	20%	11%	74.0
QSuper	Australia	1912	~1000	28%	13%	42.1
Uni Super	Australia	2000	530	10%	11%	37.8
REST Industry Super	Australia	1988	51-200	22%	10%	28.4
Commonwealth Superannuation Corporation (CSC)	Australia	1976	81	12%	12%	27.8
SunSuper	Australia	1987	501-1000	28%	10%	24.7
Cbus Super	Australia	1984	143	32%	10%	23.3
Canadian Pension Plan Investment Board (CPPib)	Canada	1997	1157	36%	18%	190.6
Caisse de dépôt et placement du Québec (CDPQ)	Canada	1965	851	27%	9%	178.9
Ontario Teachers Pension Plan (OTPP)	Canada	1917	1137	24%	13%	154.8
Healthcare of Ontario Pension Plan (HOOPP)	Canada	1960	201-500	9%	5%	106.0
PSP Invest	Canada	1999	570	30%	15%	88.4
Ontario Municipal Employees Retirement System (OMERS)	Canada	1962	1001-5000	55%	7%	72.1
OPTrust/Ontario Public Service Employees Union (OPSEU)	Canada	1995	201-500	38%	8%	15.1
Stichting Pensioenfonds (ABP)	Netherlands	1922	31	23%	3%	433.4
Pensioenfonds Zorg en Welzijn (PFZW)	Netherlands	1969	~50	26%	0%	177.6
Pensioenfonds Metaal & Techniek (PMT)*	Netherlands	1948	11-50	14%	21%	71.3
Stichting Bedrijfstakpensioenfonds voor de Bouwnijverheid (bpfBOUW)	Netherlands	1970	N/A	23%	1%	56.9
Pensioenfonds van de Metalektro (PME)*	Netherlands	1947	N/A	9%	18%	48.9
Shell Nederland Pensioenfonds Stichting (SSPF)	Netherlands	1949	N/A	18%	4%	28.3
Stichting Pensioenfonds ING	Netherlands	1995	N/A	8%	1%	27.7
Government Pension Fund Global (Norway)	Nordics	1996	518	3%	3%	853.6
Alecta Pensionsförsäkring (Sweden)	Nordics	1917	392	9%	6%	87.1
Pensionsforsikringsanstalten (PFA) (Denmark)	Nordics	1917	1167	6%	3%	63.6
Varma Mutual Pension Insurance Company (Finland)	Nordics	1998	549	32%	4%	44.9
Universities Superannuation Scheme Limited (USS)	UK	1974	379	25%	18%	73.4
BT Group pension scheme (BTSP)	UK	1969	50	27%	8%	67.7
Railways Pension Scheme (RPS)	UK	1965	292	24%	4%	35.0
Federal Retirement Thrift Investment Board/Thrift Savings Plan (TSP)	USA	1986	201-500	0%	1%	458.3
California Public Employees Retirement System (CalPERS)	USA	1931	2626	20%	2%	302.3
California State Teachers' Retirement System (CalSTRS)	USA	1913	1,001-5,000	24%	5%	191.4
Teacher Retirement System of Texas (TRS)	USA	1937	500-600	38%	0%	127.0
Employees Retirement System of Texas (ERS)	USA	1947	201-500	28%	1%	25.1
Missouri State Employees Retirement Fund (MOSERS)	USA	1957	N/A	46%	-3%	10.3

<sup>14</sup> Note: total AuM might refer to total assets, total portfolio investments, or net assets





## Quick facts

Founded in 2006, AustralianSuper has become Australia's largest industry superannuation fund, managing assets on behalf of more than 2 million members, representing around one in 10 working Australians.

## Evolution of total assets

Driven by increased focus on Equity and Fixed Income and continuous Property acquisitions (Property investments realized AUD 2.2bn during 2015), AustralianSuper's total AUM grew at a CAGR of 24.1% during 2010 and 2015, to reach AUD 96.1bn (USD 74.0 bn).

## Evolution of asset allocation

AustralianSuper's asset allocation remained largely dominated by Equity (57.2% of total investments in 2015 versus 55.1% in 2010). Exposure to Fixed Income increased from 17.4% to 22.8%, while alternative investments decreased from 25.3% to 20.0%\* during the same period.

## Total return

AustralianSuper's Balanced option, the Fund's default investment option, returned more than 10% during the 2010-2015 period (10.9% in 2015), except in 2012, where returns dropped to 1.0% as a result of negative Australian stock market performance. The Balanced option outperformed its benchmark during the 2010-2015 period by 0.8 percentage points on average.

## Currency exposure\*\*

AustralianSuper's total currency exposure amounted to AUD 31.6bn (USD 24.3bn) in 2015, representing 32.7% of the total portfolio. While it had no exposure to GBP in 2010, 10.4% of total exposure concerned GBP in 2015. Exposure to USD increased from 40.9% of total exposure in 2010 to 53.8% in 2015, thanks to US Real Estate and especially Equity acquisitions.

## Remuneration scheme

AustralianSuper operates an investment performance payment plan for key senior investment staff, with an average performance payment of AUD 214,480 paid out in 2015. Total remuneration represented between 0% and 0.08% of total expenses in 2015.

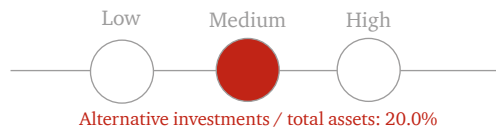
\*Alternative investments decreased between 2012 and 2013, following the Fund's low performance in 2012, but increased between 2014 and 2015.

\*\*Taken as a proxy of foreign investments  
Sources: AustralianSuper Annual reports 2010-2015

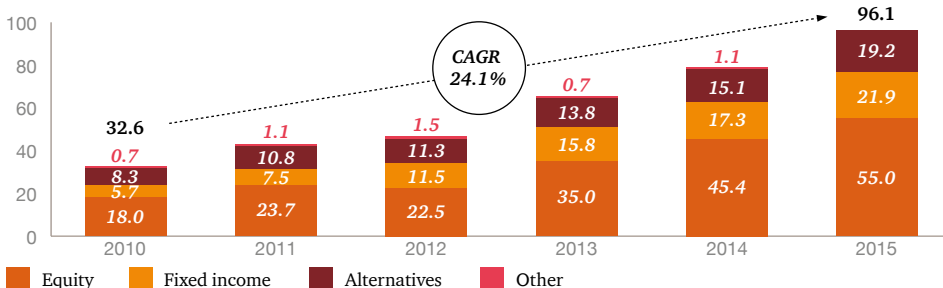
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
2006	279	74.0	20.0%	N/A	10.9%

\* Based on local currency

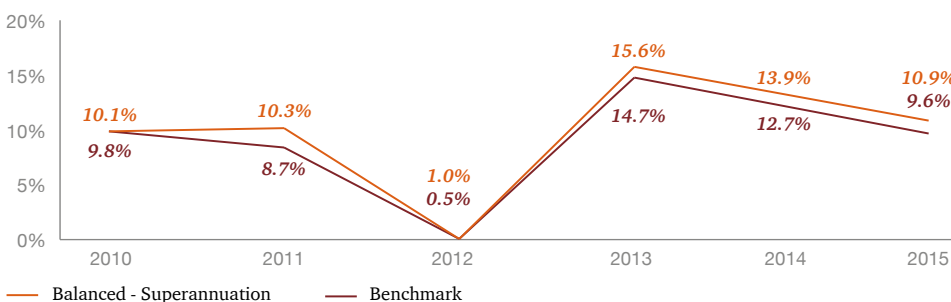
## Level of alternative exposure



## Evolution of total AUM (in AUD bn)

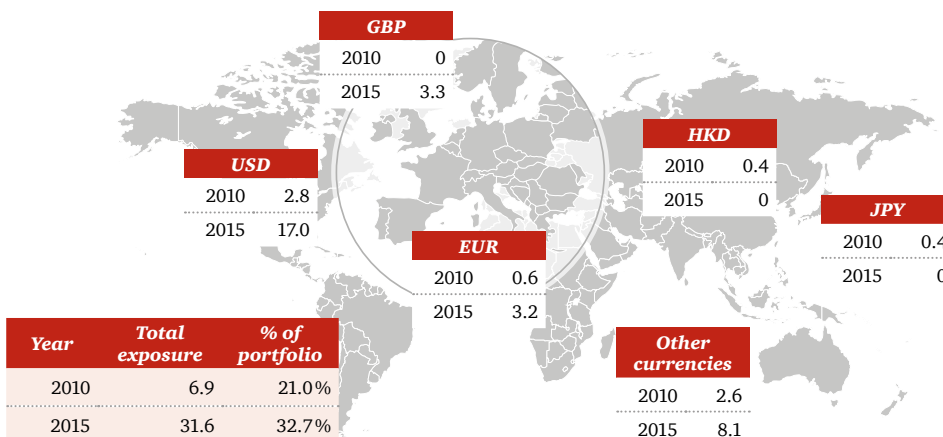


## Evolution of return for the default option (Balanced)



Note: The Balanced Option is AustralianSuper's default option.

## Currency exposure (2010 vs 2015, in AUD bn)



## Executive remuneration schemes in 2015 (AUD)

2015	Salary	Variable remuneration**	Other**	Total remuneration	Total remuneration in percentage of total expenses
CEO	678,242 (84.2%)	92,130 (11.4%)	35,000 (4.4%)	805,372	0.08%
Directors	8,091-167,300 (100%)	0 (0%)	769-15,894 (8.7%)	8,860-183,194	0%-0.02%

\*\*Variable remuneration corresponds to non-monetary benefits and accrual leave for the CEO; Other category concerns superannuation.  
Sources: AustralianSuper Annual reports 2010-2015.



## Alternative Focus

AustralianSuper's alternative investments are dominated by Infrastructure, accounting for 43.6% of total Alternatives in 2015 (45.6% in 2010). These include, for instance, the 74 kilometers of Queensland Motorways acquired in 2014.

While Private Equity remained stable during 2010 and 2015 (around 14% of total alternative assets), Property increased from 39.8% to 42.2% during the same period. The top 20 Property assets include super and major regional retail as well as CBD office and retail.

This trend reflects the Fund's commitment to restructure and position its Property portfolio for future growth.

## Recent developments

AustralianSuper focuses on building a portfolio of core properties, particularly in large, dominant shopping centres and making direct investments to complement the assets held through pooled funds.

This is in line with its strategy of investing directly in assets that can help grow members' retirement incomes over long periods, delivering higher returns than fixed interest and cash investments.

In 2015, AustralianSuper added more than AUD 2.2bn in international Property assets to its alternative portfolio, comprised of major prime location offices and super regional retail estates.

## Outsourcing Focus

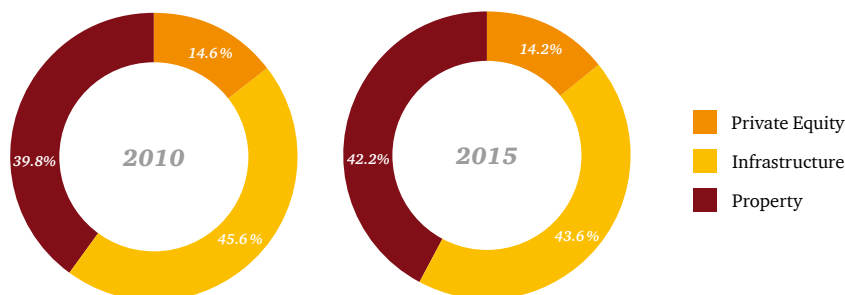
AustralianSuper had around 85% of total investments managed externally in 2015.

The Fund's portfolio is invested through mandates as well as pooled investment vehicles and some direct holdings.

External investment managers oversee members' assets in Australian Equity, international Equity, Fixed Income, Cash, Infrastructure, Private Equity and Property.

Sources: AustralianSuper Annual reports 2010-.2015, The Australian

## Alternative investments by type



## Recent developments regarding alternative investments

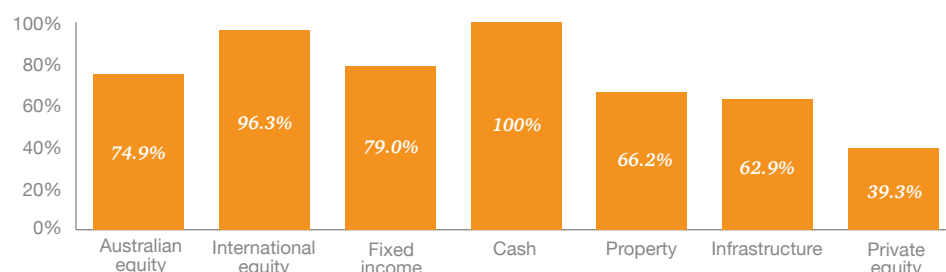
### 2014

Thecentre: mk in Milton Keynes	Queensland Motorways
50% stake	74 km
Major regional shopping centre north west of London	High-quality portfolio of established and new motorways that serve Brisbane's commuters
Acquisition in 2014 for AUD 490 million	Acquisition in 2014 for AUD 250 million

### 2015

King's Cross development project	Honolulu's Ala Moana Center	Office buildings in Washington
25% stake	25% stake	49% stake
743,000 square meters of offices, homes, hotels, leisure, shops and restaurants, a university, galleries, schools, community facilities and music venues	World's largest open-air shopping centre	Eight office buildings
Further acquisition of a 42.5% stake in 2016 for AUD 900 million	Acquisition in 2015 for AUD 1.1bn	Acquisition in 2015 for AUD 1.25bn

## Proportion of total investments managed externally by asset class (2015)



Sources: AustralianSuper Annual reports 2010-.2015, The Australian



## 1) Investment strategy

AustralianSuper's strategy is focused on maintaining a diversified mix of assets, with a relatively high exposure to unlisted assets like Infrastructure and Property. The Fund is determined to keep a large exposure to overseas assets and foreign currency and continues to favor developed markets over emerging markets in its Equity portfolio.

AustralianSuper has three main investment options: PreMixed, DIY and Balanced (the default option). It establishes investment ranges for each of its PreMixed and Balanced investment options, with minimum and maximum amounts it expects to invest in each asset class.

### Investment ranges for AustralianSuper's Balanced option (2015)

Australian Equity	International Equity	Fixed Income	Cash	Property	Infrastructure	Private Equity	Credit
10%	10%	0%	0%	0%	0%	0%	0%
-45%	-45%	-25%	-15%	-30%	-30%	-10%	-20%

Each year, the Fund sets a strategic asset allocation within these ranges based on its outlook for the economy and investment markets over the next 12 to 18 months. AustralianSuper moves towards or away from the strategic asset allocation during the year based on its outlook on the economy.

### Corporate Governance

Decisions about investments are delegated by the Board to the Investment Committee, which performs the following functions:

- Sets strategic asset allocation ranges;
- Monitors the performance, achievement of investment objectives and risk/liquidity constraints of each investment option;
- Approves investment guidelines, the asset class strategies and large direct investments;
- Makes recommendations as appropriate to the Board.

AustralianSuper's investments are made in the context of the Fund's Active Ownership Program. As a part of this, AustralianSuper actively engages with companies and fund managers and applies rigorous screening to its potential and current investments.

## 2) Outsourcing of portfolio management

AustralianSuper engages a range of external investment managers to complement its internal investment teams. Many factors are taken into account when selecting investment managers, including:

- Strength of the company, its management structure and ownership;
- Investment process used by the manager;
- Experience of its investment team;
- Track record; and
- Whether the manager complements AustralianSuper's other investment managers.

Sources: AustralianSuper Annual reports 2010-.2015, AustralianSuper's website

AustralianSuper's investment management costs cover investment management, master custodian services and asset consulting. Total investment costs for the Fund's PreMixed options ranged between 0.2% (Index Diversified) and 0.8% (High Growth), with the Balanced option having a total investment cost of 0.6% (0.5% of investment cost and 0.1% of performance fees) in 2015.

## 3) In-house portfolio management

Since 2012, AustralianSuper is focusing on building world-class in-house investment capabilities, allowing the Fund to maximise long-term returns and keep costs low through direct investment.

It currently manages about 15% of its total investments in-house and is on track to manage 30% of assets in-house as it starts funding new small-cap Australian equities, international equities and loans and credit strategies. This internal management strategy is expected to cut up to 0.1 percentage points a year from total investment fees over the long term.

## 4) Risk framework

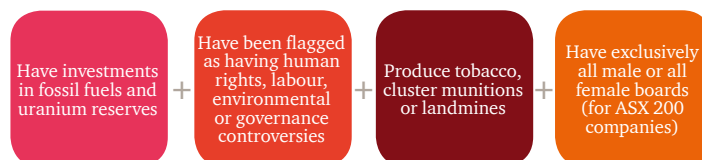
The Audit, Compliance and Risk Management Committee (ACRMC) is responsible for the oversight of the risk management framework. The Board has approved a Risk Appetite Statement (RAS) and the performance of the management against the requirements of the RAS is reported to the Board and the ACRMC four times a year.

AustralianSuper has invested much effort specifically addressing the risk of fraud and corruption across the entire Fund. It focuses on further strengthening controls to mitigate cyber, member account, expense payment, investment fraud and illegal use of the Fund's assets and brand.

## 5) Responsible investing and ESG

AustralianSuper applies ESG principles across all of its investment options and works in collaboration with the Australian Council of Superannuation Investors to address ESG issues in its investment portfolios.

The Fund has a specific "Socially Aware" investment option with investments selected using a strict screening based on ESG standards as well as financial criteria. The Socially Aware investment option is not invested in shares of companies which:



In relation to climate change, AustralianSuper has joined the Carbon Disclosure Project, a global initiative asking the largest companies to disclose investment-related information on their greenhouse gas emissions.

Source: AustralianSuper Annual reports, Investment Strategy & Outlook, Socially Aware option factsheet



## Quick facts

The State Public Sector Superannuation Scheme (QSuper) is Queensland's largest not-for-profit superannuation fund. QSuper was established in 1912 and provides retirement benefit services to 540,000 members.

## Evolution of total assets

The market value of QSuper's portfolio was AUD 57.9bn (USD 42.1bn) in 2015, up from AUD 40.4bn (USD 29.4bn) in 2010. This corresponds to a CAGR of 7.5% over the last five years. This rise was largely driven by increased exposure to fixed income between 2010 and 2015.

## Evolution of asset allocation

40.6% of QSuper's assets was invested in fixed income in 2015, up from 21.4% in 2010. In contrast, while other investments accounted for 31.6% of QSuper's total portfolio in 2010, they only represented 1.6% in 2015. Both equity and alternatives increased in proportion, with equity up from 21.1% in 2010 to 29.9% in 2015 and alternatives up from 25.9% to 27.8% during the same period.

## Total return

QSuper's default option, the Balanced option, returned 12.5% in 2015, down from 13.4% in 2014. The lowest return was achieved in 2012 (6.8%) driven by strong negative Australian share market performance.

## Geographic allocation

QSuper invested 50.3% of its total assets in Australia in 2015, ahead of the USA (20.8%) and Europe (14.4%). While exposure to the home market increased between 2013 and 2015 (from 38.4% to 50.3%), QSuper decreased its exposure to the USA (from 31.8% of total assets to 20.8%) and Europe (from 17.6% to 14.4%) during that period.

## Remuneration scheme

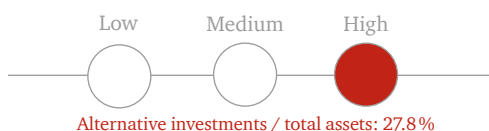
Salary accounted for 80.5% of the CEO's total remuneration in 2015, in contrast to 100% for the Board Chairman. 7.2% of the CEO's remuneration consisted of long-term incentives, whereas other benefits accounted for 12.3% of the total remuneration. Remuneration represents between 0.002% and 0.03% of the fund's total expenses.

Sources: QSuper Annual reports 2010-2015

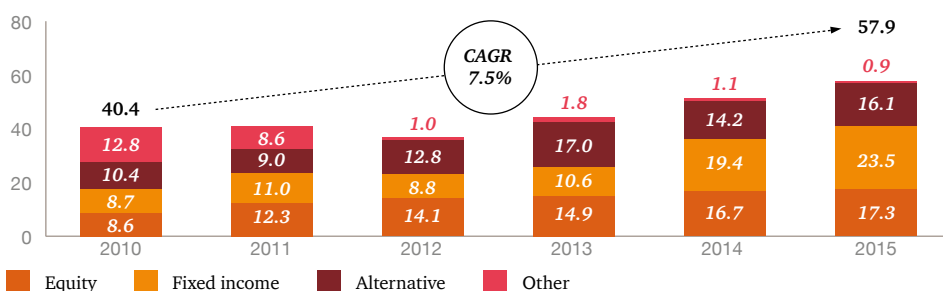
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1912	≈1000	42.1bn	27.8%	N/A	12.5%

\* Based on AUD (Balanced option)

## Level of alternative exposure



## Evolution of total assets by asset class (in AUD bn)



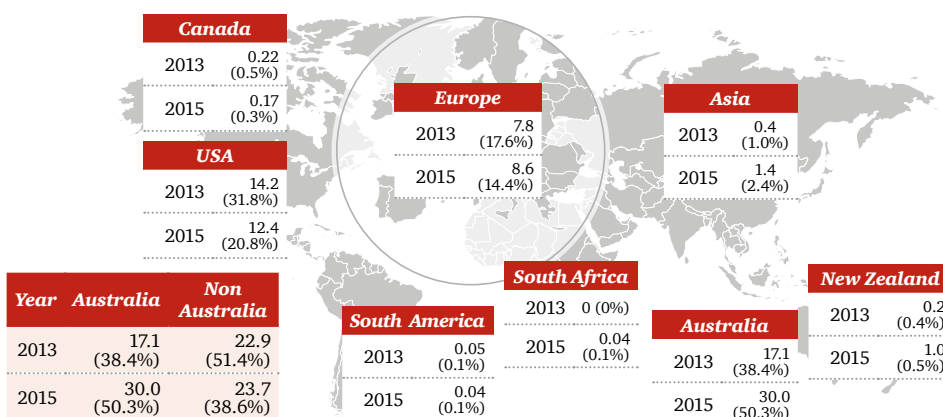
Note: Other category includes listed unit trusts, derivatives, and margin accounts. Forward foreign exchange contracts accounted for 18.5% of total assets in 2010, but only 0.2% in 2015.

## Evolution of returns (Balanced option)\*\*



Note: Balanced option is the Fund's default option for Income account after 2014, but overall the years before 2014 Returns refer to QSuper Accumulation account.

## Geographic allocation (2013 vs. 2015 in AUD bn)



Note: The total asset figure does not equal CAD 57.9 billion as not all QSuper Fund assets are included due to an inability to look through to assets/country level for certain investments.

## Executive remuneration schemes in 2015 (in AUD)

2015	Salary	Variable	Other	Total remuneration	Remuneration/ total expenses
CEO	910,474 (80.5%)	81,914 (7.2%)	138,747 (12.3%)	1,131,135	0.03%
Board (Chairman)	99,885 (100%)	0 (0%)	0 (0%)	99,885	0.002%

\*\*Balanced option is the Fund's default option for the income account. We only present the return of this option to remain consistent with years before 2014.

Note: Variable remuneration refers to long-term incentive plans, Other corresponds to superannuation and leave benefits. Sources: QSuper Annual reports 2010-2015.



## Alternative Focus

QSuper invested 27.8% of its portfolio in alternatives in 2015. This proportion varied between 22.0% in 2011 and 38.5% in 2013. The share of alternatives, however, remained stable over the 2014-2015 period.

### QSuper's asset allocation ranges for its default options

QSuper's real estate investments include commercial, industrial and residential real estate. Investment in infrastructure can be made either directly or into externally managed infrastructure funds. The share for both types of alternatives on the default options' portfolios ranges from 0-25% of total option assets, depending on the different products chosen by the investor.

Other alternative assets include incubator and private equity, and diversified investments such as commodities. The share of the whole portfolio ranges from 0-30% of total option assets.

### Real estate portfolio exposure by region

QSuper's real estate portfolio is heavily dominated by Australian assets (68.3% of total real estate assets), with the most dominant regions being Queensland (27.2%) and Victoria (15.1%). Global real estate is gradually increasing, the UK representing 16.2% of total real estate assets, ahead of the USA (11.6%) and the rest of Europe (2.2%). QSuper's strategic real estate manager in Europe and the UK is AEW Europe.

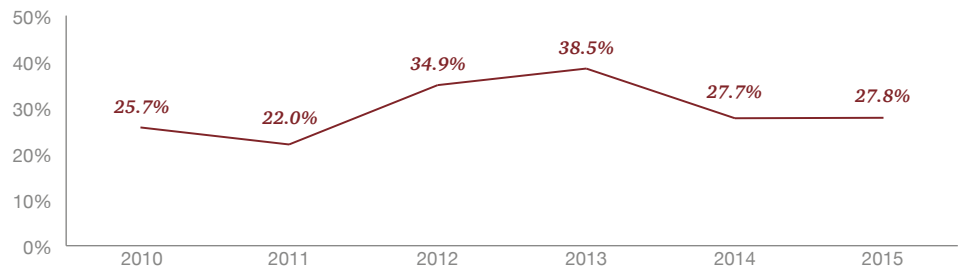
## Outsourcing Focus

QSuper relies on several external asset managers to invest in various asset classes.

The biggest number of external asset managers is hired to manage other alternative assets (seven investment managers in 2015) - real estate assets are managed by four and private equity and infrastructure assets by three different external managers. Equities are fully managed externally through five different asset managers.

Sources: QSuper Annual reports 2010- 2015

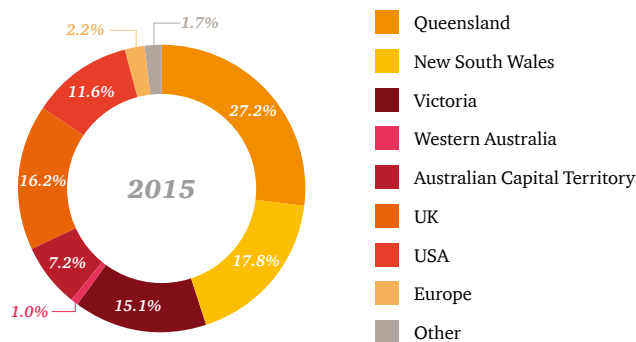
Evolution of the proportion of assets invested in alternatives (2010-2015)



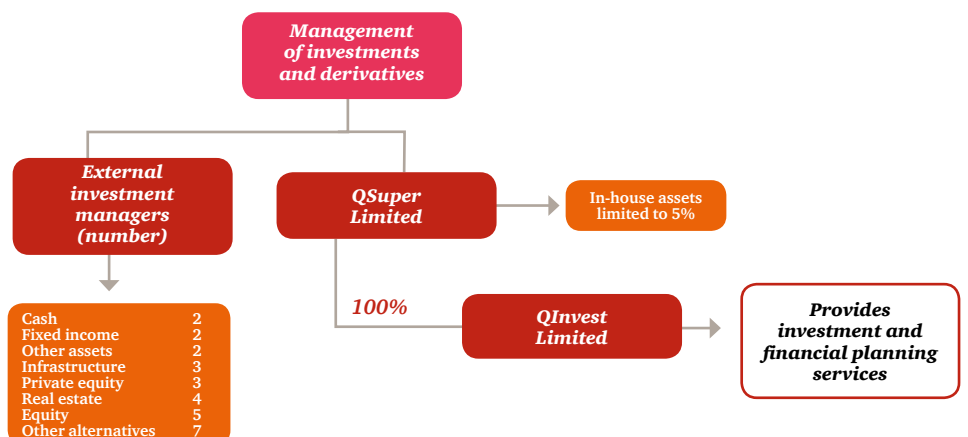
Asset allocation ranges in alternative investments for the default options (2015)

	Option	Real Estate (%)	Infrastructure (%)	Other Alternative assets (%)
Lifetime options (Default for the Accumulation account)	Outlook			
	Aspire 1	0-25%	0-25%	0-30%
	Aspire 2			
	Focus 1			
	Focus 2			
	Focus 3	0-20%	0-20%	0-25%
Default for the Income account	Sustain 1			
	Sustain 2			
Default for the Income account	Balanced	0-20%	0-20%	0-25%

Real estate portfolio exposures by region



Governance of investment management services



Sources: QSuper Annual reports 2010- 2015, Fund website





## 1) Investment strategy

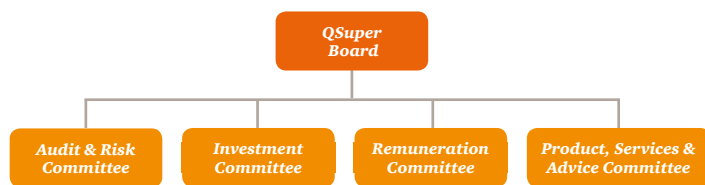
QSuper offers various accounts to invest in, depending on different requirements\*:

- **The Accumulation account** is available to current and former Queensland Government employees and their spouses. The aim is to increase their account, as the members are in the growth phase of their working life. Members can choose to invest in Lifetime, Your Choice, Ready Made and Self-Invest options, each of them with specific sub-investment choices.
- **The Transition to Retirement Income account** enables members to access their Super assets while they are still working with regular tax-effective payments. Members choose between Your Choice, Ready Made and Self Invest options.
- **The Income account** allows members to use their superannuation assets to provide an income while in retirement.

### Corporate Governance

The QSuper Board has established several subsidiaries, wholly owned by Qsuper, to provide administration, advice, and investment management services. These outsourced service providers include the 100% owned QInvest Limited, which provides financial planning and investment services, as well as One QSuper Pty Limited, which provides labour hire services.

The Board has various Committees that it deems appropriate to help carry out its responsibilities.



The QSuper Board is responsible for managing the QSuper Fund, which includes creating and implementing its strategic plan, formulating and overseeing its investment strategy, and developing and delivering its products and services.

## 2) Outsourcing of portfolio management

QSuper uses a combination of in-house management and external investment managers. A total of 14 different external investment managers provide investment services (under investment management agreements with the QSuper Board of Trustees).

QSuper monitors the compliance of external managers against specific Investment Management Agreements. Any breaches are raised with the Investment Manager for speedy resolution and reported in accordance with existing Board policies and QSuper's Incident Reporting Process.

The cost of managing the various accounts is split into administration fees, amounting to 0.2% p.a. and investment fees. Investment fees consist of a base fee, ranging from 0.06% to 0.69% p.a. and a performance fee, ranging from 0% to 0.15% p.a.) in the 2015/2016 period.

Aside from external asset management services, QSuper relies on outsourced service providers to provide financial planning and investment services (QInvest Limited) as well as labour hire services (One QSuper Pty Limited). These providers are paid a fee which covers all administration costs including superannuation administration, the cost of running self-insurance, medical costs, strategic and change initiatives, and investment services.

\* Defined Benefit account is closed for new members  
Sources: QSuper Annual report 2015, Fund website

## 3) In-house portfolio management

The QSuper Board has built-up strong in-house investments capabilities since 2009. Consequently, in-house investments are managed through QSuper Limited.

## 4) Risk framework

QSuper regularly reviews and improves the Fund's risk management framework. In order to do so, the Board holds an annual risk workshop, which allows it to consider the potential impact of current and new risks on strategic objectives.

QSuper maintains an operational risk financial requirements reserve (ORFR) for costs pertaining to the member component of the operational risk events. The Audit and Risk Committee assists the Board by reviewing the management of risk, including overseeing the material risks and ensuring appropriate internal controls are in place to address those risks.

## 5) Responsible investing and ESG

QSuper considers ESG within a framework focused on providing competitive returns for their members. QSuper's ESG policy framework is multi-faceted and seeks to address and manage these factors in part through active ownership, voting, engagement, and by offering the Socially Responsible investment option.

The Socially Responsible option invests in companies (through AMP Capital Investors' Responsible Investment Leaders Balanced Fund) fulfilling criteria related to labour standards, ethical considerations, social and environmental considerations:

- No investment in companies deriving more than 10% of their total revenue from nuclear power, armaments, gambling, alcohol or pornography
- No investment in companies having more than a 20% exposure to mining thermal coal, exploration, development and transportation of oil sands and conversion of coal to liquid fuels/feedstock

From June 2015, QSuper is no longer investing in companies involved in manufacturing cigarettes and tobacco products, with the exception of the Self Invest option.

Sources: QSuper Annual report 2015, Fund website



## Quick facts

UniSuper is the super fund dedicated to employees in Australia's higher education and research sector. The fund was established in October 2000 and manages assets on behalf of more than 385,000 members.

## Evolution of total assets

Total assets amounted to AUD 49.1bn (USD 37.8bn) in 2015, up from AUD 25.4bn (USD 18.8bn) in 2010, corresponding to a CAGR of 14.1% during those years. This uptick in total assets is largely due to the increased exposure to equity, which saw a CAGR of 19.6% during the period.

## Evolution of asset allocation

UniSuper is largely invested in equity, which represented 63.5% of total assets in 2015, up from 50.1% in 2010. The proportion of assets invested in both fixed income and alternatives decreased over five years: fixed income dropped from 28.6% in 2010 to 22.9% in 2015, and alternatives plummeted from 21.3% in 2010 to 10.4% in 2015.

## Total return

The total return on UniSuper's investments amounted to 10.8% in 2015. This performance is largely explained by the good performance of equity, with international share options having generated 22.4% during the year. The low performance achieved in 2012 is explained by negative returns on the Australian share market during that year.

## Geographic allocation\*

47.5% of total assets in the Fund's five options were invested in Australia as of May 2016. Regarding foreign investments, 31.1% of these options' assets are invested in the US, with Europe ranking third (11.3%). UniSuper has exposure to Japan and Asia in general—the region accounts for 8.8% of the options' total assets.

## Remuneration scheme

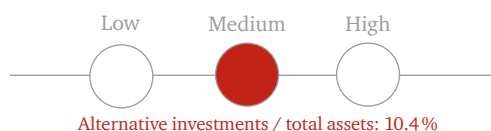
While 90.5% of the Chairman's remuneration is in salary, this part accounted for 58.5% of the CEO's remuneration in 2015. Bonuses made up 31% of the CEO's remuneration, and the rest came from Super benefits (10.5%). Remunerations represented between 0.01% and 0.04% of total expenses.

\*Taken as a proxy of foreign investments  
Sources: UniSuper Annual reports 2010-2015

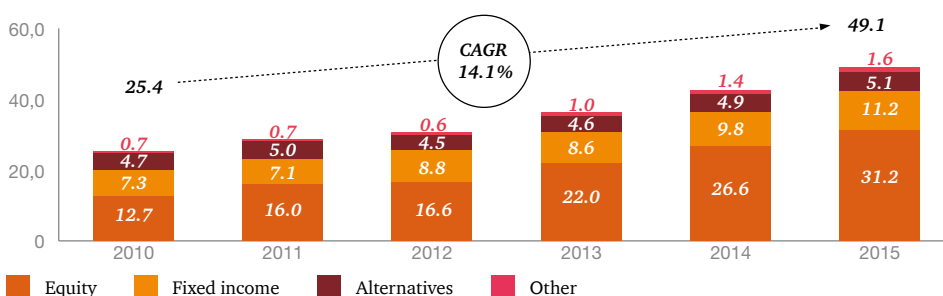
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
2000	530	37.8	10.4%	N/A	10.8%

\* Based on AUD

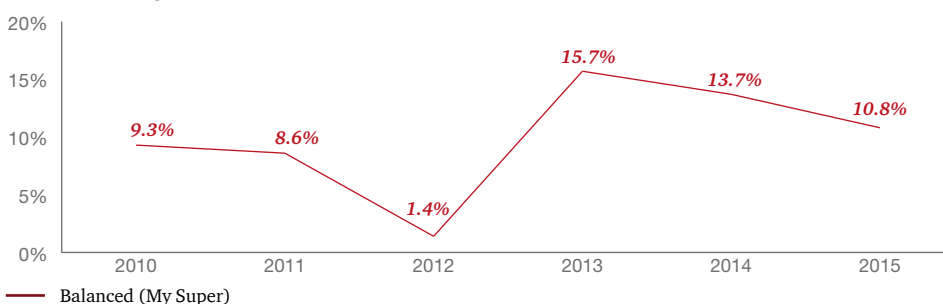
## Level of alternative exposure



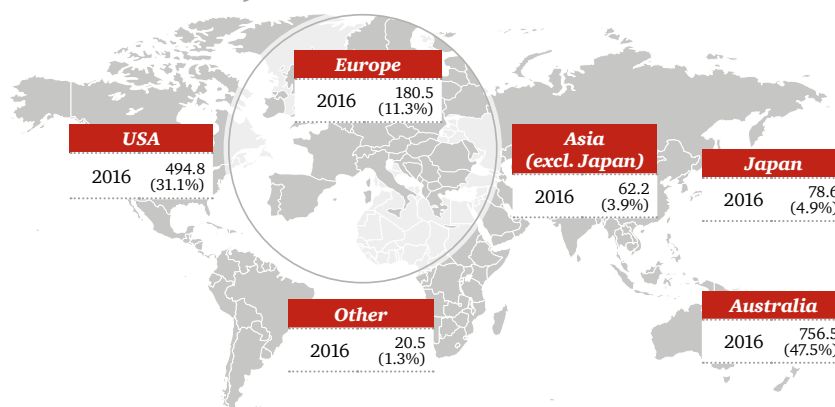
## Evolution of total AuM by asset class (in AUD bn)



## Evolution of return



## Geographic asset allocation of five investment options\*\* (May 2016 in AUD million)



Note: Percentages refer to the proportion of total assets in the five options (4.7% of UniSuper's total assets in May 2016) invested in the various regions. Total geographic asset allocation cannot be represented due to lack of data availability. Only the options with geographic allocation are presented here.

## Executive remuneration schemes in 2015 (in AUD)

2015	Salary	Variable	Other**	Total remuneration	Remuneration/ Total expenses
CEO	482,857 (58.5%)	256,369 (31.0%)	86,722 (10.5%)	825,948	0.04%
Board-Chairman	193,837 (90.5%)	0 (0%)	20,275 (9.5%)	214,112	0.01%

\*\*International shares, Global companies in Asia, Global Environmental Opportunities, Australian Shares and Australian Equity Income.  
\*\*\* Other remuneration corresponds to Super benefits for Directors and the CEO as well as long-term benefits for the CEO.  
Sources: UniSuper Annual reports 2010-2015, Fund website, Governance documents.



## Alternative Focus

Alternative investments are composed of infrastructure & private equity as well as property. Property investments decreased slightly from AUD 2.5bn in 2010 to AUD 2.4bn in 2015, representing 4.9% of total assets in 2015, compared to 9.7% in 2010. Infrastructure & private equity investments increased in value from AUD 2.3bn in 2010 to AUD 2.7bn in 2015. Their share in UniSuper's total assets, however, decreased from 8.9% to 5.5% during the period.

### Sector allocation of the Listed Property option

UniSuper's specific investment option invests in a diversified portfolio of listed property equities. The main sectors in which the Fund's option invests are retail (37.9% of total option assets), diversified (18.9%) and office REITs (12.6%) as at May 2016. Industrial and residential REITs amounted to 8.8% and 6.5% of the option's total assets, respectively.

### Major alternative investments

UniSuper's major direct property and infrastructure holdings include the Adelaide Airport (49% stake), Aquasure, a large desalination plant (26% stake), the Karrinyup Shopping Centre (entirely owned by the Fund) and a collection of eight toll roads through Transurban Group (10% stake). UniSuper's top five infrastructure investments are all located in Australia, with the exception of two toll roads in the US (part of Transurban Group).

## Outsourcing Focus

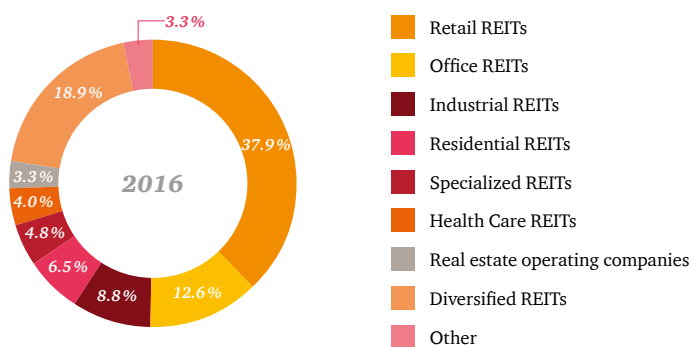
UniSuper appointed 85 external investment managers in 2015. They are responsible of managing 52.4% of the Fund's investments across a range of asset classes. The highest number of external managers were hired for Australian and international private equity, with 17 and 16 external managers respectively. Before appointing asset managers, UniSuper conducts research to get an understanding of the organization, assess the motivation and focus of the team, understand the investment philosophy and investment process as well as review the external managers' compliance procedures.

Sources: UniSuper Annual reports 2010-2015

## Alternative investments by type (in AUD bn)



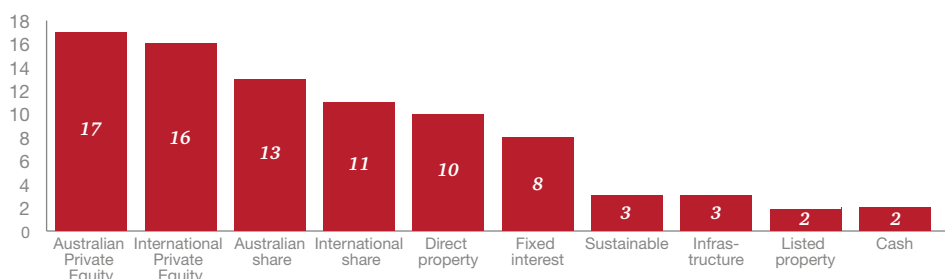
## Sector allocation of property investments in the Listed Property investment option (May 2016)



## Examples of major alternative investments (May 2016)

Investment	Company	Description	UniSuper Stake
Adelaide Airport Ltd	Transurban Group	South Australia's major airport	49%
Transurban Group	Adelaide Airport Ltd	Eight toll roads, five of which are in Sydney, one in Melbourne and two in the US	10%
Karrinyup Shopping Centre	Aquasure	Major shopping centre in Perth	100%
Aquasure	Karrinyup Shopping Centre	Large desalination plant southeast of Melbourne	26%

## Number of external asset managers by asset class in 2015



Sources: UniSuper Annual reports 2010-2015, Fund website, The Australian





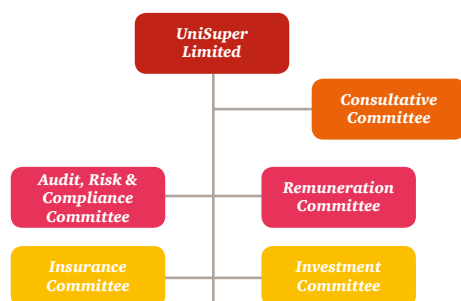
## 1) Investment strategy

Each of the Fund's investment options is structured with a unique targeted mix of defensive and/or growth investments, in order to meet individual performance objectives. UniSuper has two types of broad investment options, each one of them with various sub-options:

- Pre-Mixed options generally invest in a mix of growth and defensive assets. This strategy is designed to offer a diversified blend of investments to suit varying levels of comfort with investment risk, personal super and retirement savings goals.
- Sector options mainly invest in a mix of investments within a particular asset class. These are less diversified and are not intended to be used in isolation, but rather combined with other investment options to build a diversified portfolio.

UniSuper is governed by corporate trustees, UniSuper Limited, a not-for-profit company whose shareholders are 37 Australian universities. These universities are represented by the Consultative Committee.

### Organizational chart



## 2) Outsourcing of portfolio management

All investment managers are monitored constantly and UniSuper undertakes ongoing reviews of each manager to ensure they maintain their competitive edge and remain appropriate within the Fund's investment structure.

The selection criteria for external asset managers are:

- A high quality and stable team
- A high level of investment insight
- An ability to monitor and assess ESG issues and integrate ESG considerations into investment analysis
- Adequate internal control, audit, insurance arrangements, disaster recovery and business continuity
- Competitive fees

Sources: UniSuper Annual reports 2015, Fund website

## 3) In-house portfolio management

UniSuper manages investments in-house where they have internal management capabilities and think external asset managers have little comparative advantage.

In 2015, 47.6% of total asset was invested directly by the Trustee (or on its behalf, by UniSuper Management Pty Ltd).

UniSuper's investment team manages selected investment strategies within the following asset classes in-house:

- Australian shares
- International shares
- Cash and fixed interest
- Property

Managing these assets internally allows them to target strategies where they can leverage their internal knowledge and skills, add value and generate meaningful cost savings.

Managing some investments in-house complements the Fund's external manager selection activities. In fact, the relationships UniSuper develops and the knowledge they gain as part of managing several strategies internally allows them to make more informed decisions about their external managers. It also gives the Fund scope to be more directly and proactively involved with ESG-related issues.

## 4) Risk framework

According to the Fund, the major risk they face is currency exposure. UniSuper's investment managers are authorized to use derivatives within the guidelines set out in the Derivative Risk Statement which, among other things, prohibits the use of derivatives for speculative purposes. The UniSuper Board must ensure there is a robust risk management framework in place to adequately identify, monitor and manage material risks that arise in relation to UniSuper's activities. These measures and controls are documented in the Risk Management Strategy and Risk Management Plan. In addition, each major proposal must be submitted with a comprehensive risk assessment and, where required, proposed mitigation strategies.

## 5) Responsible investing and ESG

The Fund seeks to be a responsible investor and considers ESG risk as part of its investment approach.

- UniSuper is an active owner: It seeks to exercise all proxy votes for listed Australian and international share holdings and actively engages with investee companies on a range of commercial, strategic and ESG related matters.
- The fund conducts a range of ESG activities as part of its day to day investment management process and performs negative screening on given investment options.
- UniSuper offers three dedicated sustainable investment options: sustainable balanced, sustainable high growth, and global environmental opportunities.

From 1 September 2014, alcohol, gaming, weapons and companies involved in fossil fuel exploration and production were excluded from both the Sustainable Balanced and Sustainable High Growth options (in addition to the screening of tobacco).

Sources: UniSuper Annual reports 2015, Fund website

# Rest Industry Super



## Quick facts

The Retail Employees Superannuation Trust (REST) was established in 1988. Open to all Australians, REST is amongst the largest funds by membership, with over 2 million members and more than 170,000 employers as of June 2015.

## Evolution of total assets

REST's total assets grew at a CAGR of 16.3% between 2010 and 2015 reaching over AUD 39.0bn (USD 28.4bn) in 2015, up from AUD 18.3bn (USD 13.3bn) in 2010. Several property investments, explain the increase in total assets over the 2014-2015 period.

## Evolution of asset allocation

REST mainly invests in equity (51.1% of total assets in 2015, up from 44.7% in 2010), followed by alternative investments (21.5% in 2015, slightly lower than the 21.8% in 2010) and fixed income (14.2% in 2015 versus 17.5% in 2010). Other assets such as discount securities and derivatives decreased from 16.0% of total AUM in 2010 to 13.2% in 2015.

## Total return

REST's Core Strategy option returned 9.5% in 2015, down from 13.3% the previous year. Following a disappointing return in 2012 (0.9%) due to the poor performance of the Australian stock market, REST's Core Strategy returned 18.4% in 2013. In 2015, overseas and Australian equity were the main drivers for the Core Strategy return.

## Currency exposure\*

REST's gross currency exposure amounted to AUD 16,153.6m in 2015 (41.4% of total portfolio), up from AUD 6,073.9m in 2010 (33.2%). The biggest exposures are denominated in USD (59.2% of total currency exposure in 2015) and Euro (11.2%).

## Remuneration scheme

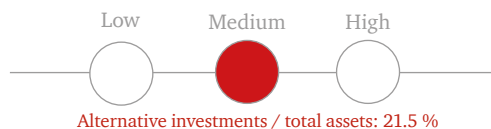
In 2015, Salary represented 71.6% of the CEO's total remuneration, whereas it accounted for 91.3% of the Chairman's total remuneration. Profit-sharing and bonuses made up 14.5% of the CEO's remuneration, other remuneration accounting for 13.9% (8.7% regarding the Chairman). Total remuneration represented between 0.02% and 0.07% of REST's total expenses in 2015.

\* Taken as a proxy for foreign investments  
Sources: Rest Industry Super Annual reports 2010-2015

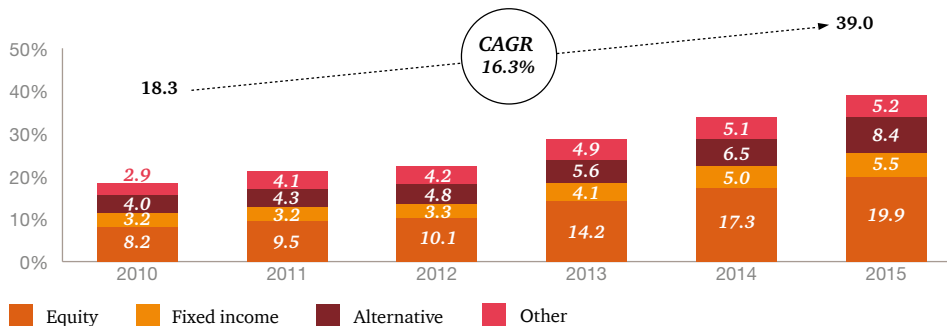
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1988	51-200	28.4 bn	21.5%	N/A	9.5%

\* Based on AUD, Core Strategy option

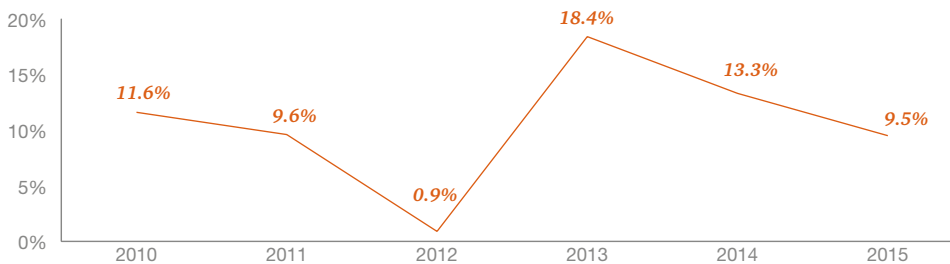
## Level of alternative exposure



## Evolution of total assets by asset class (in AUD bn)



## Evolution of return in the Fund's Core Strategy option



## Currency exposure (2010 vs. 2015, AUD million)

Year	Total exposure	% portfolio	GBP	USD	CHF	HKD	JPY	EURO	Other
2010	6,073.9	33.2%	426.1 (7.0%)	3,617.2 (59.6%)	164.4 (2.7%)	0 (0%)	270.9 (4.5%)	680.0 (11.2%)	915.4 (15.1%)
2015	16,153.6	41.4%	1,175.7 (7.3%)	9,565.9 (59.2%)	0 (0%)	716.2 (4.4%)	561.0 (3.5%)	1,815.7 (11.2%)	2,319.1 (14.4%)

## Executive remuneration schemes in 2015 (AUD)

2015	Salary	Variable**	Other**	Total remuneration	Remuneration / Total expenses
CEO	467,586 (71.6%)	94,795 (14.5%)	90,806 (13.9%)	653,187	0.07%
Board (Chairman)	143,988 (91.3%)	0 (0%)	13,679 (8.7%)	157,667	0.02%

\*\* Variable remuneration corresponds to profit-sharing and other bonuses. Other refers to non-monetary benefits and employee benefits (CEO) and super benefits (CEO and the Board)  
Sources: Rest Industry Super Annual reports and Financial statements 2010-2015

# Rest Industry Super



## Alternative Focus

### Evolution of alternative assets

REST invested AUD 8.4bn in alternative assets in 2015, representing 21.5% of the Fund's total investments. Alternative assets varied between 21.8% of total AUM in 2010 and a 19.1% low in 2014. The fund's largest property acquisition in Australia over the last five years largely contributed to increased exposure to alternatives between 2014 and 2015.

### Asset allocation in alternatives

Alternative assets are split into property, growth and defensive alternatives (in unlisted unit trusts). While growth alternatives decreased in importance between 2010 and 2015 (from 38.0% of total alternative assets to 32.3%) and property remained around 40%, the relative importance of defensive assets increased from 21.3% in 2010 to 28.1% in 2015.

### Recent development regarding alternatives

During the last financial year, REST acquired a number of new key property investments, including the largest office property deals in Australia in the last five years. In the US, it also entered a ten-year agreement with the largest apartment manager and a major developer, Greystar Real Estate Partners. Because of this investment REST's members now have access to a property sector in an asset class that is generally not available to average investors in Australia. Finally, the investment in a US-based global infrastructure fund allows REST to gain exposure to infrastructure assets across the world.

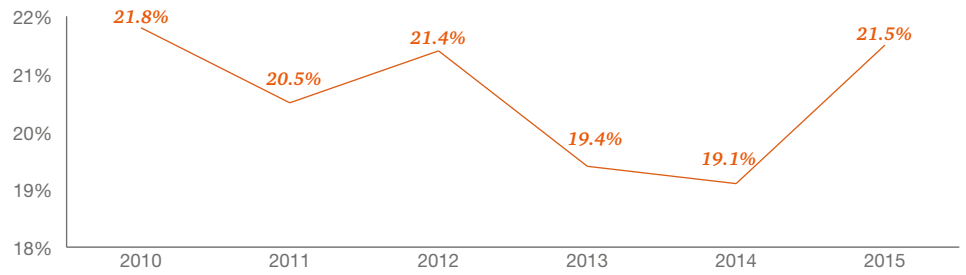
## Outsourcing Focus

REST relies on various external asset managers to complement its in-house investment practices. In 2015, 4.5% of fixed income, 28.0% of equity and 5.9% of alternative investments were managed externally.

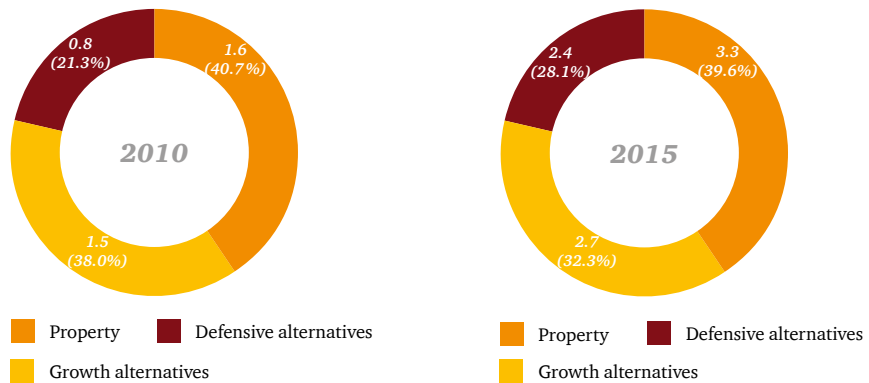
The biggest number of external managers was hired for overseas equity (11 different investment managers in total), followed by Australian equity (7) and growth alternatives (7).

Sources: Rest Industry Super Annual reports 2015

### Evolution of asset allocation to alternatives (2010-2015)



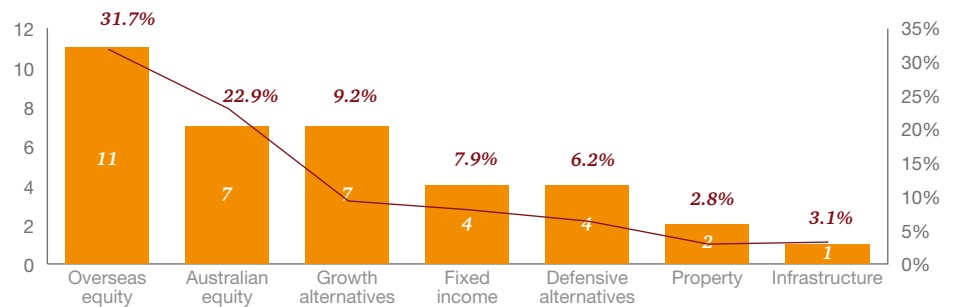
### Asset allocation in alternatives (in AUD bn, 2010 vs 2015)



### Recent developments regarding alternatives

July 2014	November 2014	January 2015
Acquisition of the 52 Martin Place office tower worth AUD 550 million, amongst Sydney's most prestigious CBD assets	10 year joint agreement with Greystar Real Estate Partners, one of the largest apartment managers and a major developer in the US	Investment in US-based, I-Squared Capital Global Infrastructure Fund
One of the biggest property deals in Australia in the last 5 years	Major equity partner in 8 new rental apartment buildings with a combined total of 3,000 apartments to be developed and managed by Greystar	Provides REST's members with investment exposure to infrastructure assets across the world

### Number of external asset managers and proportion of assets managed externally by asset class (2015)



Sources: Rest Industry Super Annual reports 2015

# Rest Industry Super



## 1) Investment strategy

REST invests widely in many different investment markets using a range of strategies. Many of REST's investment options have allocations to a diversified mix of investments which helps to minimise the impact of a particular type of investment should it perform poorly. Rest's primary investment goal is to grow member's savings by delivering net returns above the rate of inflation over the long term.

REST offers a range of superannuation products:

- **Rest Super:** An award winning product with a MySuper option open to all.
- **Rest Corporate:** A super product with a MySuper option and salary-based insurance through the employer.
- **Rest Select:** A choice of product with flexible insurance options.
- **Acumen:** A super product with a fully tailored solution through the employer.

All these products allow members to choose from 13 different investment options, including the Fund's default option, Core Strategy, several member tailored options as well as structured investment options.

### Corporate Governance

REST's governance structure consists of the board, a number of Board Committees and executives which together oversee all aspects of REST's operations, as shown in the diagram below:



## 2) Outsourcing of portfolio management

Recognising that different investment markets and strategies require different expertise, REST appoints professional investment managers who specialise in particular areas. As at June 2015, REST had 37 different external managers across the Fund's various asset classes.

Source: Rest Industry Super Annual reports 2015

REST sets target returns for each investment class. The investment manager's duty is to meet or exceed these returns whilst working within the risk guidelines set by the Fund. Moreover REST has been engaging a professional investment consultant, JANA, since its inception to monitor the performance and capabilities of all the external (as well as the wholly owned in-house) investment managers.

## 3) In-house portfolio management

REST manages the vast majority of its assets in-house and through the wholly owned Super Investment Management Pty Ltd. This entity, like the other investment managers, receives a fee for its services. In 2015, the percentage of assets managed in-house (and through the wholly owned entity) was:

Equity	Fixed Income	Alternatives
72.0%	95.5%	94.1%

## 4) Risk framework

REST believes that regardless of shifting market views, investing is inherently about managing uncertainty and risk. Accordingly, the Fund reviews all portfolios to manage downside risk even in extreme albeit unlikely conditions. REST's various investment options are disclosed with their relative risk band and risk level, based on the Standard Risk Measure framework.

The Trust's investment managers may use derivative financial instruments to reduce risks in the share, bond and currency markets and to increase or decrease the Trust's exposure to particular investment classes or markets within pre-determined ranges.

Financial risk management is carried out by the Trustee through the Investment Committee with advice from an external investment adviser and internal management. The Plan obtains regular reports from each investment manager on the nature of the investments made on its behalf and the associated risks.

## 5) Responsible investing and ESG

REST has adopted a Sustainability Policy that encourages the Fund to adopt strategies and appoint investment managers that are considered to be consistent with REST's objectives. A Voting and Proxy Voting Policy has been developed to ensure consistency with sustainability principles.

As part of its corporate responsibility programme, REST supports organizations that add value to the communities of its members and improve the lives of everyday Australians through their mission. The Fund has chosen established corporate sponsorship with the following organizations:

- Headspace, the National Youth Mental Health Foundation, provides mental health and wellbeing support, information and services to young people aged 12 to 25 and their families across Australia.
- SuperFriend, the Industry Funds Forum Mental Health Foundation, a nationwide initiative, aims at improving the mental health and wellbeing of industry super fund members.

Sources: Rest Industry Super Annual reports 2015, Fund website

# Commonwealth Superannuation Corporation (CSC)



## Quick facts

The Commonwealth Superannuation Corporation (CSC) was established in 1976 and currently manages four funds and is the trustee of nine others. Its purpose is to invest for Australian Government employees, members of the Australian Defence Forces and their families.

## Evolution of total assets

CSC's total assets amounted to AUD 36.2bn (USD 27.8bn) as at 30 June 2015, growing at a CAGR of 14.0% over the last five years from AUD 18.8bn (USD 14.6bn) in 2010. This increase is largely explained by continuous investments across all major asset classes and the growing importance of other investments.

## Evolution of asset allocation

CSC is heavily invested in Equity, which represented 55.2% of total assets in 2015. Fixed Income investments decreased from 21.8% in 2010 to 18.2% in 2015, with alternatives decreasing from 14.9% to 11.6%. Other investments used for hedging purposes increased from 1.6% to 14.9% during the same period.

## Total return

CSC's default option (see page 3), represented around 60% of CSC's total investments in 2015. The fund has returned above 10% over the last five years, except in 2011 (7.3%) and 2012 (1.9%). The low return in 2012 is explained by weak Australian share market returns.

## Currency exposure\*

CSC's currency risk exposure amounted to AUD 8.4bn in 2011, representing 41.4% of portfolio assets. Exposure to USD made up 61.9% of total currency exposure, with EUR and other currencies having 14.3% of total exposure respectively. GBP represented 6.0%, ahead of JPY with 3.6%.

## Remuneration scheme

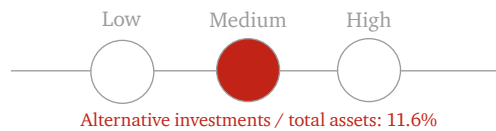
Senior Management personnel includes Directors and Executives (a total of 19 employees in 2015). Their total remuneration amounted to AUD 4,701th in 2015, of which 63.5% corresponded to base salary (AUD 2,983th), 21.5% to performance bonuses (AUD 1,009th) and 15% to superannuation benefits and annual leave payments. Total remuneration of all senior employees accounted for 0.07% of CSC's total expenses in 2015.

\*Taken as a proxy for foreign investments  
Sources: CSC Annual Financial Reports 2010-2015; Website

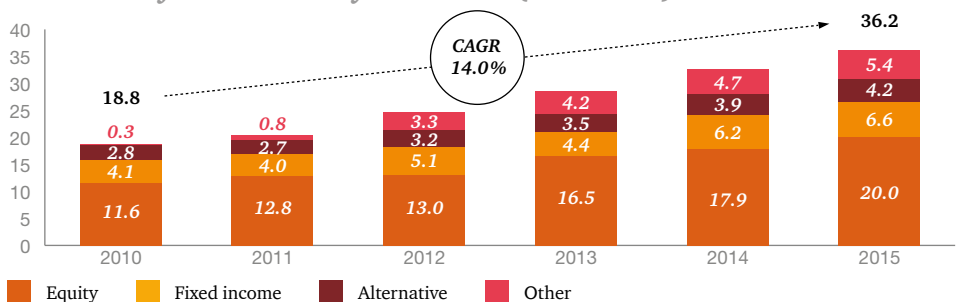
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1976	81	27.8	11.6%	0.1%	12.1%

\* Based on local currency

## Level of alternative exposure

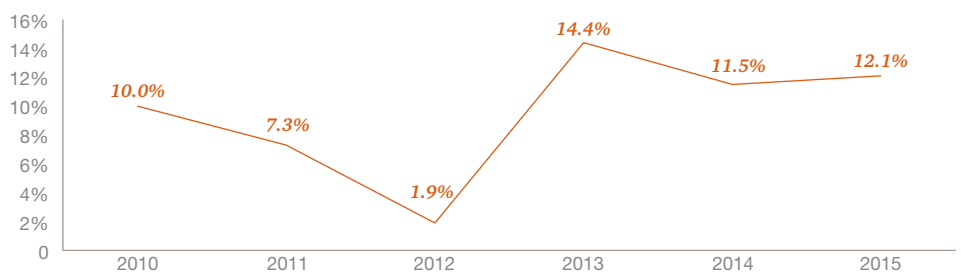


## Evolution of total assets by asset class (in AUD bn)

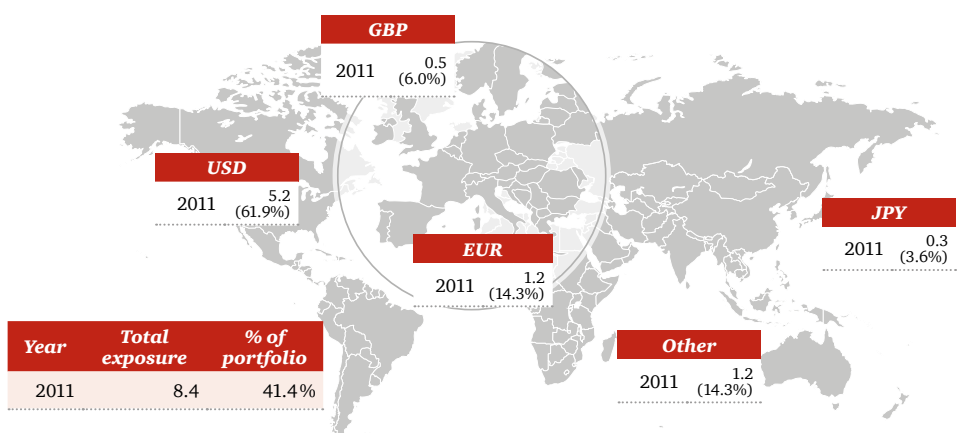


Note: Other category includes assets exploiting price discrepancies between markets and securities, that is are used to hedge the Fund's portfolio

## Evolution of return (Default option)



## Currency exposure (2011, in AUD bn)



Note: The Fund does not disclose currency exposure after 2011

## Senior management remuneration schemes in 2015 (AUD thousands)

Salary	Variable*	Other**	Total remuneration	Remuneration / Total expenses
2,983 (63.5%)	1,009 (21.5%)	708 (15%)	4,701 (100%)	0.07%

\*Corresponds to performance bonuses  
\*\* Other remuneration refers to superannuation benefits and annual leave  
Sources: CSC Annual Financial Reports 2010-2015; Website



# Commonwealth Superannuation Corporation (CSC)



## Alternative Focus

Alternatives represent 11.6% of CSC's investments portfolio for the year 2015.

CSC invests into two types of Alternatives: property and infrastructure. These investments earn a real return by financing the building, maintenance, management and trading of real assets, accessed through public and private Equity and debt markets.

CSC's default investment scheme targets investments of 13% in property and 2% in infrastructure, which together comprise 15% of the default option's target asset allocation. The actual figures, however, were somewhat lower for 2015 with only 11.6% of its default scheme invested in alternatives.

From a risk mitigation point of view, CSC maintains a policy that the target allocation to illiquid assets should be limited to around 25% of the Fund's total investments (with a plus or minus 10 percentage point rebalancing range).

Recent alternative acquisitions include the newly purchased 48% stake in the Canberra Data Centre at the beginning of 2016.

## Outsourcing Focus

Investment options in the Fund gain exposure to various asset classes and professional external investment managers.

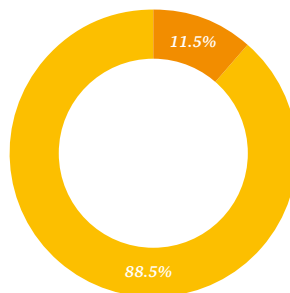
Costs related to these managers increased from AUD 37.4 million in 2010 to AUD 45.2 million in 2015. At the same time, total assets have increased at a much faster pace. While they were worth AUD 18.9bn in 2010, their value reached AUD 36.2bn in 2015.

Consequently, the proportion of external managers' fees compared to total AUM has decreased from 0.2% in 2010 to 0.1% in 2015.

Sources: CSC Annual Financial Reports 2010-2015; Website

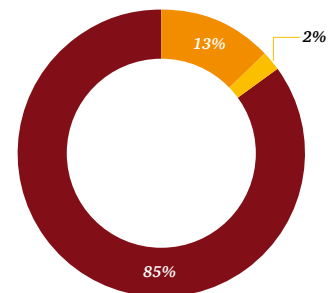
## Current vs target asset allocation with a focus on alternatives (Default option in 2015)

Current asset allocation



Property & Infrastructure  
Non-alternative assets

Target allocation



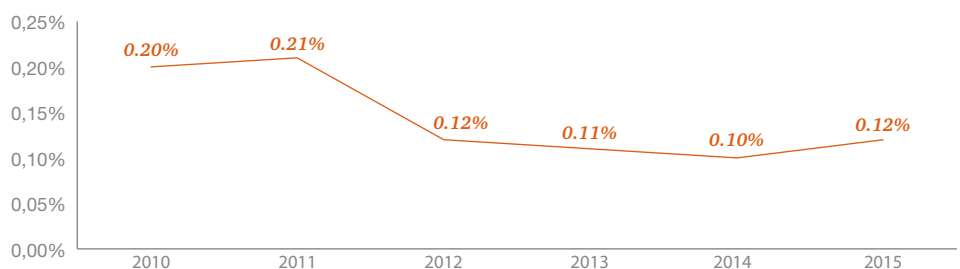
Property Non-alternative assets  
Infrastructure

## Recent development regarding alternative investments

### New acquisition in 2016

Enterprise Name	Canberra Data Centre (CDC)
Stake	48%
Enterprise Value	USD 1.08 bn
Description	CDC currently has three data centres with a total capacity of around 30 MW and is eyeing a further 27MW. The company's fourth data centre is currently under construction. Infratil and Commonwealth Super will have 50-50 governance rights.

## Outsourcing costs as a percentage of total assets (2010-2015)



Sources: CSC Annual Financial Reports 2010-2015; Website

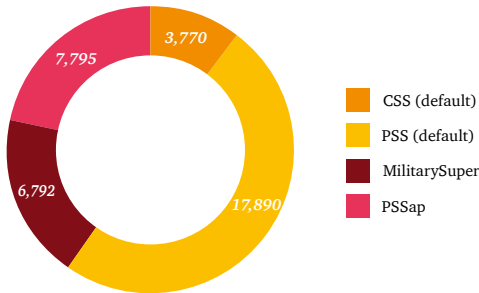


# Commonwealth Superannuation Corporation (CSC)

## 1) Investment strategy

CSC manages four Funds and is the trustee of nine superannuation funds.

Total assets in CSC's four Funds (in AUD million, 2015)



The assets of CSC's schemes are invested through the ARIA Investments Trust (AIT). The AIT invests in multiple specialist investment funds and portfolios.

CSC's investment strategy is focused on the provision of financial adequacy in retirement for all scheme members. This approach should manifest in the following pattern of returns: CSC investment portfolios should help to preserve wealth through periods of negative Equity market returns. The cost of this is that CSC's investment portfolio returns may lag behind other funds during periods of strong positive Equity market returns.

## 2) Outsourcing of portfolio management / In-house portfolio management

CSC is required to invest through external investment managers who invest their respective fund allocation in accordance with the terms of a written investment mandate or disclosure document.

Investment managers are paid a fee, reflecting investment costs applicable to each particular asset class category and the investment style employed by each manager. Some managers may be paid a performance fee for exceeding a pre-determined benchmark or hurdle rate of return, within specified risk limits. The performance fee is generally a share of any excess risk-adjusted performance above an agreed benchmark return.

These fees totaled AUD 45.2 million in 2015. They increased by nearly AUD 14 million compared to the previous year. This increase is partly due to the increase in AUM during the period.

## 3) Risk framework

CSC has a comprehensive Risk Management Strategy which describes CSC's strategy for managing risk and the key elements of its risk management framework. CSC's Strategy meets APRA's\* requirements under Prudential Standard SPS 220 and is supported by CSC's Risk Appetite Statement.

Part of CSC's mission is to achieve consistent long-term returns within a structured risk framework. To achieve this, CSC manages and invests each Fund so as to achieve its stated investment objective while adhering to strictly-defined risk limits.

The overall investment strategy of the Scheme is set out in the Trustee's approved investment policies which address the investment strategy and objectives and risk mitigation strategies including risk mitigation relating to the use of derivatives.

\* Australian Prudential Regulation Authority  
Sources: CSC Annual Financial Reports 2010-2015; Website, Supervision Act 1993

## 4) Responsible investing and ESG

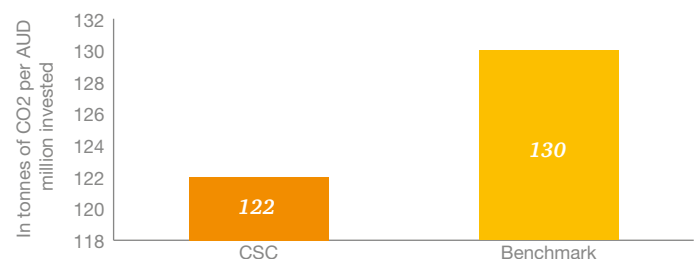
CSC has implemented a number of investment governance practices, including:

- casting proxy votes in Australian and international companies in which they invest;
- publicly communicating their ESG policy and practices;
- Encouraging investment managers, advisors and companies in which it invests to adhere to ESG principles, maintain an ESG policy and report ESG activity; and
- maintaining governance research and engagement through Regnan collaboration, which provides these services to CSC and its other institutional investors.

CSC has developed several collaborative relationships with other domestic and international investor groups in order to advance the ESG agenda. CSC is a signatory of the following initiatives:

- The United Nations Principles for Responsible Investment, which provides a framework for institutional investors to align investment activities with the broader interests of society while maximising long-term returns for their beneficiaries;
- The Carbon Disclosure Project, which pushes for the development and the maintenance of a global database of primary corporate climate change information; and
- The Montreal Carbon Pledge, which aims to increase investor awareness, understanding and management of climate change-related impacts, risks and opportunities. CSC commits itself to measure and publicly disclose the carbon footprint of its investments on an annual basis.

CSC Listed equities vs the benchmark's carbon footprint in 2015



Sources: CSC Annual Financial Reports 2010-2015; Website





## Quick facts

Sunsuper is one of Australia's largest and most highly-rated super and retirement businesses. As a national profit-for-members fund, Sunsuper manages assets for over 1 million members.

## Evolution of total assets

Sunsuper invests in equity, fixed income and alternatives. The market value of the fund investment portfolio was approximately AUD 33.9bn in 2015 (USD 24.7bn). The fund's total assets grew at a CAGR of 16.6% between 2010 and 2015, which demonstrates continuous fund performance.

## Evolution of asset allocation

Sunsuper's asset allocation has remained relatively stable over the last five years with 48.6% of assets invested in equity in 2015, the same proportion as in 2010. Fixed income investments decreased slightly from 28.7% in 2010 to 23.1% in 2015. In contrast, the share of assets invested in alternatives increased from 22.7% in 2010 to 28.3% in 2015. In 2015, alternatives was the fund's second most important investment choice.

## Total return

Sunsuper's Balanced option, one of the Fund's diversified options\*\*, produced a return above 10.2% in 2015, and around 10.5% on average during the 2010-2015 period. Despite a bad year in 2012, where returns dropped to -0.2% as a result of negative Australian stock market performance, the fund recorded net investment results of AUD 2.89bn in 2015.

## Currency exposure\*

Sunsuper's gross currency exposure amounted to AUD 17.8bn (USD 13.7bn) in 2015, representing 52.5% of total portfolio assets. Exposure to USD decreased from 66.3% of total exposure in 2012 to 58.4% in 2015. In contrast, exposure to EUR increased from 10.5% to 12.4% during that period.

## Remuneration schemes

Variable remuneration accounted for 23.2% of the CEO's and 19.0% of other executives' total remuneration in 2015. Other benefits represented 35.3% of Directors' remuneration. Total remuneration represented between 0.02% and 0.1% of total expenses in 2015.

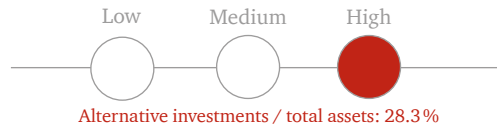
\*Taken as a proxy for foreign investments  
\*\* Sunsuper has six diversified options in total

Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1987	501-1000	24.7bn	28.3%	0.00%	10.2%

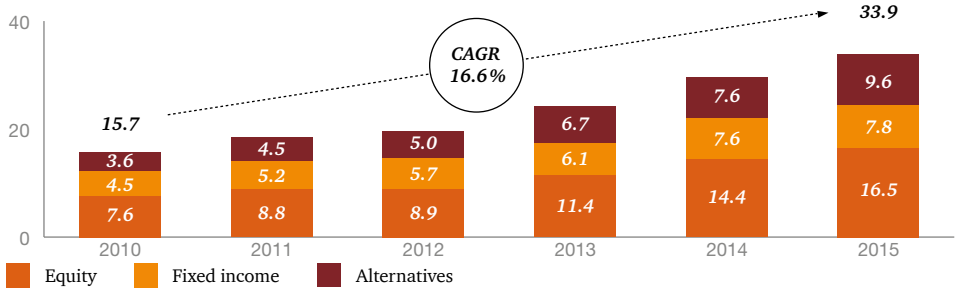
Source: LinkedIn

\* Based on AUD

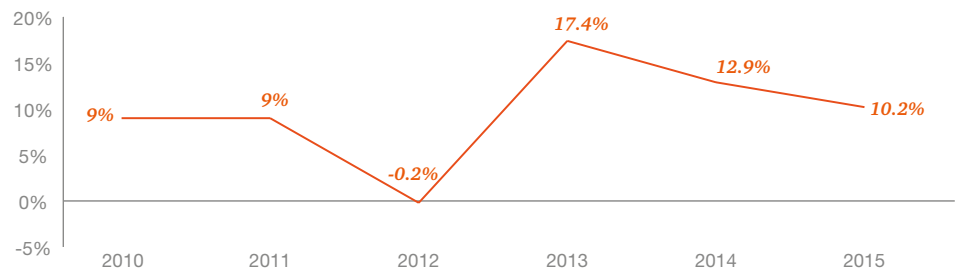
## Level of alternative exposure



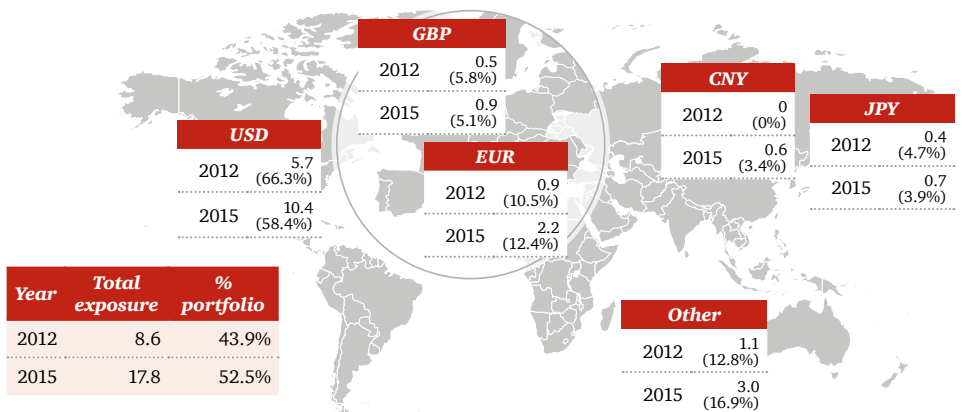
## Evolution of the investment portfolio by asset classes (in AUD bn)



## Evolution of return for the default option (Balanced)



## Currency exposure (2015 vs. 2012, gross exposure in AUD bn)



Note: Amounts above refer to gross investments denominated in foreign currency before hedging.

## Executive remuneration schemes in 2015 (in AUD)

2015	Salary	Variable remuneration	Other	Total remuneration	Total remuneration / Total expenses
CEO	521,276 (62.7%)	193,343 (23.2%)	116,523 (14.1%)	831,142	0.03%
Executives (excl. CEO)	2,506,048 (67.2%)	706,942 (19.0%)	514,228 (13.8%)	3,727,218	0.1%
Directors	343,176 (64.7%)	0 (0%)	185,943 (35.3%)	526,119	0.02%

Note: Other remuneration refers to fringe and superannuation benefits, variable remuneration corresponds to incentive and bonus plans.  
Source: Sunsuper Annual reports 2010-2015.



## Alternative Focus

Alternative assets such as hedge funds and unlisted assets allow Sunsuper to construct portfolios that tend to exhibit smaller fluctuations in returns over the short term, without compromising long-term expected returns. Sunsuper's asset allocation to alternatives increased over the last five years, from 22.7% in 2010 to 28.3% in 2015, ahead of fixed income investments.

Despite difficult financial market conditions, property transactions remain relatively strong as institutional investors seek out high quality core property. Sunsuper continues to seek yielding assets and Australia remains one of the more attractive locations for commercial property from a return perspective.

Concerning infrastructure, Europe continues to provide strong deal flow across the transport, energy and communication sectors. While it is difficult to find core infrastructure assets in North America, Sunsuper's current opportunities remain concentrated in the energy sector and power generation assets.

### Recent developments regarding alternatives investments

In 2014, Sunsuper acquired a 98% stake in the nationwide holiday park chain, Discovery Holiday Parks. This long-term investment aims at growing Sunsuper's alternative business and provide long-term benefits for its members.

In 2015, Sunsuper undertook a venture in order to grow its property portfolio in the Sydney market and provide development opportunities for the community in that region.

## Outsourcing Focus

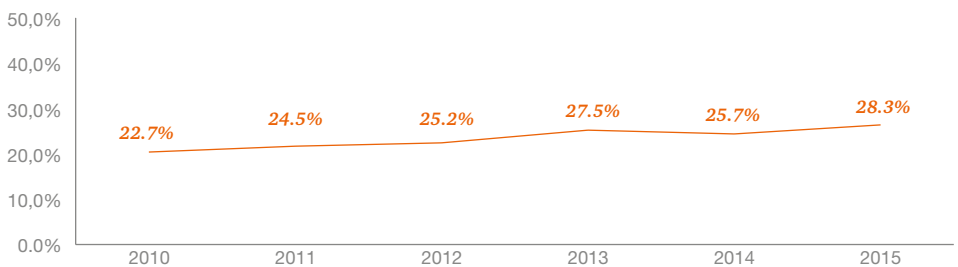
Sunsuper has established a panel of accredited external asset managers in order to invest in various vehicles on its behalf.

The biggest number of external asset managers was hired to invest in hedge funds (15 investment managers in 2015), followed by external managers brought in to focus on international shares and property (12 investment managers each).

Most external managers have been hired to invest in alternative investments (hedge funds, property, infrastructure and private capital).

Sources: Sunsuper Annual reports 2010-2015

## Evolution of asset allocation to alternatives between 2010 and 2015



## Recent developments regarding alternatives investments

### 2014

#### Discovery Holiday Parks

Sunsuper acquired a significant majority stake in the business from fellow shareholders including Next Capital, Allegro Funds and Macquarie Funds.

Discovery Holiday Parks is the largest owner and operator of holiday park accommodation and a major provider of workforce and corporate accommodation, with a portfolio of 31 parks across all states of Australia.

Acquisition for AUD 240 million

### 2015

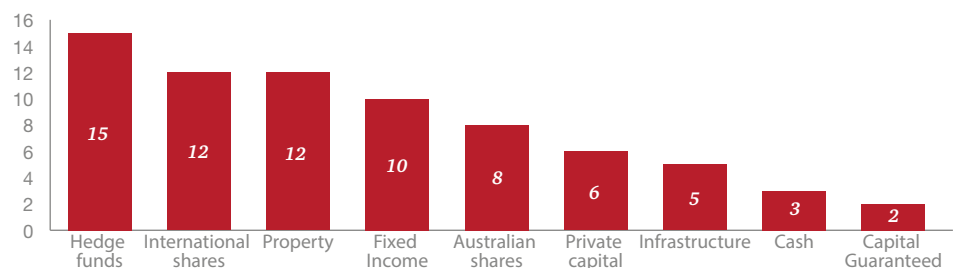
#### Australian Technology Park (ATP)

Sunsuper owns one-third interest

ATP will revitalize the existing technology precinct through the development of approximately 93,000 square meters of office space, in addition to 3,000 square meters of amenities, including a gymnasium, retail outlets, childcare and a multipurpose community space.

Acquisition for AUD 263 million

## Number of external asset managers by asset class in 2015



Sources: Sunsuper Annual reports 2010-2015

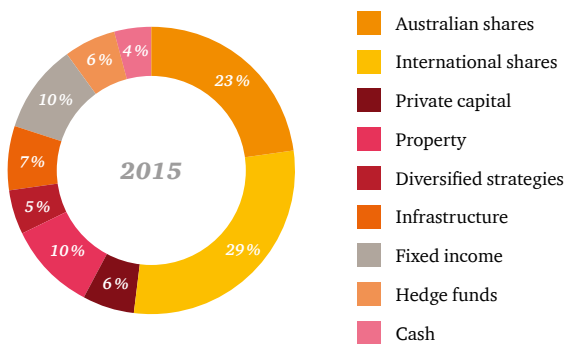


## 1) Investment strategy

Sunsuper offers 21 investment options. There are six diversified options, 13 single asset class options and two special options “having some features that set them apart from the other options”. The investment method is largely determined by how actively involved members want to be, their investment expertise, and whether or not they use a financial planner.

Sunsuper offers investment options using either active management, index management or a combination of the two. The Fund’s main investment strategies include the implementation of an investment manager configuration for each investment option as well the practice of keeping sufficient liquid assets to pay all benefit and expense obligations in full when due. Sunsuper discloses strategic asset allocations for each of its investment options based on its economic outlook and the financial markets.

### Strategic asset allocation as at July 2015 (Balanced pool)



### Corporate Governance

The Board is responsible for the overall governance and strategic direction of Sunsuper. The Fund has established an Investment Committee whose role is to review, monitor and make recommendations to the Board regarding the construction of the investment options and the investment managers used to invest and manage the assets of the Fund.

## 2) Outsourcing of portfolio management

Sunsuper contracts external investment professionals with specialized skills to manage its investments. The Fund is committed to ensuring investment managers have appropriate internal control, risk management, compliance and corporate governance practices in place. Consequently, Sunsuper has implemented a program that periodically seeks information and assurances from its investment managers. In addition, advice is provided to the Investment Committee by independent consultants to assist with the compliance and audit of the investment managers’ processes.

Sunsuper’s investments, other than cash held for meeting administrative and benefit expenses and certain other cash held on term deposit with Australian banks, are mostly managed on behalf of the Fund by specialist sector fund managers.

Sources: Sunsuper Annual reports 2010-2015

## 3) In-house portfolio management

In 2015, AUD 1,919 million was managed in-house and AUD 6,205 million by the wholly owned Sunsuper Pooled Superannuation Trust.

Sunsuper constructs options using a multi-manager approach. Multi-manager options use a combination of investment managers (in-house and external) within one investment option, providing diversification across investment managers and reducing the risk exposure to any investment manager.

### Fees and performance assessment

Investment fees (no difference is made for in-house and external managers) are disclosed for each investment option, comprised of a base fee and a performance fee, when applicable. Base fees for the diversified options range between 0.16% p.a. (Balanced-Index) and 0.54% p.a. (Growth) with performance fees between 0.14% p.a. (Conservative) and 0.21% p.a. (Growth).

Performance fees are paid out if investment managers outperform their performance targets. If an investment manager who has the potential to earn a fee for performance, underperforms its target, it must overcome its underperformance in subsequent periods before another performance fee can be earned.

## 4) Risk framework

Sunsuper uses the Standard Risk Measure to describe the risk that applies to each of the Fund’s investment options. Each option is assigned a risk band and a risk label based on the expected number of years of negative returns over any 20-year period.

The Board, together with its Committees and Executive Management teams, is responsible for implementing a strong risk-aware and control-conscious culture throughout Sunsuper, so that material risks, conflicts of interest and potential problems that emerge can be identified, managed and promptly resolved in the normal course of business operations and in the best interest of Sunsuper’s beneficiaries.

## 5) Responsible investing and ESG

Sunsuper encourages its investment managers to consider ESG factors, labour standards and ethical considerations and gives them the flexibility to determine the extent of these considerations in their investment decisions. Sunsuper excludes investments in tobacco manufacturing and in companies that develop, produce or otherwise acquire cluster munitions.

Sunsuper’s only certified Socially Responsible Investments (SRI) option is offered through a special Ethical, Environmental and SRI option. As such, investment managers are required to avoid companies operating within sectors with recognized high negative social impact, which means the option will avoid exposure to companies with material exposure to the production or manufacture of alcohol, armaments, gambling, pornography and nuclear power (including uranium).

Currently, this option does not take environmental, social and governance (ESG) considerations into account in respect of its listed property and cash. Where it is appropriate for the asset class, the Ethical, Environmental and Socially Responsible Investments option will invest in a sector on an index basis if an SRI equivalent is not available.

Sources: Sunsuper Annual reports 2010-2015

# Cbus Super



## Quick facts

The Cbus Super, created in 1984, is the leading Industry Super Fund for the building, construction and allied industries. It provides superannuation and income stream accounts to more than 723,000 workers.

Cbus is the custodian of more than 720,000 Australians' deferred savings and more than 5,000 Australians' income needs.

Cbus has expanded the investment options to provide more choice for members who want greater control over managing their own investments through the introduction of Cbus Self Managed, available to eligible Cbus members as from September 2014.

## Evolution of total assets

Cbus Super is a significant investor in the Australian economy. The fund's total assets grew at a CAGR of 17.2% between 2010 and 2015 reaching over AUD 32.0bn (USD 23.3bn) in 2015. Besides the challenging economic environment, Cbus has performed strongly in recent years, achieving good investment results.

## Evolution of asset allocation

Cbus Super's asset allocation has changed slightly over the last five years.

While Equity decreased from 50.7% of assets invested in 2010 to 47.2% in 2015, Fixed Income increased from 13.2% to 21.3% during the same period. The share of assets invested in Alternatives decreased from 36.1% in 2010 to 31.6% of total investments in 2015.

## Total return

Cbus MySuper option, the Fund's default option, returned 10.1% in 2015.

Following a low performance in 2012 (1.6%) as a result of negative Australian stock market performance, the option experienced its highest return over the last five years (16.2% in 2013).

## Currency exposure\*

The fund holds both monetary and non-monetary assets denominated in currencies other than AUD. In 2015, Cbus had a currency exposure of AUD 8.4bn, corresponding to 26.3% of total investments, up from AUD 1.6bn in 2010 (11.1%). The biggest exposure of Cbus is to USD with AUD 4.8bn invested in USD.

## Remuneration scheme

Cbus does not pay bonuses or performance-based incentives to Directors or the CEO. This is clearly shown by the fact that 90.9% of the CEO's remuneration and 91.4% of the Directors' remuneration was composed of fixed salary in 2015. The other 9.1% for the CEO and 8.6% for Directors' remuneration came from Cbus Super benefits.

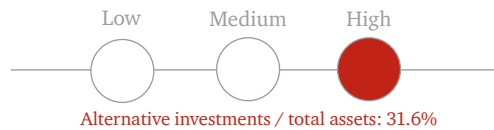
In total, executive remuneration represented between 0.1% and 0.2% of total expenses in 2015.

\* Taken as a proxy for foreign investments  
Sources: Cbus Super Annual reports 2010-2015

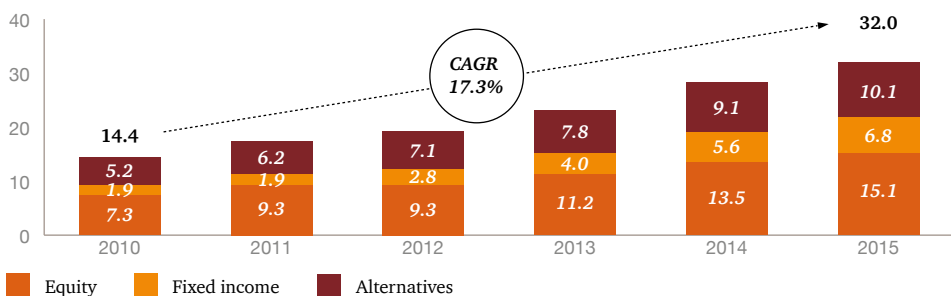
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1984	143	23.3	31.6%	0.6%	10.1%

\* Based on national currency

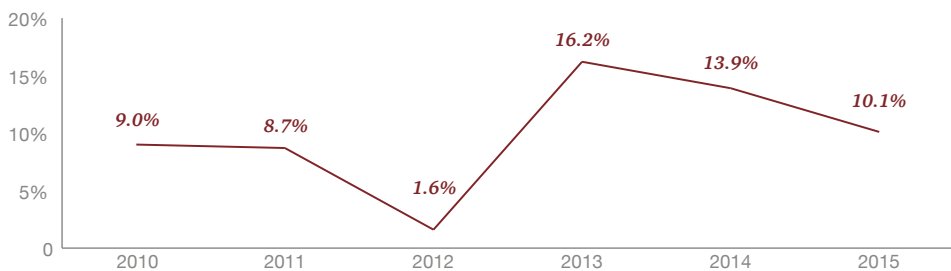
## Level of alternative exposure



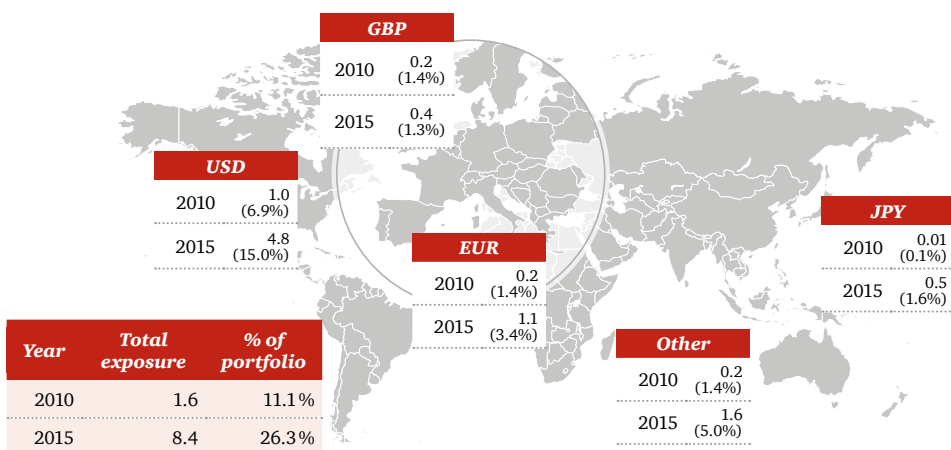
## Evolution of total assets by asset class (in AUD bn)



## Evolution of returns of MySuper option



## Currency exposure before hedging (2010 vs. 2015, AUD bn)



## Remuneration schemes in 2015 (AUD)

Year	Salary	Variable remuneration*	Other**	Total remuneration	Total remuneration in percentage of total expenses
2015	581,399 (90.9%)	0 (0%)	58,193 (9.1%)	639,592	0.1%
2015	1,225,749 (91.4%)	0 (0%)	115,641 (8.6%)	1,341,389	0.2%

\* Variable remuneration corresponds to incentive pay, other remuneration includes superannuation and other benefits.  
Sources: Cbus Super Annual reports 2010-2015.



## Alternative Focus

Cbus Super invested about 31.6% of its total investments in Alternative assets in 2015. Within Alternatives, the fund invests in Real Estate (40.0%), Infrastructure (31.0%), Private Equity (19.0%), and in Opportunistic growth (10.0%), as of 2015.

The Opportunistic growth portfolio was integrated into the Alternatives investments portfolio in 2014. Accordingly, the allocation for all alternative asset classes decreased between 2010 and 2015.

### Real Estate

In 2015, the Real Estate portfolio's market value reached AUD 4bn or 12.4% of the total fund. It delivered a total return of 21.2%.

Cbus Property, a wholly owned subsidiary of Cbus, is responsible for the development and management of Cbus' direct Real Estate investments. Since its inception in 2005, Cbus Property has returned an annual average return of 14.6%, in excess of AUD 1bn of profits to members. The major successes of 2015 include the completion of 313 Spencer Street, Melbourne, with Victoria Police tenating the building in March 2015; the pre-sale of 116 (out of 123) apartments at Milsons Point; and the purchase of a full block in Collingwood.

### Infrastructure

The Infrastructure investments portfolio's market value in 2015 was AUD 3.1bn or 9.8% of the total fund. 100% of the portfolio is managed by external managers.

### Private Equity

The Private Equity investment portfolio's market value in 2015 was AUD 1.9bn or 5.9% of the total fund. Private Equity investments are divided into two major areas: the Australian Private Equity portfolio, which represents 36.8% and the International Private Equity portfolio, representing the remaining 63.2%.

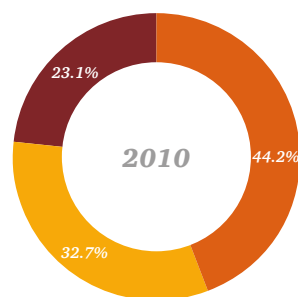
## Outsourcing Focus

Cbus Super invests around 97% of the fund's assets through external investment managers. Cbus Super's alternative assets are fully managed externally, including Cbus Property. Using this separation structure allows the fund to specialize in certain areas, or to utilize the best expertise and knowledge in the marketplace.

Over the last five years, Cbus investment managers' expenses increased by 148%, from AUD 34.7mn in 2010 to AUD 86.2mn in 2015. This vast increase can be attributed to the rapid growth of the fund's assets.

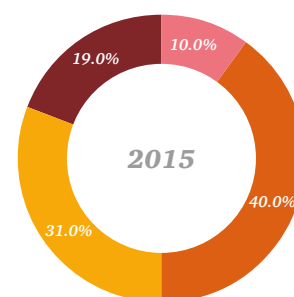
Sources: Cbus Super Annual reports 2015

## Alternative assets by type



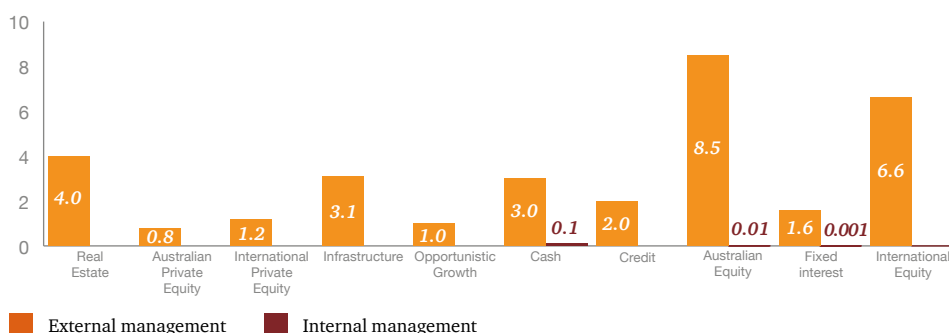
Real Estate Private Equity  
Infrastructure

## Alternative assets by type

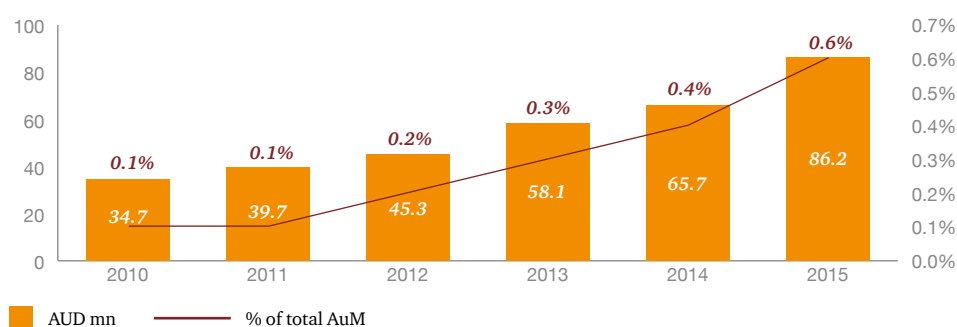


Real Estate Private Equity  
Infrastructure Opportunistic growth

## External/Internal management by selected asset classes (in 2015, AUD bn)



## Evolution of investment managers' expenses



Sources: Cbus Super Annual reports 2015





## 1) Investment strategy

### Corporate Governance

Cbus is governed by a Trustee Board comprised of a chair nominated by the Australian Council of Trade Unions and confirmed by at least two-thirds of the board, an independent director and equal numbers of directors nominated by trade unions and employer organizations from the building and construction industry.

The Trustee has management and control of all matters related to Cbus, including the wholly-owned manager Cbus Property.

Under the guidance of the Trustee Board, the CEO, Executive and fund staff are responsible for the day-to-day management of Cbus.

The Board's key objective is to ensure that it continues to meet its roles and responsibilities as outlined in the Board Charter. The Board will be assessed against the objectives on an annual basis.

Management is charged with the day to day operations of the Fund and implementation of the agreed upon strategic direction and objectives of the fund. The CEO reports to the Board, appoints the Executive management team and provides leadership to the Executive management team and fund staff. The CEO is responsible for the performance of the fund's Board-approved business plan.

### Investment objectives

Cbus has an absolute return focus, meaning that its objective is to meet investment risk and return objectives without being constrained by what its peers are doing. It targets a return above inflation to reduce the risk of members' savings being eroded by inflation.

Cbus's investment strategy is based on the following framework:

- *Maximize sustainable net investment returns* by enhancing capacity to manage the portfolio in a more granular way;
- *Provide value for money* by implementing Super Stream compliant payment system to support employers' needs and reducing investment costs by 14%;
- *Help members make good financial decisions* by introducing retirement income estimates to enable them to better understand and plan for their retirement;
- *Deliver products and services that meet members' and employers' needs* by developing a channel strategy that supports the understanding of these needs;
- *Retain members and grow the fund* by introducing strategies to engage white collar workers and employers and boost blue collar membership;
- *Enhance and protect the brand (including Cbus Property)* by optimizing brand awareness through contributions to the The New Daily;
- *Build sponsoring organization relationships and strategic partnerships* by delivering a range of member health initiatives and positioning Cbus as the leading fund for the wider building and construction industry.

## 2) Outsourcing of portfolio management

Cbus Super uses Australian and international investment managers. Each investment manager is responsible for a specified amount of the fund assets.

Assets are managed in accordance with a mandate that is agreed upon by the manager and the Trustee in consultation with the fund's investment advisor. The Trustee monitors the performance of each investment manager closely throughout the year and compares it with industry benchmarks.

Sources: Cbus Super Annual reports 2010-2015

## 3) In-house portfolio management

Cbus manages only 3% of its assets in-house. However, it spends a great deal of effort to manage the external managers and track their performance.

## 4) Risk framework

A risk for Cbus is the sustainability of returns over time. At a global level, the problem of elevated debt levels remains unresolved and there is uncertainty about how investment markets will respond to the withdrawal of stimulatory policies by central banks. Such policies have generated only moderate growth but have boosted asset prices across shares, Real Estate and Infrastructure. They have also brought forward returns so that, as central banks adopt a more normal policy stance, more moderate returns are expected over the next few years.

Cbus acknowledged that the past five years have seen very strong markets, but the investment environment has changed and it may be difficult to sustain these high levels of return without taking on more investment risk.

As Cbus grows larger, another risk is the decreasing ability to invest in some strategies due to size constraints. For example, Cbus is reaching some of its fund managers' capacity limits for new funding. With the support of its asset consultant, Frontier Advisors, Cbus is researching how it can invest more directly into some types of assets (e.g. Infrastructure) and seeks different ways to access returns at lower level of risk, where capacity constraints are not a barrier.

Policy uncertainty associated with environmental risk, such as climate change, also makes it more difficult to assess value in certain sectors of the economy.

## 5) Responsible investing and ESG

Cbus has a policy of active engagement with companies regarding environmental, social and governance (ESG) issues. These collaborative initiatives include being a signatory to the Principals of Responsible Investment and membership of the Investor Group on climate change.

Over the past 12 months, Cbus has engaged with more than 100 companies in various ways: directly, through its membership with the Australia Council of Superannuation Investors (ACSI), and via its external fund managers.

ACSI had three areas of focus over the past year:

- Labour and human rights risk in the supply chains of consumer discretionary stocks;
- Corporate governance; and
- Carbon asset risk.

# Canada Pension Plan Investment Board (CPPIB)



## Quick facts

The Canada Pension Plan, created by an act of parliament in 1997, is an investment management organization accountable to Parliament and the Federal and Finance Ministers, but it is governed independently. It aims at paying pensions to its retired affiliated people.

## Evolution of total assets

Canada Pension Plan's total net assets have grown at a CAGR of 15.7% between 2010 and 2015 reaching over CAD 264.8bn (USD 190.6bn). This performance is due to a resilient portfolio that is diversified across geographies and a mix of public and private classes.

## Evolution of asset allocation

Canada Pension Plan asset allocation has remained relatively stable over the last five years; 32.6% was invested in Fixed Income in 2015, compared to 31.6% in 2010. The Equities assets, including public Canadian equities, public foreign market Equities and public foreign development market equities, decreased from 43.2% in 2010 to 31.7% in 2015. The share of assets invested in Alternatives investments increased from 22.6% in 2010 to 35.8% of total investments in 2015.

## Total return

The total return on Canada pension plan investments amounted to 18.3% in 2015. The Alternative investments portfolio posted a return of 8.2% in 2015. The Real Estate portfolio, including in alternative investments, posted a return of 14.6%, slightly underperforming the benchmark (15.1%) in 2015. The Fixed Income portfolio saw a return of 4.2% in 2015—four times more than 2014 (1.1%), and the Equity portfolio brought a return of 6.4% in 2015. The low performance achieved in 2012 is explained by negative returns on the Canadian share market during that year.

## Geographic allocation

The assets are mostly allocated in North America with 38% (CAD 100.7bn) in the US and 24.1% (CAD 63.8bn) in Canada in 2015. Europe is the third most important destination with 16.7% (CAD 44.3bn) of assets. International assets represent 75.9% of the overall investment portfolio and totaled CAD 201.0bn in 2015.

## Remuneration scheme

Total remuneration in % of operating expenses ranged from 0.5% for CEOs to 0.1% for the board members in 2015. The variable salary is composed of STIP Annual Individual Objectives, STIP Investment Component target awards and a long-term incentive plan. The two first are set as a percentage of salary, to which a multiplier is applied. The multiplier is based on individual and actual investment performances.

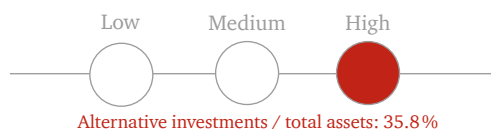
The long-term incentive plan is also an award set as a percentage of salary.

Sources: Canada Pension Plan Annual reports 2010-2015

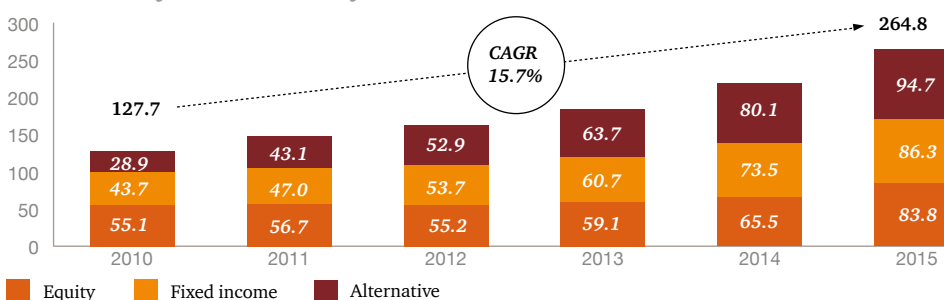
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1997	1,157	190.6	35.8%	0.5%	18.3%

\* Based on national currency

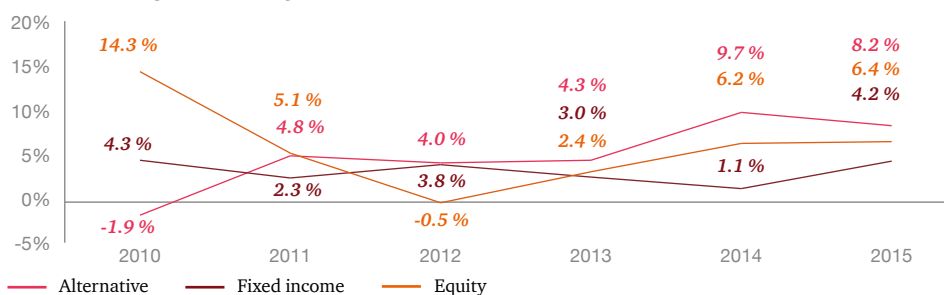
## Level of alternative exposure



## Evolution of total assets by asset class (in CAD bn)

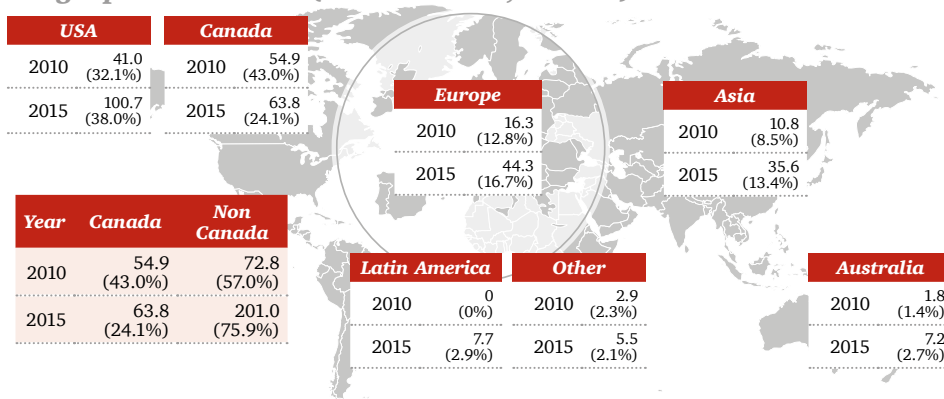


## Evolution of return by asset class



Note: Returns were estimated based on a weighted average of returns disclosed in the annual reports for each sub-asset classes.

## Geographic allocation (2010 vs. 2015, CAD bn)



## Executive remuneration schemes in 2015 (CAD thousands)

	2015	Salary	Variable	Other	Total remuneration	Remuneration/Operating expenses
CEO	515	(14.0%)	3,095 (84.0%)	75 (2.0%)	3,685	0.5%
SMD and CFO	348	(15.3%)	1,876 (82.6%)	48 (2.1%)	2,271	0.3%
SMD, Global Head Public Market Inv.	375	(10.5%)	3,129 (87.7%)	62 (1.7%)	3,566	0.4%
SMD, Global Head RE Inv.	368	(10.6%)	3,053 (87.9%)	52 (1.5%)	3,472	0.4%
SMD, Head of International	629	(18.4%)	2,513 (73.6%)	271 (7.9%)	3,412	0.4%
SMD, Chief Inv. Strategist	350	(11.7%)	2,606 (86.8%)	45 (1.5%)	3,001	0.4%
Board members	1,070	(100.0%)	0 (0%)	0 (0%)	1,070	0.1%

Sources: Canada Pension Plan Annual reports 2010-2015



# Canada Pension Plan Investment Board (CPPIB)



## Alternative Focus

Ontario Teacher's invested about 35.8% of its total investments in Alternative assets in 2015.

The whole investment portfolio is divided between three departments: The Public Market (CAD 157.2bn), the Private Market (CAD 73.4bn) and the Real Estate Market (CAD 34.2bn). The Alternative investments portfolio is managed by the last two and is composed of both assets managed by the Private and Real Estate Investments departments excluding Fixed Income.

### Private Investments

The Private Investments portfolio stands at a market value of CAD 73.4 or 27.8% of the total fund, as of 2015. It is composed of CAD 8.9bn of investment in Fixed Income, CAD 15.2bn in Infrastructure and CAD 49.2bn in Private Equity. The performance of the portfolio has been shaped by two key factors: the Private Equity market has seen high asset valuations driven by strong public equity markets and competition for quality assets has been intense.

These market conditions provided attractive exit opportunities for the Direct Equity team, resulting in successful realizations in some investments, like Air Distribution Technologies.

The Infrastructure portfolio focuses its investment on well-established brownfield infrastructure assets including greenfields and renewable energy.

### Real Estate

The Real Estate portfolio stands at a market value of CAD 34.2bn or 12.9% of the total fund, as of 2015. The largest holdings of this portfolio are investments in Retail (30%), Office (25%), Industrial (12%). The global real estate landscape has changed dramatically over the past decade resulting in abundant liquidity, coupled with a low interest rate environment, which has driven pricing to historically high levels. While capital market conditions remain robust, economic outlook and, in turn, the outlook for Real Estate fundamentals remains disparate across the globe. These mixed economic signals coupled with robust asset values have resulted in a more challenging investment environment in 2015.

## Outsourcing Focus

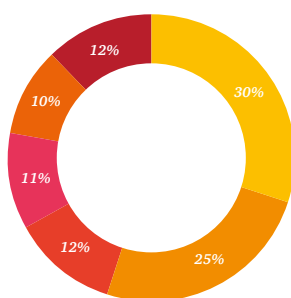
Due to the fund's large size, the plan uses external managers to augment its internal programs and build scale. Management fees paid to external asset managers amounted to CAD 1,254 million in 2015 compared to CAD 947 million in 2014. The fee increase was due in part to the continued growth in the level of commitments and assets deployed to external managers. Higher management fees also included higher performance fees paid to external managers for the strong investment performance they delivered in excess of benchmark returns.

Source: Canada Pension Plan Annual report 2015

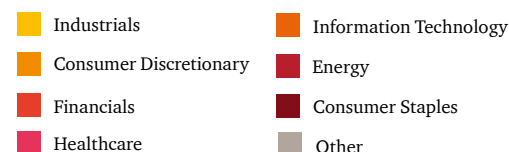
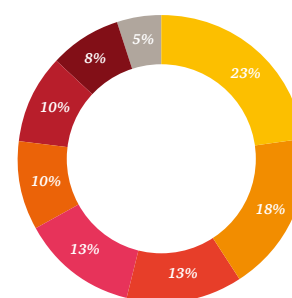
## Composition of net investments by department and asset class in 2015 (CAD bn)

Asset class / Department	Public Market Investments	Private Investments	Real Estate Investments	Total
Equities	83.8	49.2	-	133.0
Fixed Income	73.5	8.9	3.8	86.2
Real Assets	-	15.2	30.3	45.5
<b>Total</b>	<b>157.2</b>	<b>73.4</b>	<b>34.2</b>	<b>264.8</b>

### Real Estate Investments Portfolio



### Private Investments Portfolio



## Major transaction in the infrastructure portfolio in 2015

**Agreement to acquire a 33% stake (GBP 1.6bn) in Associated British Ports**

**A CAD 525M commitment to build and operate a new tunnel motorway in Sydney**

**First direct investment in India of USD 332M, commitment in Larsen & Tourbo infrastructure Development Projects Limited**

**Acquisition of 39% stake in Interparking SA, one of Europa's largest car park operators, for EUR 376M**

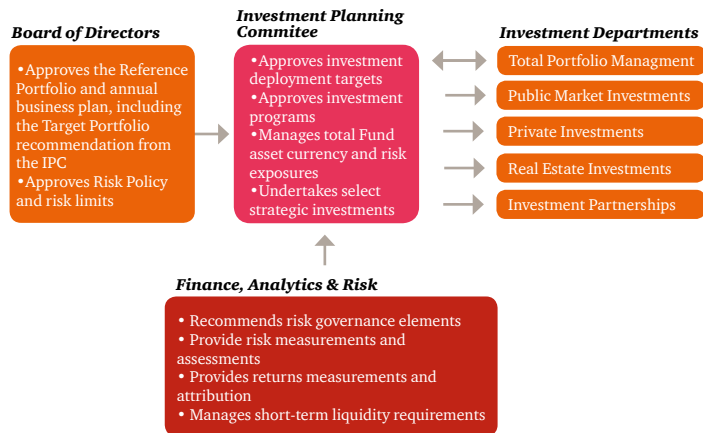
Source: Canada Pension Plan Annual report 2015



# Canada Pension Plan Investment Board (CPPIB)

## 1) Investment strategy

### Corporate Governance



### Investment objectives

The Plan is governed by the Canada Pension Plan Investment Board Act, which directs it to invest with a view to achieving a maximum rate of return, without undue risk of loss, having regard to the factors that may affect the funding. The Act sets no specific investment requirements. There are no geographic, economic development, or social limitations.

To maintain the public's trust, the plan operates in an accountable and highly transparent way, which includes:

- Continuous disclosure of investment activities;
- Timely reporting of the performance results; and
- Full compliance with all negative requirements, such as public meetings every two years.

The plan has developed a strategy for alternatives investments as follows:

- **Natural resources:** The team focuses on direct private investments in the oil and gas, power, and metals and mining industries. The team invests directly in companies, strategic partnerships and direct resource interests with an investment size of CAD 500M or more.
- **Infrastructure:** The team invests globally in significant private and public-to-private infrastructure assets that have stable long-term returns, strong regulatory elements and minimal substitution risk. These opportunities include essential electricity, water, gas and communications infrastructure, toll roads, bridges, tunnels, airports and ports. The group also considers investments in more competitive assets if they possess a significant level of contracted revenues.
- **Real Estate:** The mandate of Real Estate Investments (REI) is to build and manage a portfolio of property investments that delivers stable and growing income to the fund. The team focuses on well-located, high quality assets managed by experienced local operating partners. Real Estate offers stable income streams that rise with inflation over the long term, and asset values that likewise grow over time. As such, it provides diversification benefits to the fund, as it has a relatively low correlation with other asset classes such as Equities and Bonds, and helps cushion the fund against market business-cycle volatility.

## 2) Outsourcing of portfolio management

External Portfolio Management ("EPM") maintains a portfolio of externally-managed funds and separate accounts that complement CPPIB's internal public market investment programs.

EPM has relationships with nearly 60 top global asset managers whose mandates cover equities, credit, interest rates, currencies and commodities. Each of the partnerships with asset managers is based on a long-term horizon.

## 3) In-house portfolio management

The large size of the plan allows it to maintain expert internal teams to manage large parts of the CPP Fund. This has two main benefits:

- First, it lowers management costs.
- The second benefit comes from the depth of expertise brought to

investments and strategies:

- All groups in the Public Market investments department have specialized trading structuring capabilities designed specifically for the plan's programs.
- The external portfolio management group has the experience and knowledge needed to evaluate the flow of emerging strategies and managers.
- The relationship investments team brings the management experiences needed to contribute in a major way to the corporate growth and operational strategies of carefully selected companies in which the Plan takes a substantial stake.
- The professionals in the Real Estate Investments and Private Investments departments give the Plan the ability to access and engage with expert partners in private markets.

## 4) Risk framework

The Plan's activities expose it to a broad range of risks in addition to investments risks. All risks are managed within an Enterprise Risk Management (ERM) framework with the goal of ensuring that the risks taken are rewarded by long-term benefits.

The Plan has developed a framework of five principal risks categories and risk management strategies:



To manage those risks, the Plan set up several actions :

- For the strategic risk, important processes are set up to control and mitigate this risk (Quarterly and Annual reviews, Quarterly reporting, business planning)
- For the investment risk, a risk committee was created to oversee the risk exposure with regular reporting on assets, investment income and returns, risk measures and stress testing results.
- For the legislative and regulatory risk, a compliance program is designed to promote adherence to regulatory obligations worldwide, and to help ensure awareness of the law and regulations that affect the Plan and the risk associated with failing to comply.
- For the operational risk, each member of the Senior Management Team (SMT) bears primary accountability for managing operational risks within their department. It is also managed through internal controls.
- For the reputation risk, the responsibility is extended to every employee and Director. This is clearly detailed and communicated through the Code of Conduct and Guiding Principals of Integrity.

## 5) Responsible investing and ESG

The Sustainable Investing team works with investment teams in Public Market Investments, Private Investments and Real Estate Investments to ensure that ESG risks and opportunities are incorporated into the Plan's investment decision-making and asset management activities. Given CPPIB's singular mandate to pursue maximum investment returns without undue risk of loss, the Plan integrates ESG factors into the investment analysis alongside other investment considerations. Sustainable Investing facilitates ESG integration by working with investment teams across CPPIB to establish and refine ESG-related investment processes and by acting as an internal ESG domain expert resource providing analysis and advice.

Source: Canada Pension Plan Annual report 2015

# Caisse de dépôt et placement du Québec (CDPQ)



## Quick facts

Created in 1965, the Caisse de Dépôt et Placement du Québec (CDPQ or Caisse) is now one of the largest institutional fund managers in Canada and North America. CDPQ is also the leading Private Equity investor in Canada, and is one of the ten largest Real Estate asset managers in the world.

## Evolution of total assets

Today CDPQ invests in Private Equity, Real Estate, Fixed Income and Equity. The market value of the fund's investment portfolio was approximately CAD 248bn (USD 178.9bn) as of 2015; assets under management grew at a CAGR of 10.4% between 2010 and 2015.

## Evolution of asset allocation

CDPQ's asset allocation has remained relatively stable over the last five years with a proportionate evolution; 36.2% of assets were invested in Equity in 2010 compared to 36.9% in 2015. Fixed Income decreased slightly from 35.3% in 2010 to 33.7% in 2015. The share of assets invested in alternatives increased from 25.4% in 2010 to 26.6% in 2015.

## Total return

Total return of CDPQ's investments amounted to 9.1% in 2015 with a record net investment result of CAD 20.1bn. Equity investments contributed the most, generating CAD 10.1bn of net results. These are directly attributable to high returns on international Equity markets, which made a substantial contribution to total results of CAD 10.1bn for the Equity asset class. Inflation-sensitive investments generated favorable results in 2015 with CAD 6.9bn, made primarily by the Real Estate portfolio.

## Geographic allocation

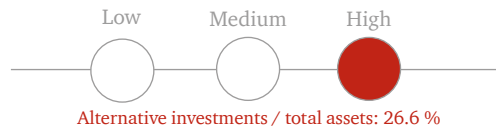
In addition to investing in Canada, the fund is very active on global markets with investments in a variety of asset classes. Over the past five years, it has grown its international exposure by over 15%. Today, 54% of CDPQ exposure is outside Canada and the United States has become a key market for CDPQ. In four years, the fund has invested as close as CAD 73.4 bn.

Sources: CDPQ Annual reports 2010-2015

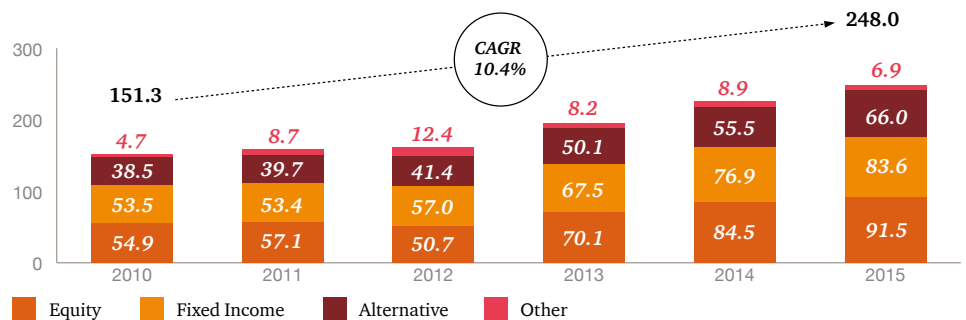
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1965	851	178.9	26.6%	0.01%	9.1%

\* Based on national currency

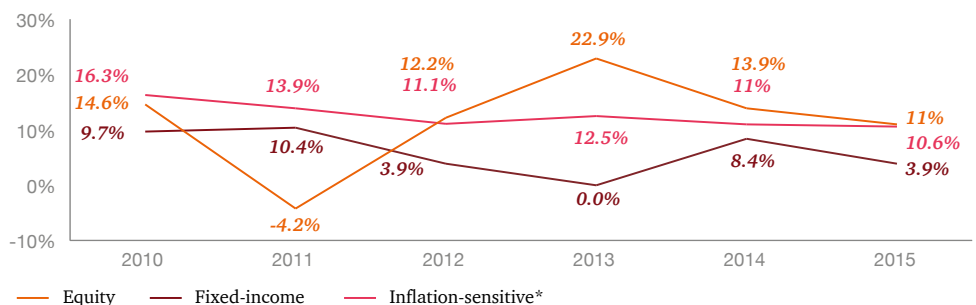
## Level of alternative exposure



## Evolution of total assets by asset class (in CAD bn)

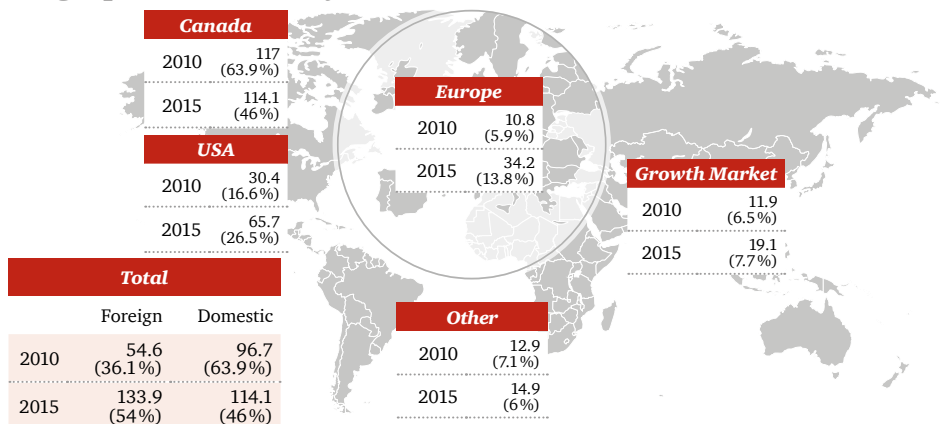


## Evolution of return by asset class



\*includes: Infrastructure, Real Estate and Real return bonds

## Geographic allocation of investment assets (2010 vs. 2015, in CAD bn)



## Executive remuneration schemes in 2015 (CAD thousands)

Main position	Maximum Compensation by law	For a superior performance	Direct compensation paid in 2015	Remuneration / Total expenses
President and CEO	5,485,000	4,113,750	2,601,020	0.65%
Chief Investment Officer	4,290,900	3,218,175	2,192,070	0.55%
Private Equity and Infrastructure	3,337,700	2,503,275	2,226,000	0.56%

Sources: CDPQ Annual reports 2010-2015

# Caisse de dépôt et placement du Québec (CDPQ)



## Alternative Focus

Alternatives are mainly composed of Private Equity and Real Estate which represent more than 80% of investments. Infrastructure represents about 19.6% of the portfolio.

The three less-liquid portfolios generated strong results with a combined annualized return of 12.4% over four years. Renewed volatility in the Equity markets and weaker-than-expected yields on the bond markets underscore the importance of this portfolio.

### Real Estate

CDPQ invests in quality buildings located mainly in key cities around the world, in equities and debt, as well as shopping centers, office buildings, multi-residential and logistics properties. The portfolio returned 13.1% in 2015. CDPQ's Real Estate portfolio has remained largely invested in Canada (46% of total Real Estate assets in 2015 versus 47% in 2010) over the last five years. While Growth markets represented 2% of the Real Estate portfolio in 2010, its share increased to 6% in 2015. On the other hand, Europe Real Estate investments decreased from 21% in 2010 to 14% in 2015. CDPQ refocused its Real Estate portfolio on Canada and the US, and tried to diversify this portfolio with new acquisitions in growth market countries, a strategy is designed to protect capital over the long-term. The fund had an exceptional year in 2015, completing CAD 18.2bn in transactions, including CAD 12.4bn in acquisitions and CAD 5.8bn in property sales. This focus on the US market allows the fund to take advantage of a strong trend.

### Infrastructure

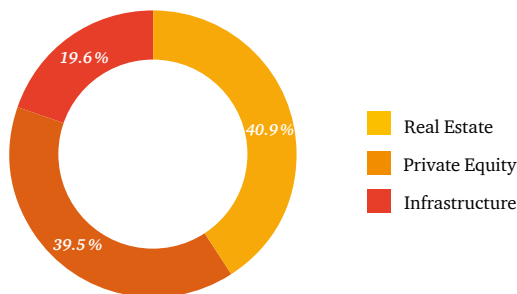
The fund's infrastructure portfolio has more than doubled, from CAD 5.8bn in assets at the end of 2011 to CAD 13.0bn at year-end 2015. This growth resulted in greater asset diversification, both geographically and by sector. The fund increased exposure in the US and Australia and, to a lesser extent, in growth markets. It also invested more in public service Infrastructure.

### Private Equity

In 2015, new Private Equity investments and commitments by CDPQ in Québec totaled close to CAD 610mn. The Private Equity portfolio's composition has changed to focus more on direct investments and less on funds. The portfolio's weighting in funds, therefore, fell from 68.0% in 2009 to 44.0% at the end of 2015. This decision was profitable because CDPQ's direct investments outperformed funds over the past four years, at 15.9% compared to 10.9%.

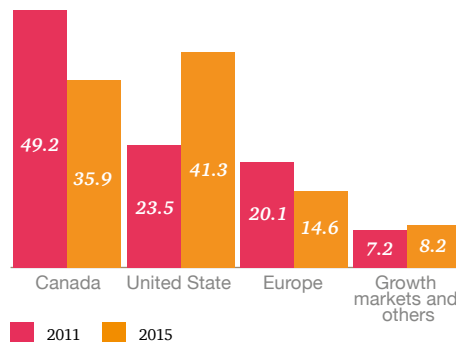
Sources: CDPQ Annual reports 2010-2015

## Asset Allocation within Alternative investments

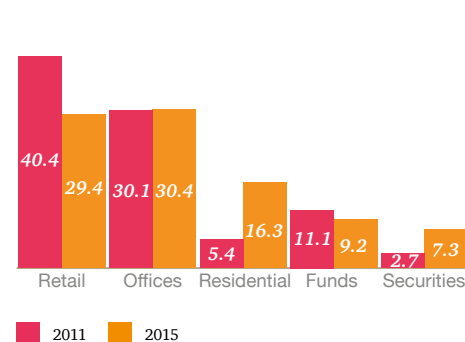


## Exposure – Real Estate

### By Geography

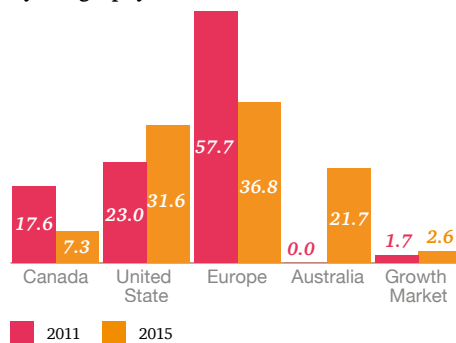


### By Sector

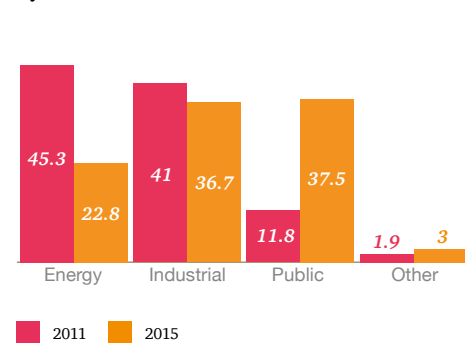


## Exposure – Infrastructure

### By Geography

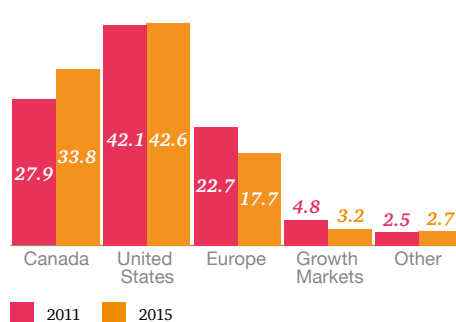


### By Sector



## Exposure – Private Equity

### By Geography



Sources: CDPQ Annual reports 2010-2015

# Caisse de dépôt et placement du Québec (CDPQ)



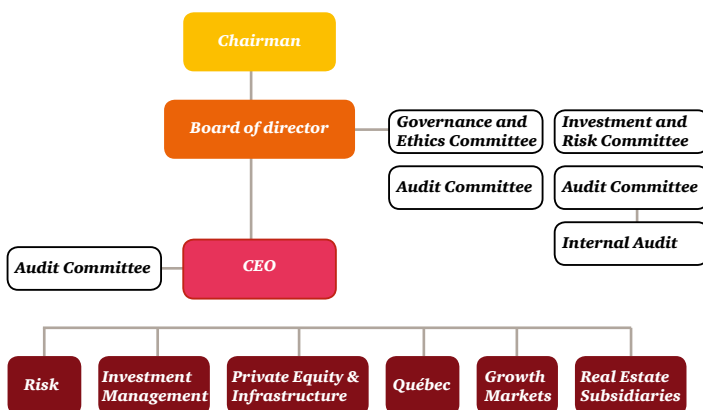
## 1) Investment strategy

CDPQ's investment strategy focuses on a benchmark-agnostic approach aimed at building portfolios based on strong convictions grounded in rigorous analysis, irrespective of benchmark indices. In 2015, the fund undertook major initiatives and decided to increase the portion of assets under management on a benchmark-agnostic basis from 52% to 66%. CDPQ also carried out extensive work resulting in the consolidation of the Equity portfolios within a single specialized portfolio, to facilitate more transversal and agile management.

CDPQ continues to pursue a strategy of investing in tangible assets (Real Estate, Infrastructure and Private Equity), which generate more stable and predictable current yields over the long term.

### Corporate Governance

Organization Chart



## 2) Outsourcing of portfolio management

CDPQ has no extensive external management fees (amounts paid to external financial institutions to manage funds). These fees totaled CAD 27mn, or only CAD 14mn more than in 2014, mainly because of additional growth markets mandates awarded to external managers. Nevertheless, external management fees of CAD 27mn seem insignificant compared to the CAD 396mn CDPQ spent in operating expenses, of which external management fees represent only 6.8%.

## 3) In-house portfolio management

CDPQ has made the strategic choice to manage most of its investments internally. In fact, the asset manager has continued to pursue the strategic orientations previously adopted by the board. These orientations, intended to generate stable returns over the long term, are focused, on increased benchmark-agnostic management, investing in assets tied to the real economy, the impact of fund investment strategies in Québec, and CDPQ's increased footprint in growth markets, among other things. Accordingly, the board took decisions to:

- Regularly monitor the results and risks associated with the strategies, at each step in their deployment (alongside senior management);
- Review, with management, various economic and financial scenarios that may influence the evolution of CDPQ's strategy; and
- Review and approve the strategic priorities for 2016-2019 of each investment and administrative group at CDPQ, in keeping with the previous strategy.

### Corporate Governance

The incentive compensation program, introduced in 2010, recognizes consistent performance over a four-year period with incentive compensation, and allows a portion of this incentive compensation to be deferred into a co-investment account over a three-year period. This mechanism links the interests of officers and depositors by varying these amounts according to the absolute return generated for depositors.

Sources: CDPQ Annual reports 2010-2015

Incentive compensation is proportional to the returns delivered to depositors. This goal has four key components:

1. *Long-term focus*: compensate consistent performance over many years;
2. *Risk-return balance*: encourage measured risk-taking conducive to sustainable, long-term returns for depositors, taking into account their risk tolerance;
3. *Overall evaluation*: strike a balance between individual contribution, portfolio and CDPQ performance; and
4. *Emphasis on CDPQs overall perspective*: place greater emphasis on employees' contributions to CDPQ's strategic priorities and overall performance, with more focus on leadership and desired behaviors.

## 4) Risk framework

In 2015, CDPQ continued to implement its strategy of managing the greater part of its portfolio on a benchmark-agnostic basis while maintaining a level of absolute risk similar to that of its benchmark portfolio. Meanwhile, it further developed its strategic investment process and improved its governance structures.

Since 2013, the risk framework for the absolute risk has been based on the ratio of the overall portfolio's absolute risk relative to that of its benchmark portfolio. From the end of 2011 to the end of 2015, this ratio declined significantly, from 1.05% to 0.99%. After climbing to 1.11% in 2012, the ratio has consistently fallen, stabilizing at around 1.0% since mid-2014. Keeping the ratio close to this level demonstrates that CDPQ has generated added value without assuming more risk than for its benchmark portfolio.

## 5) Responsible investing and ESG

Integrating ESG criteria in the various asset classes is important because CDPQ is a long-term investor. When CDPQ makes an active management decision, these factors are reviewed as part of a comprehensive investment analysis.

For example, in 2015 CDPQ developed an analytical tool on carbon risk for its Equity portfolio. This tool highlights a company's vulnerability and resilience to the risks associated with climate change. Approximately 50 companies were specifically analyzed using this tool.

Sources: CDPQ Annual reports 2010-2015



# Ontario Teachers Pension Plan (OTPP)



## Quick facts

The Ontario Teachers' Pension Plan (OTPP) is Canada's largest single-profession pension plan. Created in 1917, it was administered by the Teachers' Superannuation Commission of Ontario until 1990, when the Ontario government established the Ontario Teachers' Pension Plan Board as an independent organization.

## Evolution of total assets

Ontario Teachers' total assets grew at a CAGR of 9.6% between 2010 and 2015, reaching over CAD 215.1bn (USD 154.8bn). Global diversification and direct investments were the primary performance factors of this increase of the assets.

## Evolution of asset allocation

Ontario Teachers' asset allocation have remained relatively stable over the last five years, with 36.0% of assets invested in Equity in 2015 compared to 34.9% in 2010. The share of assets invested in alternative investments also remained the same, with 23.6% in 2015 compared to 23.1% in 2010.

## Total return

The total return on Ontario Teachers' investments amounted to 13.0% in 2015, compared to a benchmark of 10.1% that year. The return primarily benefitted from rising property values (16.0% compared to 10.8% in 2014) including a positive return of 12.9% for real estate and 21.4% for infrastructure. Natural resources, while having a negative return, saw a significant increase in 2015.

## Geographic allocation

The assets are mostly allocated North America with 44% in Canada and 23% in the US in 2015. Assets invested in Canada jumped from 17% in 2010.

## Remuneration scheme

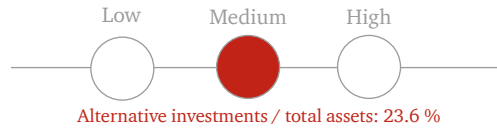
Total remuneration in % of total expenses ranged from 0.9% for the CEO to 0.2% to the Board in 2015. The variable salary is composed of an annual incentive (based on business and individual performance) and a long-term incentive plan (to reward participating employees for delivering total-fund net value added and positive actual returns over the long-term).

Sources: Ontario Teachers' Annual reports 2015 and web site.

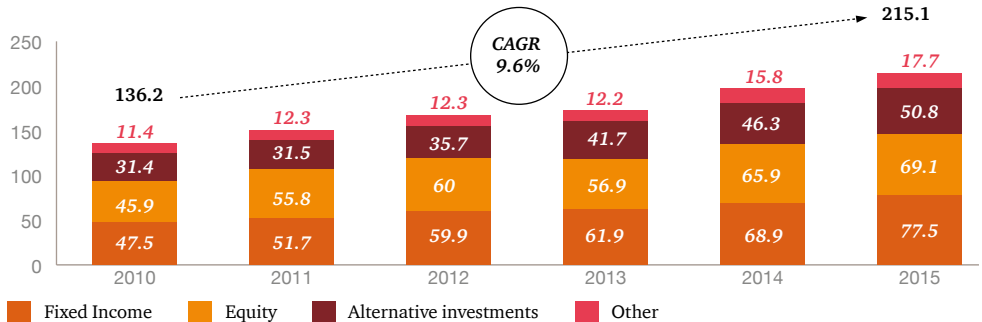
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1917	1.137	154.8	23.6%	N/A	13.0%

\* Based on national currency

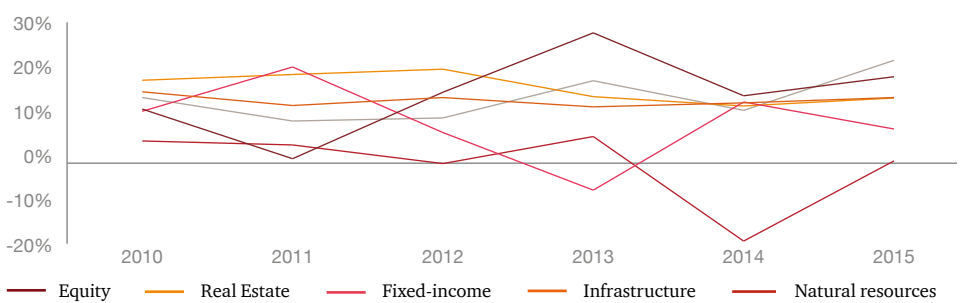
## Level of alternative exposure



## Evolution of total assets by asset class (in CAD bn)



## Evolution of return by asset class



## Geographic allocation (2010 vs. 2015, CAD bn)

Region	Year	Assets (CAD bn)	% of Total
Canada	2010	23.2	(17%)
	2015	94.6	(44%)
USA	2010	39.5	(29%)
	2015	49.5	(23%)
Europe	2010	40.9	(30%)
	2015	28.0	(13%)
Asia	2010	8.2	(6%)
	2015	17.2	(8%)
Latin America	2010	20.4	(15%)
	2015	6.5	(3%)
Other*	2010	2.7	(2%)
	2015	17.2	(8%)
Australia and NZ	2010	1.4	(1%)
	2015	2.2	(1%)

## Executive remuneration schemes in 2015 (CAD thousands)

2015	Salary	Variable	Other	Total remuneration	Remuneration / Total expenses
CEO	500 (0.1%)	3,838 (0.8%)	1 (0%)	4,339	0.9%
SVP and CFO	360 (0.1%)	1,111 (0.2%)	6 (0%)	1,477	0.3%
SVP, Private Capital	334 (0.1%)	2,550 (0.5%)	0.8 (0%)	2,884	0.6%
SVP, FI & AI	334 (0.1%)	2,481 (0.5%)	0.8 (0%)	2,815	0.6%
SVP, Mix & Risk	291 (0.1%)	2,343 (0.5%)	0.7 (0%)	2,635	0.6%
Board members	831 (0.2%)	0 (0%)	0 (0%)	831	0.2%

# Ontario Teachers Pension Plan (OTPP)



## Alternative Focus

Ontario Teachers invested about 23.6% of its total investments in Alternative assets in 2015. Within the alternatives, the fund invested in Real Estate (49%), Infrastructure (31%) and Natural Resources (20%).

### Real Estate

The Real Estate portfolio's market value reached CAD 24.9bn, 11.6% of the total fund, as of 2015. This portfolio holds Real Estate investments in Canadian Retail (61%), Canadian Office (25%), U.S. Investments (9%), Emerging Markets (4%) and Others (1%).

The return of Real Estate increased in 2015 (12.9%) compared to 2014 (11.1%). The increase reflected valuation growth in North American properties driven by income growth and strong demand for high-quality assets.

Strategically, these assets provide returns that are often related to changes in inflation and, therefore, hedge against the cost of paying inflation-protected pensions.

### Infrastructure

The infrastructure portfolio's market value reached CAD 15.7bn, 7.3% of the total fund, as of 2015. The fund holds investments in Transportation and Logistics (64%), Energy (20%) and Water (16%). Infrastructure is the asset class which showed the strongest return in 2015, with 21.4% compared to 10.1% in 2014. This performance is due to new investments and higher valuations for existing assets. The majority of infrastructure assets are held outside of Canada, principally in the UK, Europe, Chile, the US and Australia.

Ontario Teachers seeks to build an infrastructure portfolio which will steadily increase in value, provide predictable cash flow and correlate to inflation.

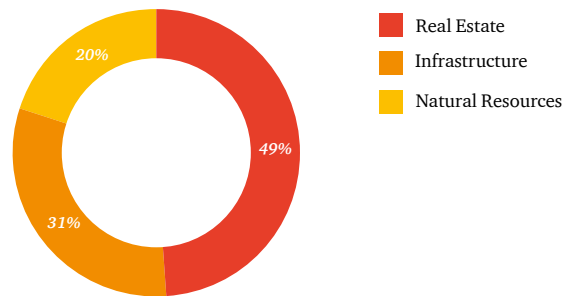
### Natural Resources

The Natural resources portfolio holds investments in Commodities (39%), Oil and Gas (31%), Timberland (26%) and Agriculture (4%).

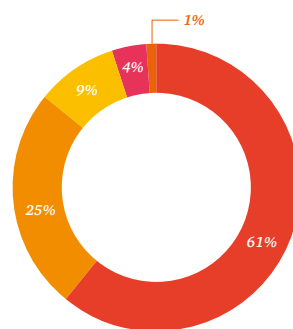
These assets provide the plan with superior risk-adjusted returns, diversification and protection against unexpectedly high inflation.

Sources: Ontario Teachers' Annual reports 2015 and web site.

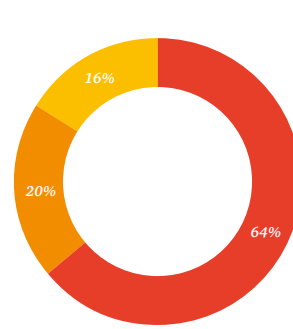
## Asset Allocation within Alternative investments



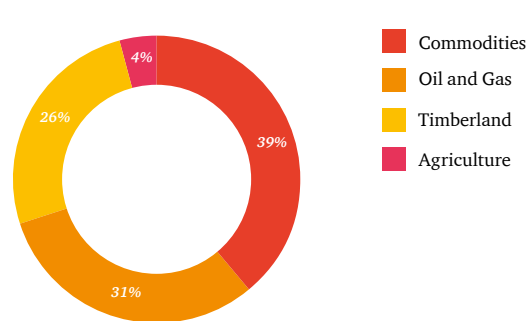
### Real Estate Portfolio



### Infrastructure Portfolio



### Natural Resources Portfolio



Sources: Ontario Teachers' Annual reports 2015



# Ontario Teachers Pension Plan (OTPP)



## 1) Investment strategy

### Corporate Governance

The Ontario Teachers' Pension Plan is jointly sponsored by the Ontario government and the Ontario Teachers' Federation (OTF). They are equally responsible for ensuring the pension plan has enough money to meet its long-term obligations.

OTPP has always been overseen by an independent board. Each of the plan sponsors appoint five board members and they jointly select the chair.

Board members are responsible to approve strategic plans, budgets, investments policies, risk appetite, performance and benchmarks. They monitor enterprise risks and approve the audited consolidated financial statements.

The Board conducts regular funding valuations to assess the pension plan's long-term financial health.

### Investment objectives

As OTPP's role is to pay pension to retired teachers; its key objective is to help the plan to meet its long-term funding needs. To that end, they seek to:

- Maximize investment returns at an appropriate level of risk, taking into account pension liabilities (the cost of future pension benefits) and challenges presented by the plan's mature membership demographics.
- Close the gap between asset value and pension obligations to achieve contribution rate and benefit stability for members.



## 2) Outsourcing of portfolio management

The Real Estate portfolio is managed by the fund's wholly-owned subsidiary, the Cadillac Fairview Corporation Limited, which maintains a well-balanced portfolio of retail and office properties designed to provide dependable cash flows.

It is responsible for evaluating investments opportunities in global Real Estate on behalf of OTPP. This process involves sourcing, underwriting, and executing an exclusive range of opportunities across the risk spectrum according to a disciplined and rigorous valuation methodology.

The Investment Group draws heavily on in-house knowledge and experience of the other divisions within the organization through all levels of the investment management process; it also relies on the support of local partners and experts when investing abroad in new markets.

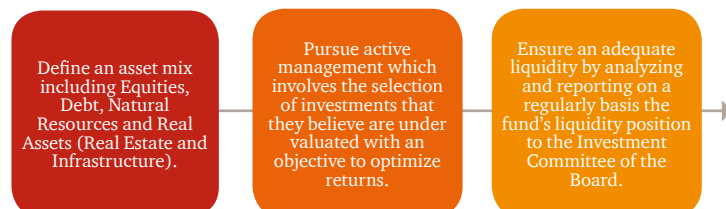
Moreover, the fund uses external hedge fund managers to earn uncorrelated returns, to access unique strategies that augment returns and to diversify risk.

Sources: Ontario Teachers' Annual reports 2015 and web site.

## 3) In-house portfolio management

Approximately 80% of the investment portfolio is managed in-house. OTPP provides employees with the resources, training and career opportunities needed to achieve the highest professional standards.

OTPP developed a risk management strategy based on their investment strategy:



## 4) Risk framework

Through its regular operations, OTPP is exposed to risks that could negatively affect achievement of the plan's objectives. These enterprise risks are broadly categorized as strategic, reputational, governance, investment and operational risks. An Enterprise Risk Management (ERM) policy establishes the process through which management and employees identify, measure, manage and report risks.

The ERM Committee, chaired by the President and CEO, provides executive-level oversight of the program, which identifies potential risks as well as effective mechanisms to mitigate them.

Highly ranked risks and mitigation strategies are reported to the board regularly. The organization has multi-year programs in progress aimed at reducing enterprise risk, with a continued focus on operational risk.

As part of this program, business continuity, disaster recovery and crisis management plans are in place and are tested on a regular basis. Information security, including security of online transactions and personal information, continues to be an operational priority.

## 5) Responsible investing and ESG

To reach their key objective of ensuring retirement security for their members, OTPP has established five responsible investing principals:

- Integrating ESG factors into processes;
- Being engaged asset owners;
- Evolving their responsible investing practices;
- Seeking relevant information and disclosure; and
- Collaborating with link-minded peers.



# Healthcare of Ontario Pension Plan (HOOPP)

## Quick facts

Originally established by the Ontario Hospital Association (OHA) in 1960, the Healthcare of Ontario Pension Plan (HOOPP) is a defined benefit (DB) pension plan serving over 309,000 working and retired members from over 490 participating employers in the healthcare sector across the province of Ontario.

## Evolution of investments assets

The fair value of HOOPP's investments has risen to CAD 147.3bn (USD 106.0bn) in 2015 at a CAGR of 15.6% since 2010.

## Evolution of asset allocation

Its Liability Driven Investment (LDI) strategy, started in the early 2000s, has reduced the assets invested in equity and redeployed them into fixed income. Despite the portion of equity, which has more than tripled compared to 2014 to 6.2% in 2015, fixed income and alternative investments are still the main asset classes, representing, respectively, 84.1% and 8.5%, on average, of total investment assets since 2010.

## Total return

The fund's strategy requires the use of two broad portfolios, the Liability Hedge Portfolio and the Return Seeking Portfolio. Both combined have generated a total return of 5.1% in 2015, exceeding the benchmark return, which is the average annual rate of return required to meet the pension obligations (3.9% in 2015). This 1.2% value added came from both the Liability Hedge Portfolio (0.1%) and the Return Seeking Portfolio (1.1%).

## Geographic allocation of assets

At the end of 2015, CAD 122.4bn were invested in Canada, more than double the amount that was invested five years ago. The proportion of domestic investments slightly decreased from 88.3% in 2010 to 83.1% in 2015. The remaining assets were invested mainly in the US and Europe.

## Operating expenses

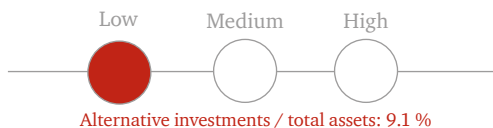
HOOPP saved CAD 5mn by eliminating external investment manager fees in 2010 and kept reducing its operating expenses in proportion of net assets, from 0.36% in 2010 to 0.31% in 2015.

Sources: HOOPP's Annual reports 2010-2015, IPE.com

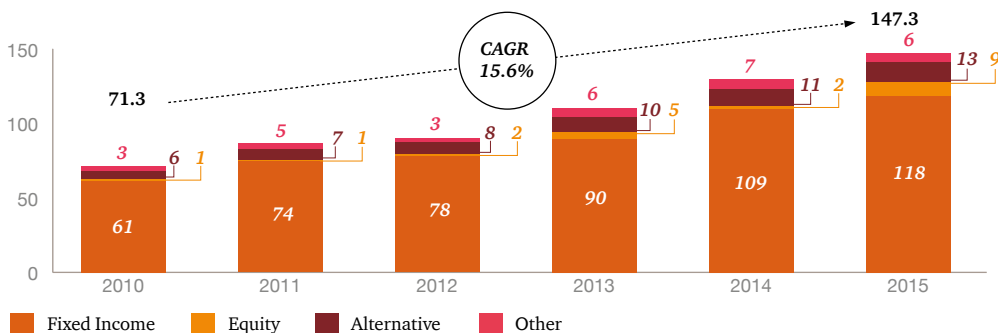
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1960	201-500	106.0	9.1%	N/A	5.1%

\* Based on local currency

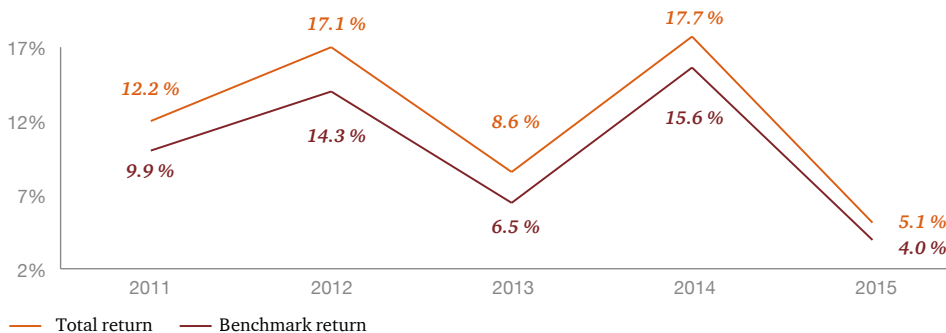
## Level of alternative exposure



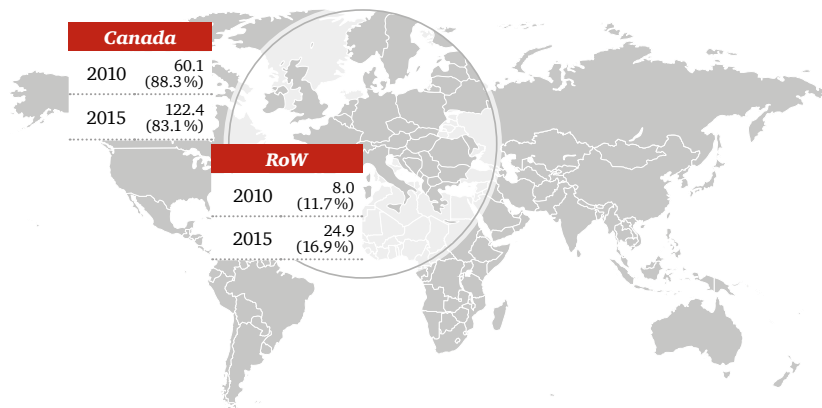
## Evolution of total investment assets by asset class (in CAD bn)



## Evolution of total return compared to benchmark return



## Geographic allocation of investment assets (2010 vs. 2015, in CAD bn)



## Operating expenses (in CAD mn)

Year	Investment Administration	Plan administration	Other operating expenses	Total operating expenses	Total operating expenses / Net assets
2010	71	36	22	129	0.36%
2015	118	69	14	201	0.31%

Sources: HOOPP's Annual reports 2010-2015



# Healthcare of Ontario Pension Plan (HOOPP)

## Alternative Focus

Alternatives have almost doubled to CAD 13.4bn in 2015 in the last five years (CAD 6.9bn in 2010). They have also increased in proportion to total investment assets, representing 9.1% in 2015 (8.3% in 2010). In 2015, within alternatives, HOOPP had invested principally in Real Estate (67.6%) but also in Private Equity (32.4%).

### Real Estate

HOOPP's real estate portfolio had a return, on a currency hedged basis, of 8.0% in 2015 (down from 10.0% in 2014) to reach CAD 9.1bn, and has remained largely invested in Canada. As shown by the increase in the portion of non-Canadian real estate, the fund is now seeking to boost its international property exposure as domestic real estate opportunities become scarcer. A major focus for the Canadian pension plan will be the US, according to its real estate chief. This year, out of the CAD 1.8bn of new investments or investment commitments made by the fund, more than CAD 0.8bn were traced to commitments to non-Canadian funds.

### Private Equity

In 2015, CAD 4.3bn assets were invested in private equity via HOOP Capital Partners (HCP), with a further CAD 3.5bn committed. The invested portfolio generated a currency-hedged return of 17.7% for the year compared to 16.3% in 2014 and was the biggest contributor to the fund's total return on investments.

Alternative investments were, within their respective portfolios, among the main contributors to the CAD 3.1bn total investment return generated in 2015. Indeed, real estate contributed CAD 473mn within the CAD 1.9bn produced by the Liability Hedge Portfolio and private equity contributed CAD 614mn within the CAD 1.2bn produced by the Return Seeking Portfolio.

## Outsourcing Focus

In 2010, HOOPP decided to turn exclusively to internal management, saving CAD 5mn of external investment manager fees compared to 2009. This choice has continued to pay off, according to the results of a research comparing the average total costs as a percentage of assets for five large pension plans based in Ontario, between 2009 and 2014. Indeed, HOOPP is in the middle of the pack in terms of AuM but boasts the lowest average expense ratio of the peer group, at only 0.34%.

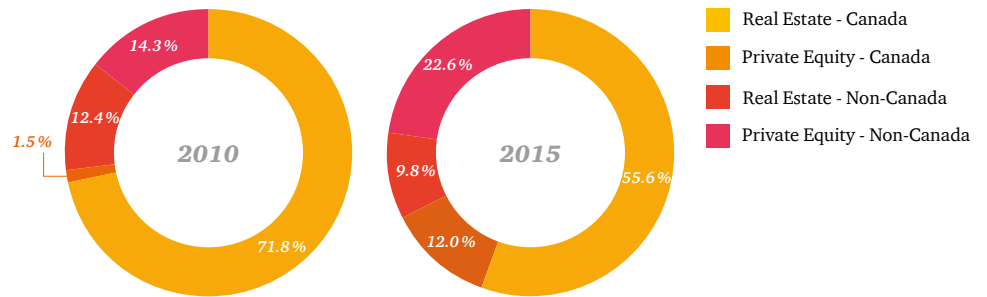
Although the fund considers that 100% of its portfolio is internally managed, investments in alternatives (i.e. Private Equity and Real Estate) include ownerships in limited partnership (LP) funds.

For example, out of the CAD 1.8bn of real estate new investments and commitments identified in 2015, there were commitments of CAD 1.1bn to real estate investment funds in Europe, US and Canada:

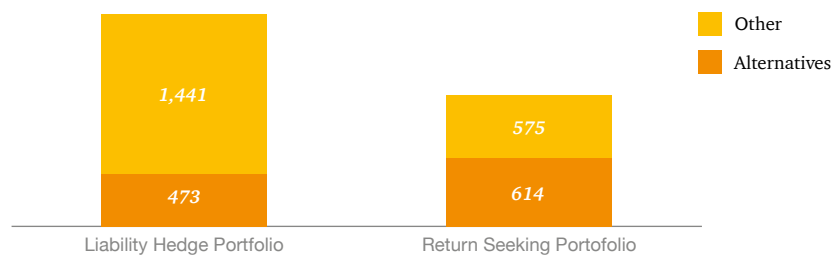
- CAD 243mn to four funds operating in Canada;
- CAD 403mn to three funds operating in the U.S.; and
- CAD 468mn to four funds operating in Europe.

Sources: HOOPP's Annual report 2015 and website (media releases), PERE News

## Asset Allocation within Alternative investments

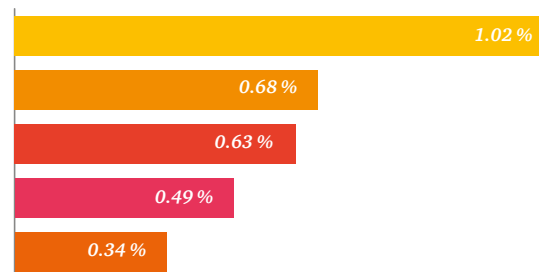


## Investment return (2015, in CAD mn)



Sources: HOOPP's Annual reports 2010 and 2015

## Average costs between 2009 and 2014 as % of total assets



- Ontario Public Service Employees Union Pension Trust
- Ontario Municipal Employees Retirement System
- Ontario Teachers' Pension Plan
- Ontario Pension Board
- Healthcare of Ontario Pension Plan

Sources: Fraser Institute



# Healthcare of Ontario Pension Plan (HOOPP)

## 1) Investment strategy

Described as a Liability Driven Investment (LDI) strategy, HOOPP's investment approach aims to ensure that the fund's assets are managed with a view to meeting all current and future fund liabilities towards its members. HOOPP applied this philosophy during the construction of two broad portfolios:

- **The Liability Hedge Portfolio** is designed to hedge the major risks that can impact pension obligations – namely, inflation and interest rates – and contains investment assets which perform in a manner similar to that of the Plan's liabilities.
- **The Return Seeking Portfolio** is designed for controlled risk-taking in investment assets and strategies, which are expected to deliver incremental return to help to keep contribution rates stable and affordable.

### Liability Hedge Portfolio

	Min	Target	Max
Government Bonds	45%	55%	110%
Real Return Bonds	5%	12.5%	65%
Real Estate	5%	12.5%	25%
Short-term & Cash	(50%)	(28.5%)	20%

### Return Seeking Portfolio

	Min	Target	Max
Public Equities	0%	28.5%	40%
Private Equity	2%	5%	15%
Corporate Credit	0%	10%	85%
Hybrid Strategies	0%	5%	45%

### Corporate governance

HOOPP is governed by a Board of Trustees with representation from the Ontario Hospital Association (OHA) and four other unions. The unique governance model provides representation from both management and workers.

## 2) Outsourcing of portfolio management

Other than using LP funds within its alternatives portfolio, HOOPP has been internally managing its investments since 2010 to reduce costs.

## 3) In-house portfolio management

According to Investments & Pensions Europe (IPE) which mentions HOOPP, the top 10 Canadian pension funds manage about 80% of their assets internally. This factor, contingent upon sufficient scale, is considered one of the key reasons for the pensions' success. Tom Scheibelhut who is managing principal at CEM Benchmarking, a data firm studying more than 500 pension organizations worldwide, agrees that internal management is a key factor in cost savings.

Sources: HOOPP's Annual report 2010 & 2015, SIP&P, IPE

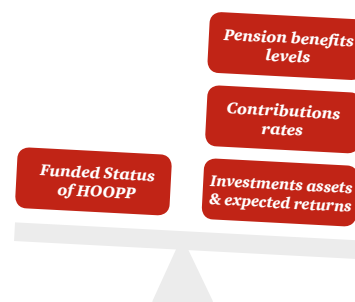
## 4) Risk framework

The main risk for a DB plan lies in funding. Although the plan currently has a funding surplus, with current net assets representing 122% of its current estimated future benefits, there is always a risk with maintaining this funding surplus due to the constant changing economic and market environment and demography. In order to meet their obligations to their members Management and the Board must manage this funding risk by balancing three main components:

1. The level of pension benefits upon retirement;
2. Contribution rates from both members and employers; and
3. Total investment assets and expected return and risk.

The latter component exposes the fund to investment risk for which the Board provides a framework to mitigate this risk through the following key documents:

- Investment Risk Framework—the Board's view of risk tolerance;
- Statement of Investment Policies and Procedures (SIP&P)—investment guidelines for the management of the plan, including objectives and how they will be reached; and
- Investment Policies and Guidelines (IP&G)—the plan's policy benchmark, policy asset mix and detailed investment limits.



## 5) Responsible investing and ESG

The Board has established a Responsible Investing Policy that incorporates environmental, social and governance (ESG) factors into the management of the Fund's investment assets. HOOPP believes adopting and applying responsible ESG standards leads to better management and therefore more financial success over the long term.

Once an investment is made, HOOPP encourages better ESG practices by exercising its influence as owners. In 2015, there were 1,584 proxy votes, up from 959 in 2014, on proposals put forth by shareholders and management of owned assets.

Since 2010, HOOPP's real estate group has also worked on implementing responsible investment across its property acquisition, development and management activities. In 2015, real estate responsible investing accomplishments included being named as "Green Star" by GRESB, Global Real Estate Sustainability Benchmark, for the third consecutive year.

Sources: HOOPP's Annual report 2015

# Public Sector Pension Investment Board (PSP)



## Quick facts

The Public Sector Pension Investment Board (PSP Investments) is a Canadian crown corporation. Its mandate is to manage assets of the federal Public Service, the Canadian Forces, the Royal Canadian Mounted Police, and the Reserve Force pension funds.

## Evolution of total assets

PSP's total assets have grown at a CAGR of 19.3% between 2010 and 2015, reaching over CAD 112bn (USD 88.4bn). This performance is due to diversification and a sound investment strategy focusing on long-term investments which provide flexibility and scalability.

## Evolution of asset allocation

PSP's asset allocation has remained stable over the last five years with 50.2% invested in Equity, 29.5% in Alternatives, and 20.2% in Fixed Income in 2015.

## Total return

The total portfolio return on investments amounted to 14.5% in 2015. Along with well performing alternative investments, this strong return was also bolstered by the continued robust performance of global Equity markets.

## Currency exposure\*

PSP Investments is exposed to currency risk through direct and indirect holdings of securities, units in pooled funds and units in limited partnerships of non-Canadian assets.

Between 2010 and 2015, the biggest changes in currency exposure have come from USD, which exposure has risen from CAD 6.3bn in 2010 to CAD 29.1bn in 2015.

## Remuneration scheme

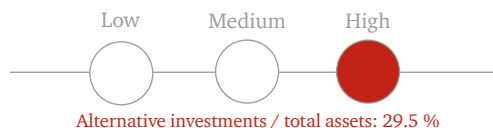
PSP has implemented short and long-term incentives to reward the achievement of superior and sustained individual performance. The short-term incentive is a yearly cash-based plan, based on a percentage of base salary, which varies according to the participant's position level. The long-term incentive amount is determined at the end of a four-year performance period. It is based on the amount that the total fund actual value added exceeded the incentive thresholds.

\*Taken as a proxy for foreign investments; This is underlying foreign currency exposure of their net investments.  
Sources: PSP Investments Annual Reports 2010-2015

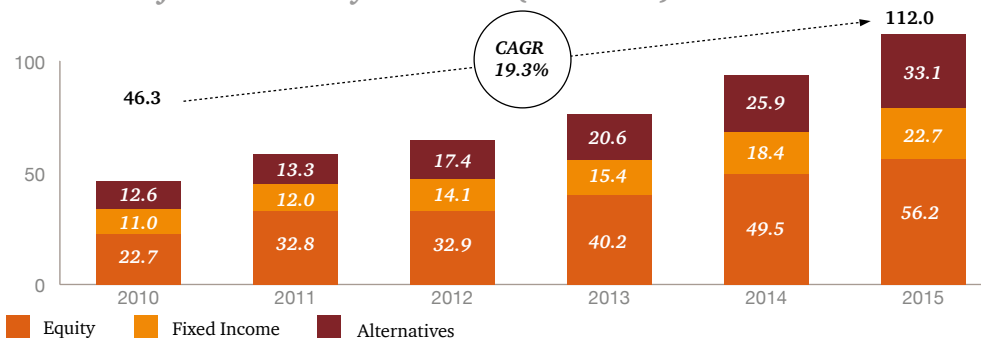
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1999	570	88.4	29.5%	0.04%	14.5%

\* Based on national currency

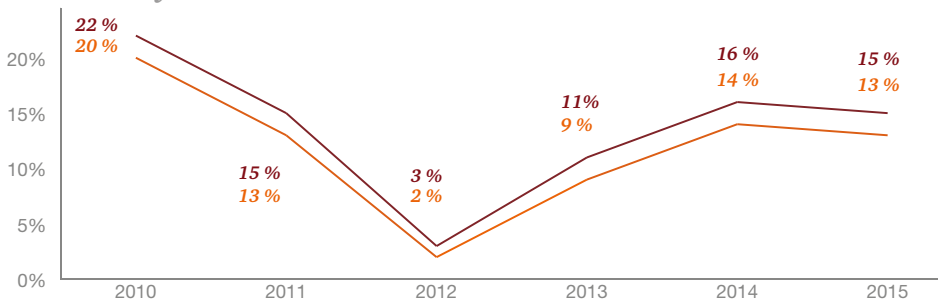
## Level of alternative exposure



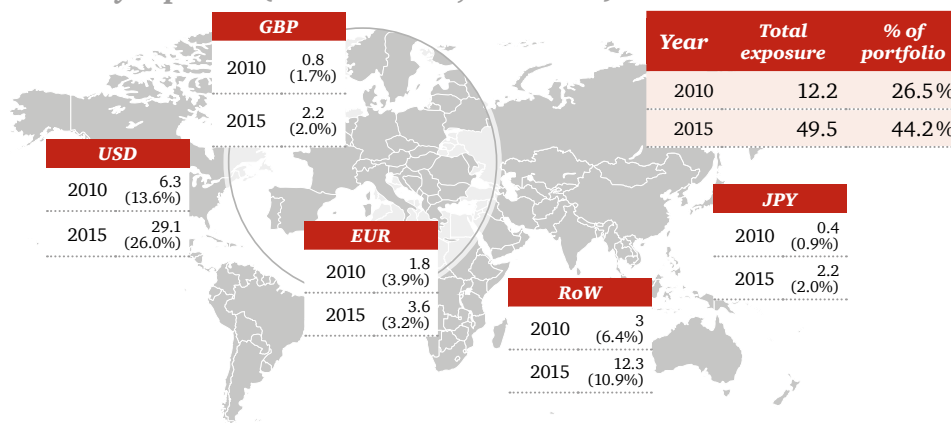
## Evolution of total assets by asset class (in CAD bn)



## Evolution of return



## Currency exposure (2010 vs. 2015, in CAD bn)



## Executive remuneration schemes in 2015 (CAD thousands)

2015	Base salary	Variable	Other	Total	Op expen/ Total
CEO*	3.8	0	3,057.5	3,061.3	1.26%
SVP, Real Estate Inv	320.0	2,207.9	26.1	2,554.0	1.05%
EVP, COO and CFO	431.2	1,560.9	534.2	2,526.3	1.04%
SVP, Public Market Inv	330.0	1,933.7	24.6	2,288.3	0.94%
SVP, Infrastructure Inv	306.0	1,804.6	26.1	2,136.7	0.88%

\*Annual base salary is CAD 500,000. Amounts shown were paid in accordance with employment agreement, including a signing bonus of CAD 3,000,000, as the CEO was appointed March, 2015  
Sources: PSP Investments Annual Reports 2010-2015





# Public Sector Pension Investment Board (PSP)

## Alternative Focus

PSP invested approximately 29.5% of its total investments in Alternative assets in 2015. The alternative investment portfolio is divided between four types of asset: Real Estate (CAD 14.4bn), Private Equity (CAD 10.1bn), Infrastructure (CAD 7.1bn) and Natural Resources (CAD 1.5bn).

### Real Estate

The Real Estate portfolio stood at 12.8% of the total fund, in 2015. In recent years, PSP has favored direct ownership and co-investment through joint ventures. In addition, PSP utilizes specialized funds and vehicles to gain access to specific strategies and markets.

### Private Equity

The Private Equity portfolio stood at 9.0% of the total fund, in 2015. Private Equity generated CAD 818mn of investment income, for a return of 9.4% in 2015. Total portfolio income for the year was largely driven by Asian investments. Moreover, European investments posted their best returns in the last four years, generating positive income. Finally, performance of the funds portfolio was driven by investments in fund of funds, with a select number of key partners contributing CAD 336mn of investment income.

### Infrastructure

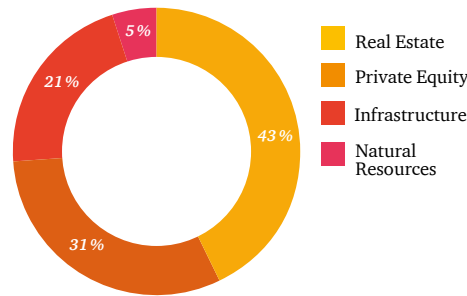
The Infrastructure portfolio stood at 6.2% of the total fund in 2015. The portfolio return was driven mainly by direct investments in the transportation and utilities sectors in Europe and emerging markets.

## Outsourcing Focus

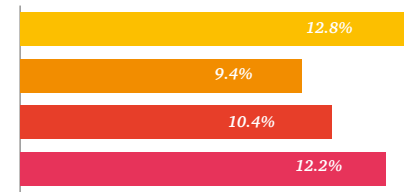
Management fees paid by PSP to external asset managers amounted to CAD 43mn in 2015 compared to CAD 31mn in 2014. This excludes amounts not paid directly by PSP investments for certain pooled fund investments classified under alternative investments and for investments in private markets and other fixed income securities.

Sources: PSP Inv. Annual Reports 2010-2015

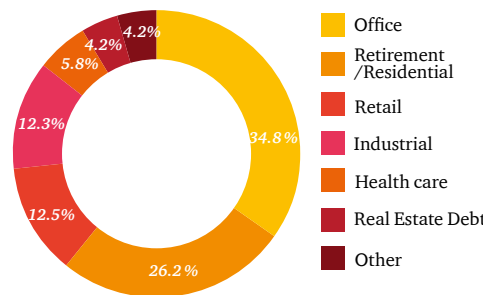
Asset allocation within Alternatives



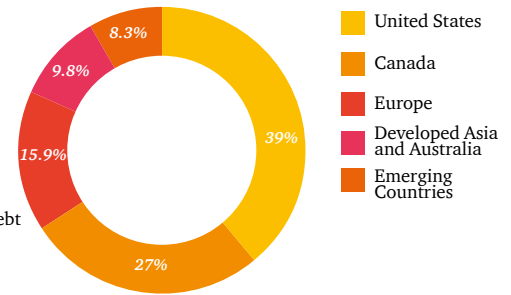
Rate of return, 2015



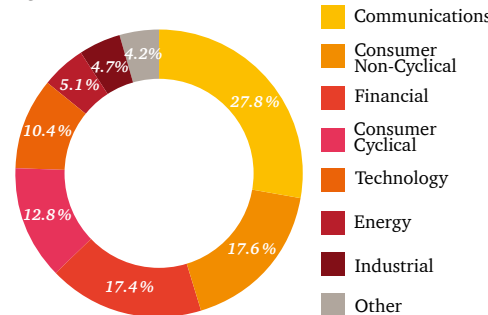
Real Estate allocation by type



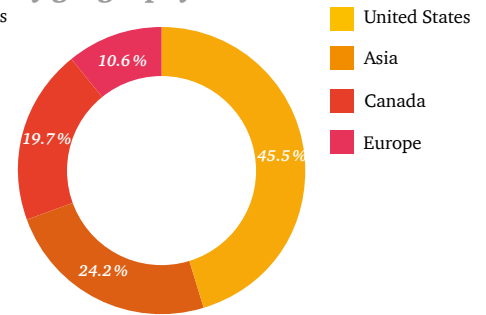
Real Estate allocation by geography



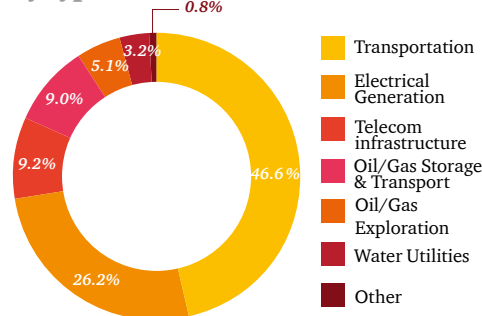
Private Equity allocation by sector



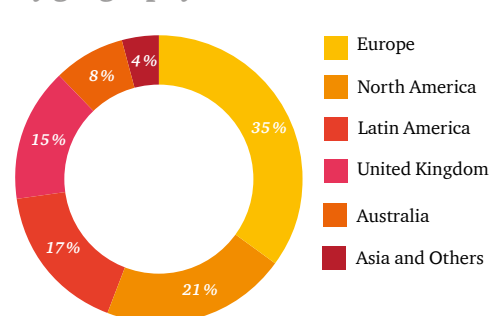
Private Equity allocation by geography



Infrastructure allocation by type



Infrastructure allocation by geography



Sources: PSP Inv. Annual Reports 2010-2015

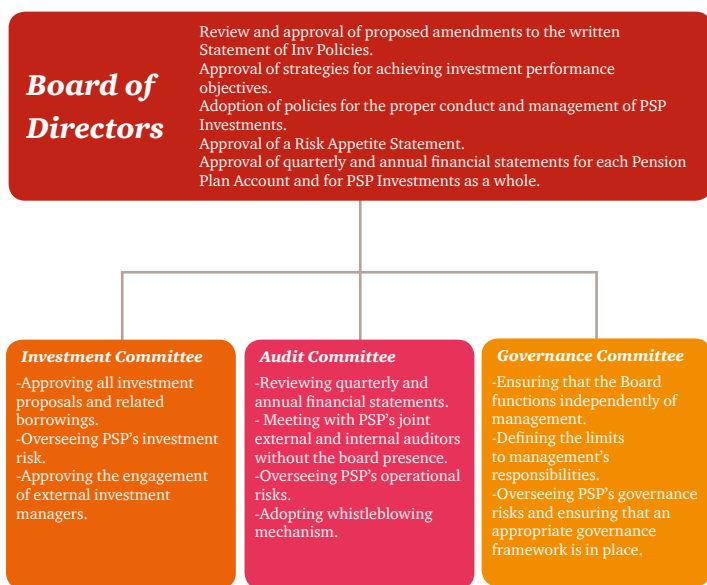


# Public Sector Pension Investment Board (PSP)

## 1) Investment strategy

### Corporate Governance

As a long-term investor, PSP Investments believes in the importance of establishing strong governance oversight of its investments. It uses its ownership positions to promote good corporate governance practices by exercising its proxy voting rights and actively engaging with companies through service providers, individually and through collaborative initiatives with other like-minded institutional investors.



### Investment objectives

PSP Investments statutory mandate is to manage the amounts transferred to it in the best interests of contributors and beneficiaries, and to invest its assets with a view to achieving a maximum rate of return, without undue risk of loss. There are no specific investment requirements, and no geographic, economic development, or social limitations imposed.

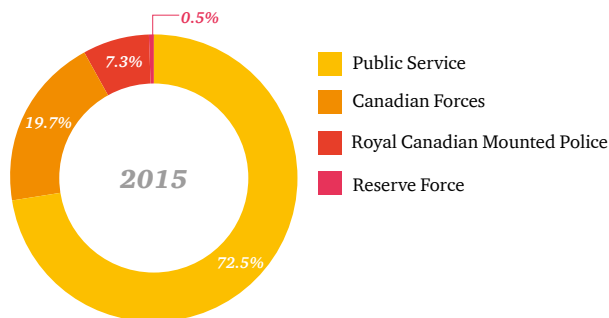
As the corporation's objective is to become a global CAD 200bn investment manager, the Board of Directors has implemented a 2016-2018 strategic plan based on both internal and external pillars. Internally, the board manages to implement a genuine PSP culture, "One PSP", centred on collaboration and common goal objectives. It also aims at strengthening its operational back office so that PSP's growth would be robust and agile.

Sources: PSP Investments Annual Reports 2010-2015

## 2) Pension Plan Accounts

PSP Investments is a pension investment manager investing assets for four Canadian pension plans. During the past 5 years, the share of assets per Pension Plan has remained the same; around 73% for Public Service, 20% for Canadian Forces, 6% for Royal Canadian Mounted Police and 1% for the Reserve Force:

### Share of assets per Pension Plan



An allocation policy was developed which allocates the direct costs of investment activities to each Plan Account, based upon the asset value of each Plan Account at the time the expense was incurred.

## 3) Risk framework

PSP Investments has established a proper Risk Management Department, and the mandate is directly derived from the Enterprise Risk Management Policy, established by the Board of Directors. In line with the rapid growth of PSP's AuM, the department continues to enhance its core responsibilities and expertise and to proactively implement industry-recognized risk management practices to both control its investment and non-investments risks.

- Promote a risk-aware culture involving all employees;
- Integrate risk management into strategic and financial objectives;
- Operationalize risk management processes supporting all activities;
- Ensure effective transparent communication of emerging risk trends.

## 4) Responsible investing and ESG

PSP Investments has developed a list of risk factors that it assesses when facing investment decisions:

- Environment - before making any investment decision, PSP checks the carbon emission cost of the investment, natural resource consumption, pollution, climate change;
- Social - labour and human capital development, health and safety, human rights and community, product impact (safety, quality, responsible sourcing);
- Governance - business ethics and regulatory compliance, anti-corruption and bribery, executive compensation, governance structure.





# Ontario Municipal Employees Retirement System (OMERS)

## Quick facts

OMERS, the Ontario Municipal Employees Retirement System is a defined benefit (DB) pension plan established in 1962. It invests and administers pensions for 461,000 members from municipalities, school boards, emergency services and local agencies across Ontario through three completely separate plans.\*

## Evolution of total assets

The fair value of the fund's investment assets has risen over the past five years at a CAGR of 9.5%, from CAD 63.6bn (USD 45.8bn) in 2010 to CAD 100.2bn (USD 72.1bn) in 2015.

## Evolution of asset allocation

OMERS' assets have remained rather evenly allocated between publicly traded securities (Fixed Income and Equity) and Alternatives. Between 2010 and 2015, excluding derivatives, publicly traded securities have seen their proportion in total investment assets decrease from 53.7% to 43.6% (31.9% in Fixed Income and 11.7% in Equity in 2015) in favor of Alternatives, whose proportion has risen from 45.3% to 55.4%. This is mainly due to a shift from Equity (25.2% in 2010) towards Real Estate (19.8% in 2010; 27.6% in 2015).

## Total return

OMERS' 2015 net return of 6.7% dropped below its net absolute return benchmark of 7.8% that same year (down from 10% in 2014). Alternatives contributed significantly with a 14.5% return, while public investments only produced 0.7%, mainly due to CAD 914mn losses incurred on Equity.

## Geographic allocation

OMERS diversifies its investments globally, with assets in Canada declining in favor of the US and Europe.

## Remuneration scheme

OMERS has a pay-for-performance approach which has led to compensation of all executives being composed primarily of variable compensation tied to investment and individual performance.

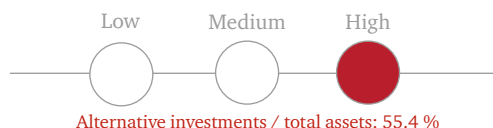
\* For analysis purposes, we focus on The Primary Pension Plan

Sources: OMERS' Annual Reports 2010-2015, OMERS' website

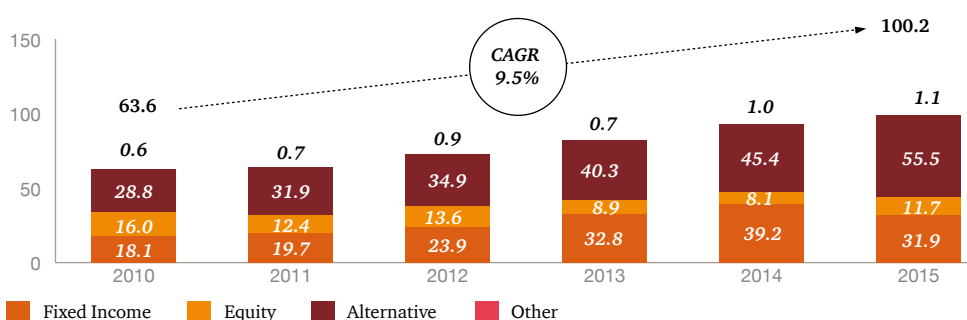
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1962	1001-5000	72.1	55.4%	N/A	6.7%

\* Based on local currency

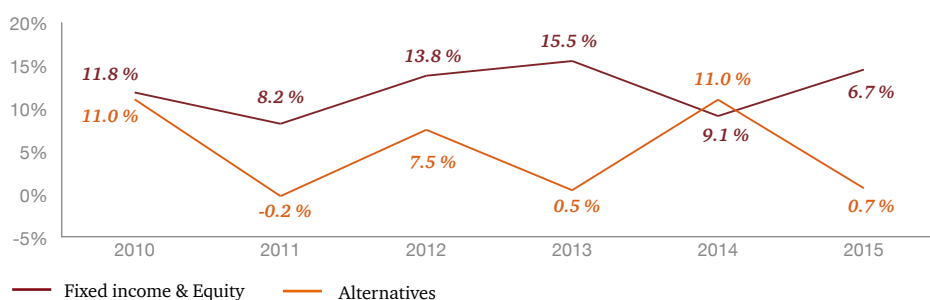
## Level of alternative exposure



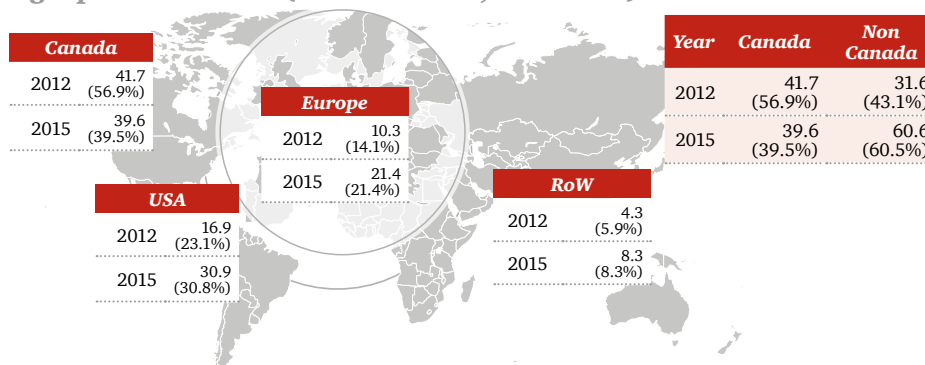
## Evolution of total investment assets by asset class (in CAD bn)



## Evolution of return by asset class



## Geographic allocation (2012 vs. 2015, in CAD bn)



## Executive remuneration schemes in 2015 (CAD thousands)

	2015	Salary	Variable ST	Variable LT	Other	Total remuneration	Variable portion
CEO		565	1,045	1,590	194	3,394	78%
CFO		450	403	553	101	1,506	63%
CIO - Real Estate		500	1,026	1,121	106	2,752	78%
CIO - Alternatives		500	1,001	1,121	71	2,693	79%
CIO - Public Markets		500	682	1,266	51	2,500	78%

Sources: OMERS' Annual Reports 2010-2015, OMERS' website



# Ontario Municipal Employees Retirement System (OMERS)

## Alternative Focus

OMERS invests in Alternatives through holdings in Infrastructure, Private Equity and Real Estate, managed by in-house investment entities.

The use of derivatives in 2015 enabled Alternatives to reach an ultimate exposure close to the strategic asset mix target of 47%. Overall exposure to Alternative investments increased from 42% in 2014 to 48% in 2015.

### Private Equity

New billion-dollar investments in 2015, with notable ones in the UK and North America, increased assets invested in Private Equity to CAD 11bn, up from CAD 9bn in 2014. The investments reported a net return of 10% in 2015 (compared to 7.8% in 2014) mainly generated by successful exits, and despite lower commodity prices that caused downward valuation of Oil and Gas sector investments.

### Infrastructure

Further diversification in Europe and positive revaluations contributed to the boost of net investments in Infrastructure, increasing their share in total assets as well. Once again, strong performance (in particular from Bruce Power, a significant part of the class' portfolio) and realized gains led to a positive return for the asset class of 17.3%, significantly higher than its 10.6% gain in 2014.

### Real Estate

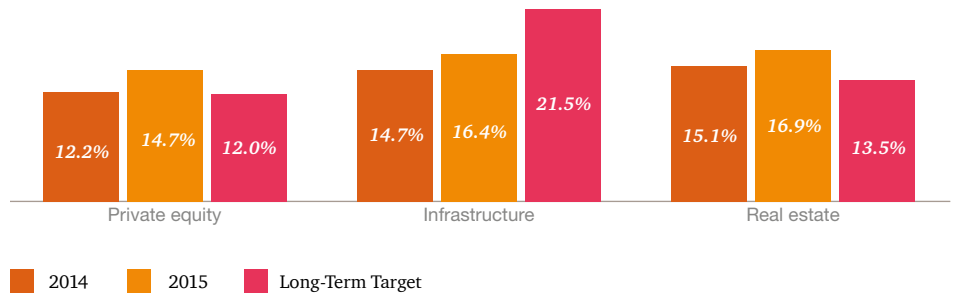
Net return generated by the fund's actively managed and globally diversified Real Estate portfolio almost doubled in 2015 compared to 2014 (from 8.7% to 15.3%), benefiting mainly from realized and unrealized gains due to improving market conditions in the UK, US and Canada, where the fund has invested, and also from rental income.

## Outsourcing focus

The fund aims to manage 95% of its assets internally through its in-house investment entities, each specialized in a type of asset. This reduced the management expense ratio (MER) from 64 pbs in 2010 to 57 pbs in 2015 further to its target of 50 pbs or below, despite major costs incurred for a realignment of its investment organization in 2014.

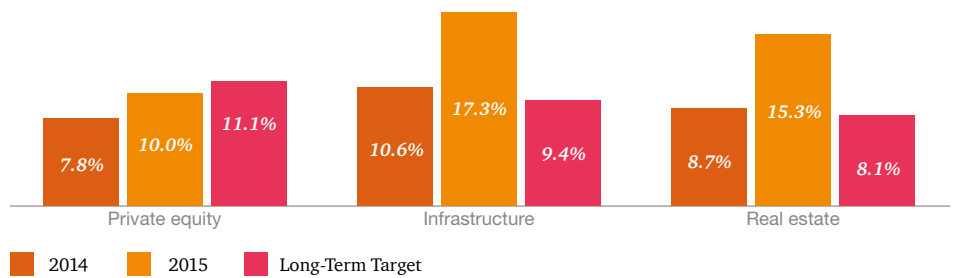
Sources: OMERS' Annual Reports 2010-2015, OMERS' website

Alternative investments' ultimate exposure\* by asset class (2014 vs. 2015)



\*Note: Ultimate exposure by asset class includes derivatives exposure and related payables for each asset class.

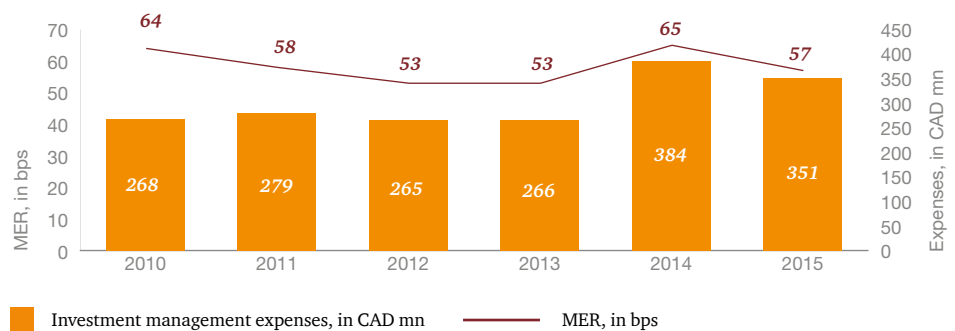
Net return within Alternatives (2014 vs. 2015)



Main acquisitions within Alternatives by investment entity, during 2015

OMERS Private Equity	Borealis Infrastructure	Oxford Properties Group
<ul style="list-style-type: none"> <li>ERM for USD 1.7 bn (UK);</li> <li>Kenan Advantage Group for USD 1.9 bn (U.S. &amp; Canada).</li> </ul>	<ul style="list-style-type: none"> <li>Ellevio, electricity distributor (Sweden);</li> <li>Tank &amp; Rast (Germany).</li> </ul>	<ul style="list-style-type: none"> <li>Blue Fin office building (UK)</li> <li>Olympic Tower (U.S.)</li> </ul>

Investment management expenses and MER



Sources: OMERS' Annual Reports 2014-2015, OMERS' website



# Ontario Municipal Employees Retirement System (OMERS)

**OMERS has three pension plans:** the Primary Pension Plan, which represents over 99% in terms of net assets; the Retirement Compensation Arrangement (RCA), for higher incomes deprived of tax advantages under the Canadian Income Tax Act; and the OMERS Supplemental Pension Plan for police, firefighters and paramedics, with no assets nor members yet.

## 1) Investment strategy

### 2020 Strategy

A five-year firm-level strategy was implemented in 2015 by the Board, with the following objectives impacting the fund's investments:

- Being fully funded by 2025 (2015 funded ratio is 91.5%, up from 90.8% in 2014);
- Managing costs effectively (the fund aims to further reduce its Management Expense Ratio to 50 bps or below; it is already down to 57 bps in 2015 from 65 bps in 2014).

In order to achieve this, the fund relies on several pillars such as:

- Protect its funded status by setting appropriate contribution rates and benefits and earning investments returns that meet or exceed long-term targets;
- Deliver 7-11% net annual average investment returns through strategic asset mix allocation;
- Evolve its in-house capabilities including portfolio management.

### Asset mix and investment approach

The key characteristics of OMERS' approach are diversification, reflected in its asset mix, and careful selection of assets by in-house teams regrouped in investment entities (asset managers) specialized by asset class: OMERS Private Equity, Borealis Infrastructure, Oxford Properties and OMERS Strategic Investment.

### Alternatives

Type of asset – Investment entity	Min (35%)	Target (47%)	Max (59%)
Private Equity – OMERS Private Equity	8%	12%	18%
Infrastructure – Borealis Infrastructure	13%	21.5%	26%
Real Estate – Oxford Properties Group	10%	13.5%	18%

Alternatives are selected specifically for their stable returns and more predictable cash flows, to better match the plan's liabilities.

### Public Investments

Type of asset – Investment entity	Min (41%)	Target (53%)	Max (65%)
Equities – OMERS Capital Markets	15%	35.8%	50%
Fixed Income – OMERS Capital Markets	25%	59.6%	100%
Cash & Economic Leverage	-	(42.4%)*	-

\* Cash and cash equivalents netted against derivatives exposures

Investment in public investments, directly or through the use of derivatives, is intended to provide returns, flexibility on long / short positions and liquidity.

Sources: OMERS' Annual Reports 2010-2015, OMERS' website

### Corporate Governance

The fund's governance is split between the following corporations' Boards, each composed of 14 members:

- OMERS Sponsors Corporation, providing strategic oversight and decision-making, including designing benefits and contributions rates, and determining composition of the two Boards.
- OMERS Administration Corporation, in charge of the Plan administration and responsible for the investment management.

## 2) Outsourcing of portfolio management

Two of the three public investments' programs include externally managed funds. In Private Equity, OMERS also maintains a limited externally managed funds program in order to gain access to strategic geographies and sectors.

## 3) In-house portfolio management

Back in 2011, OMERS had calculated that for every CAD 1 it spends on internal investment management it makes CAD 25; if it employed external managers that figure would drop to CAD 10. All but 15% of the fund's net assets were run in-house and the fund's target was to internally manage 95% of its assets.

In addition to maintaining a necessary size for efficient in-house management, the fund must also have the ability to pay competitive salaries to people who might otherwise choose to work in the commercial fund management sector.

### Third-party investment services

The fund also provides third-party investment opportunities and services, through an authorized subsidiary, to eligible clients, such as other Canadian pension funds, registered charities and governments, thanks to its in-house management skills.

## 4) Risk framework

In 2015, the fund created new positions for a Senior Vice President, Risk Manager and a Chief Risk Officer to manage the following priorities effectively:

- Funding risk – Most significant risk for a pension fund;
- Systems redesign – Due to a necessary upgrade;
- Organizational change – Due to the newly implemented firm-level strategy.

In order to motivate its team to reach strategic goals, while taking only necessary risks, OMERS has made risk an important component of its approach to executive compensation.

## 5) Responsible investing and ESG

OMERS' approach to responsible investing supports its mission to deliver secure and sustainable pensions to its members and translates into:

- Incorporating ESG factors in due diligence and investment decision process, and engaging and collaborating only with like-minded investors;
- Integrating sustainability into Oxford's portfolio, its Real Estate investment entity, recognized by an award from GRESB; and
- Diligent proxy voting with the aim to maximize returns.

Sources: OMERS' Annual Reports 2010-2015, OMERS' website, FT.com



# OPTrust / Ontario Public Service Employees Union (OPSEU)

## Quick facts

OPTrust invests and manages one of Canada's largest pension funds - the Ontario Public Service Employees Union Pension Plan (OPSEU), a defined benefit plan with almost 87,000 members and retirees.

## Evolution of total assets

OPTrust assets grew at a CAGR of 9.3% between 2012 and 2015, reaching over CAD 19.4bn (USD 15.1bn).

## Evolution of asset allocation

Asset allocation is a primary driver of the fund's long-term investment performance. OPTrust diversifies across asset classes and investment strategies to help meet the Plan's objectives.

OPTrust's asset allocation has remained relatively stable over the last few years, with 32.4% of assets invested in Equity in 2012 compared to 30.9% in 2015. The share of assets invested in Fixed Income increased slightly from 31.2% in 2012 to 31.6% in 2015. Alternatives saw the biggest increase - from 36.4% in 2012 to 37.5% in 2015.

## Total return

The net investment return on OPTrust's investments amounted to 8.0% in 2015.

In 2015, the Private Equity portfolio generated a net return of 14.4% for the year compared to 17.2% in 2012. The Real Estate portfolio generated a strong net return of 7.3% compared to 16.9% in 2012. The Infrastructure portfolio generated its highest return in 2014, with 48%.

## Currency exposure\*

The Trust's investment policy is to partially hedge currency exposure from investments in foreign markets. In general, currency exposure provides diversification and can be beneficial to the total fund. As a result of this policy and active hedging activity during the year, the Trust's currency exposures, given the general weakness of the Canadian dollar, contributed 3.8% to the total fund return.

## Remuneration scheme

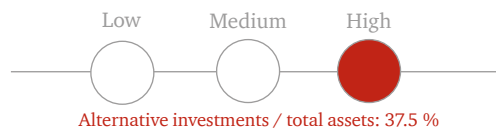
The design of OPTrust's compensation is mainly based on reward performance that helps OPTrust to achieve its mission and its mandate.

\*Taken as a proxy of foreign investments

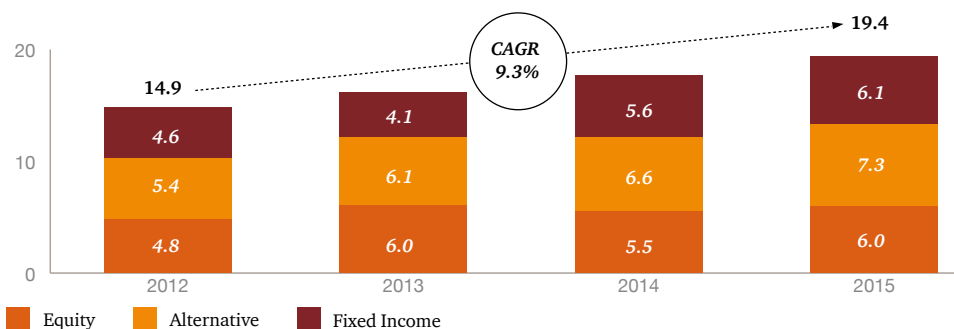
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1995	201-500	15.1	37.5%	0.7%	8.0%

\* Based on national currency

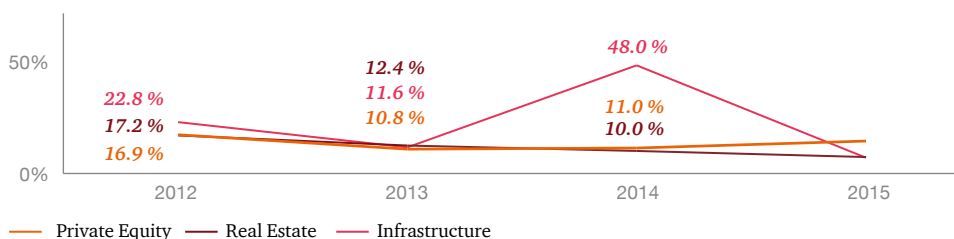
## Level of alternative exposure



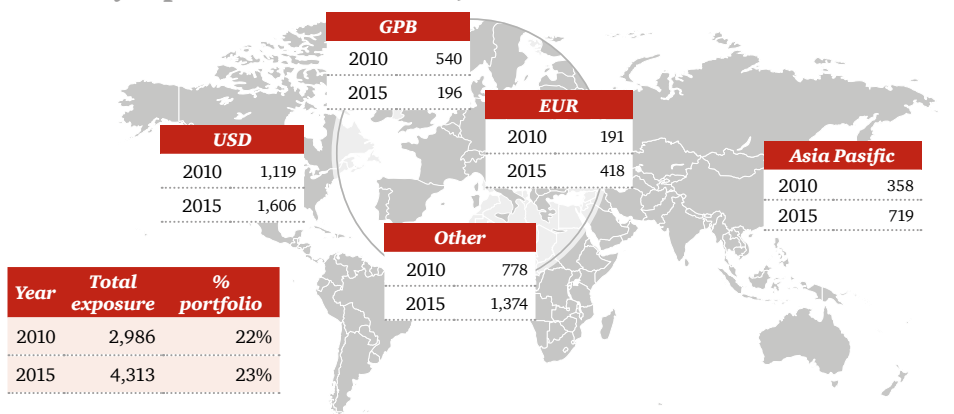
## Evolution of total assets by asset class (in CAD billion)



## Evolution of return by asset class



## Currency exposure (2010 vs. 2015, in CAD mn)



## Executive remuneration schemes in 2015 (USD thousands)

2015	Base earnings	Annual incentive*	Other	Total remuneration	Remuneration/Total assets
President and CEO	423 (25%)	847 (51%)	389 (23%)	1,659	0.009%
Chief Investment Officer	128 (32%)	192 (48%)	83 (21%)	403	0.002%
Chief Pension Officer/ SVP, Human Resources	280 (42%)	280 (42%)	106 (16%)	666	0.003%

\*Payments under OPTrust's annual incentive are reported for the year in which they are earned, but are paid in the subsequent calendar year.

Sources: OPTrust Annual Report 2015



# OPTrust / Ontario Public Service Employees Union (OPSEU)

## Alternative Focus

OPTrust invests heavily in alternative assets, which represent almost 40% of its portfolio. Within alternatives, the fund invests in Real Estate, Infrastructure, and Private Equity. Although over the long term, energy commodities are a diversifier for the portfolio and provide a hedge against inflation, exposure to energy commodities was eliminated in March 2015, as the energy markets proved to be very volatile with limited medium-term upside potential. Further, OPTrust uses Hedge Funds to improve total fund diversification and produce investment returns that are uncorrelated to other asset classes, like equities. In 2015, the OPTrust was invested in 18 Hedge Funds.

### Real Estate

In 2015, Real Estate investments made up 15.5% of the fund's total portfolio. Eleven new Real Estate investments were made, totaling CAD 404mn.

Real Estate helps the fund to provide an additional source of stable income. This alternative asset class generates attractive risk-adjusted returns, preserves capital and helps to lower funded status volatility. Real Estate is also an important diversifier and a hedge against inflation over the long term.

### Infrastructure

OPTrust's Infrastructure investment strategy continues to be predicated on being a flexible, opportunistic and partnership-driven investor. The portfolio holds long-term assets, which help to match obligations and provide potential long-term growth. It also adds diversification and acts as a hedge against inflation and longer term interest rate fluctuations.

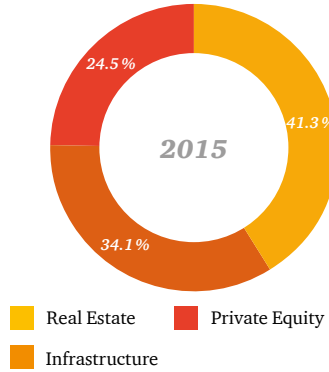
In 2015, four new infrastructure investments were made in North America, Europe and Australia, totaling CAD 636mn.

### Private Equity

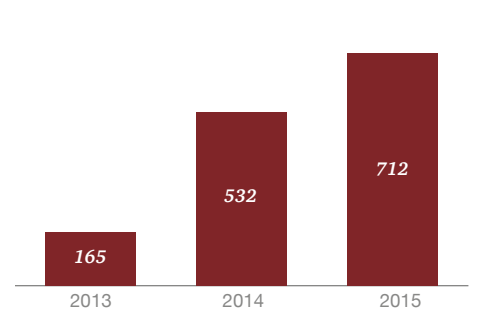
Private Equity allows investors to take advantage of unique opportunities which are not available in the public markets. It captures long-term growth, as well as provides risk-adjusted returns with lower volatility than Public Equity.

Sources: OPTrust Annual Report 2015

Asset Allocation within Alternative investments

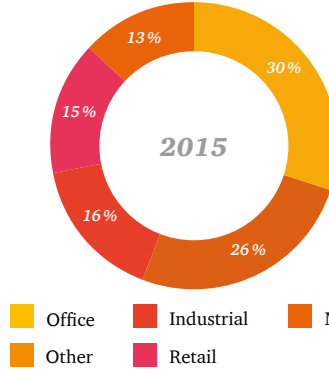


Evolution of investments in Hedge Funds (CAD mn)

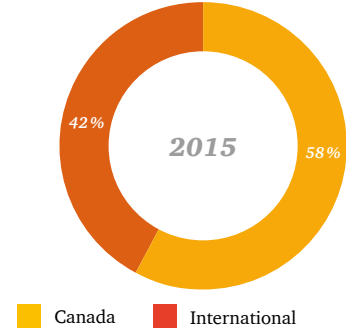


Real Estate Portfolio Diversification

### By Property Type

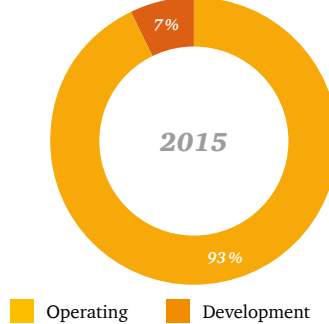


### By Geography

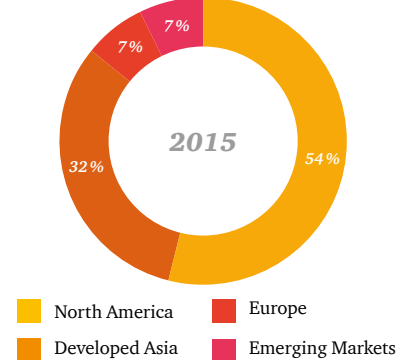


Infrastructure Portfolio Diversification

### By Type

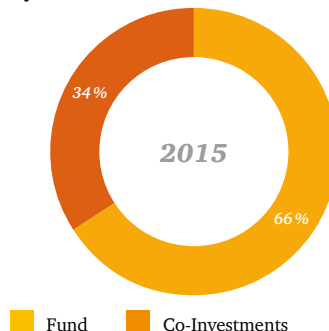


### By Geography

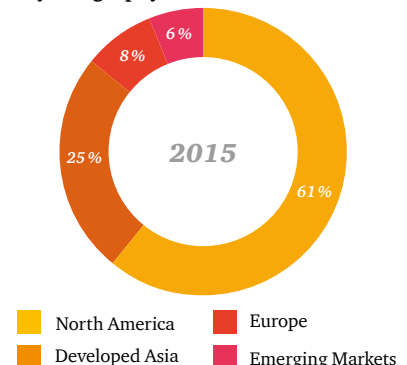


Private Equity Portfolio Diversification

### By Vehicle



### By Geography



Sources: OPTrust Annual Report 2015





# OPTrust / Ontario Public Service Employees Union (OPSEU)

## 1) Investment strategy

OPTrust was established through a joint sponsorship model that recognizes the Ontario Public Service Employees Union (OPSEU) and the Government of Ontario as equal sponsors of the Plan.

OPSEU and the Government of Ontario each appoint five Trustees to OPTrust's 10-member Board. The Board has established four standing committees:



In 2015, OPTrust developed a "member-driven investing" (MDI) strategy that enables the fund to deliver the certainty, sustainability and stability members need.

The MDI framework recognizes that its primary duty is to preserve the funded status of the Plan. Under this framework, OPTrust seeks to earn a return high enough to maintain plan sustainability while purposefully and efficiently employing risk so that benefit and contribution levels remain as stable as possible. By lowering funding risk, OPTrust increases the likelihood of pension certainty for members.

OPTrust has an organizational mandate to maintain a funding ratio of between 95% and 110%. This range establishes a floor that defines how much of a loss OPTrust could bear without having to recommend dramatic changes to contribution rates or benefits. Further, it provides a guideline as to how much investment risk OPTrust can take within their portfolio. OPTrust's approach to funding is anchored in a comprehensive funding policy that helps to ensure that assets are sufficient to meet long-term pension obligations. This policy provides a range of tools and procedures to meet these objectives. OPTrust also continues to focus on tools to monitor and analyze the funding status.

### Limits / Targets

A Long-Term Reference Portfolio was approved by the Trustees in 2012 following the completion of an Asset/Liability Study:

Asset Class	Long-Term reference
Fixed Income (Cash, Bonds)	25%
Real Assets (RE, Infrastructure, Commodities)	35%
Equity (Canadian, Developed, Emerging, PE)	40%

Sources: OPTrust Annual Report 2015

## 2) Outsourcing of portfolio management

External managers and investment funds are used in OPTrust's investment strategy - pooled Fixed Income and Equity funds, Hedge Funds, as well as funds and LPs for Real Estate and Private Equity. The fund makes sure that all external managers and vehicles are in line with its long-term interests.

External management fees for portfolio management are expensed in investment management, which reached over CAD 126mn in 2015, and represented 0.7% of net assets.

## 3) In-house portfolio management

OPTrust is a global investor with a team of experienced investment professionals located in Toronto, London and Sydney. As OPTrust moves forward with its MDI strategy, the focus will be on striking the appropriate balance between achieving sufficient returns while keeping contribution and benefit levels stable.

The in-house team must consider several factors:

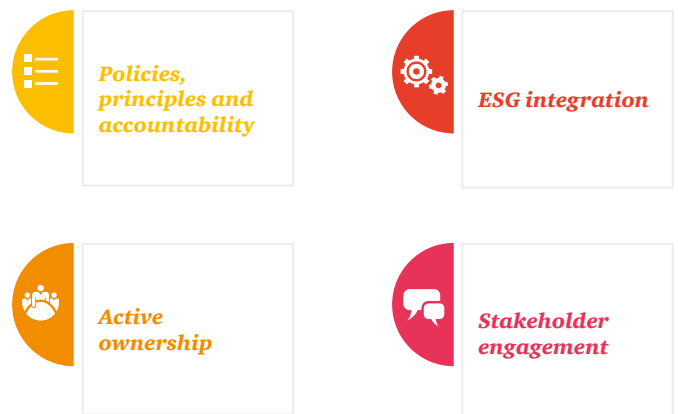
- Nature of the Plan's liabilities;
- Possible effects of inflation or deflation;
- Expected total return of the portfolio;
- Liquidity; and
- Characteristics of different asset classes, their relationships, risks, and returns.

## 4) Risk framework

The Trust engages in risk management practices to help ensure that sufficient assets will be available to fund pension benefits. Investment risks include market risk (interest rate risk, foreign currency risk, Equity price risk, commodity risk and inflation risk), credit risk, as well as liquidity risk. The management of these investment risks is addressed in OPTrust's policies. OPTrust's Liquidity Risk Management Committee monitors and manages liquidity needs. OPTrust may implement strategies to mitigate investment risks under adverse market conditions.

## 5) Responsible investing and ESG

As a long-term investor, the OPTrust has a clear responsible investing (RI) approach. It explicitly acknowledges the potential relevance of material environmental, social and corporate governance (ESG) factors to investment performance, and to the health and stability of the market as a whole. OPTrust's RI program focuses on four key areas:





# Stichting Pensioenfonds ABP



## Quick facts

The Stichting Pensioenfonds ABP is the largest pension fund in the Netherlands and one of the largest pension funds in the world. The fund was established by law in 1922 and provides retirement benefit services for around 2.8 million government and education employees.

## Evolution of total assets

The market value of ABP's Investment Portfolio was EUR 396.7bn (USD 433.4bn) as of 2015. In 2010, the assets amounted to EUR 260.6bn showing a CAGR of 8.8% between 2010 and 2015.

## Evolution of asset allocation

ABP's portfolio is highly diversified, holding investments from Fixed Income (36.5%) and Equity (32.8%) to Alternatives (23.3%) and other assets (7.4%). The most significant changes in asset allocation from 2010 to 2015 have been in Equity (decrease from 36.6%) and Alternatives (increase from 21.1%).

## Total return

ABP's portfolio returned 2.7% in 2015, outperforming its benchmark by 0.9%. Alternatives performed the highest in 2015, with a return of 11.2%. Their return decreased from 15.7% the previous year, however, still outperforming their benchmark by 3% in 2015.

## Geographic allocation

Due to diversification, the fund invests in different locations worldwide. In 2015, ABP heavily invested in the North American market with 36%. From 2010 to 2015, ABP reduced its investments domestically from 18% to 14%.

## Remuneration scheme

The remuneration consists of a fixed annual fee per board member and a fixed fee per committee member.

The fixed fee per board member is EUR 60,000 per year. The vice-president receives an additional compensation of EUR 10,000 per year. Depending on the size of the committee, the fixed fees of committee members vary between EUR 5,000 and EUR 15,000.

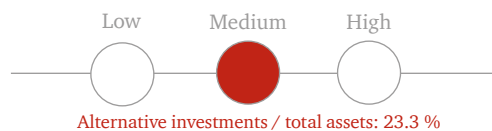
However, the total fees for each individual board member is a maximum of EUR 100,000 per year. The fees do not include social security or pensions.

Sources: ABP Annual Reports 2010-2015

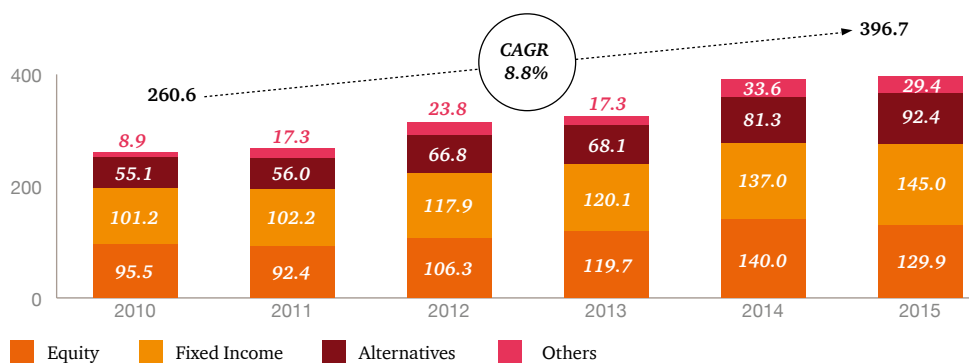
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1922	31	433.4	23.3%	N/A	2.7%

\* Based on local currency

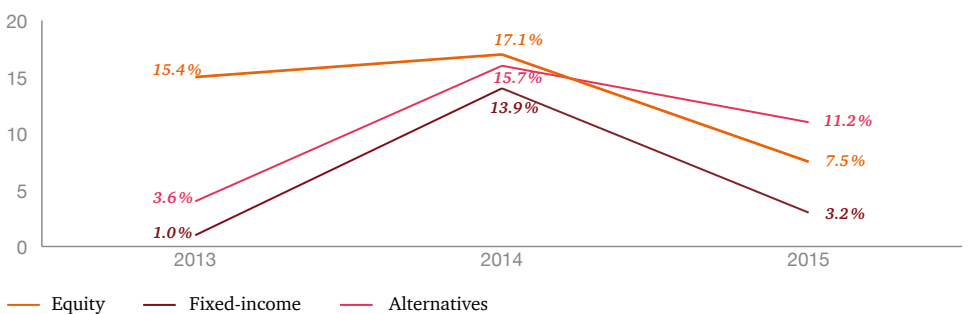
## Level of alternative exposure



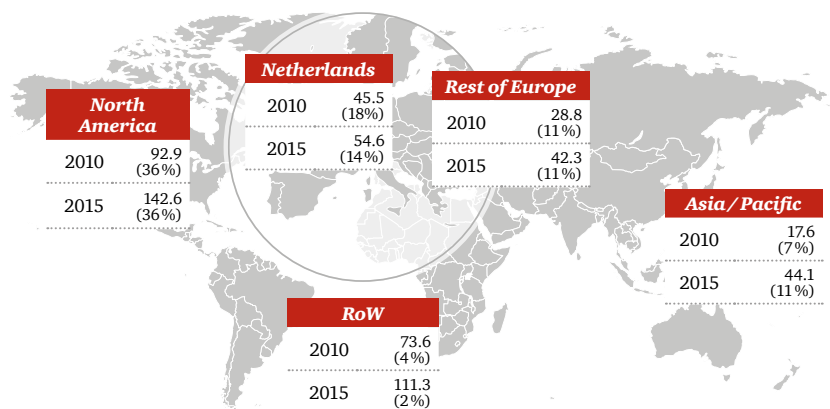
## Evolution of total assets by asset class (in EUR bn)



## Evolution of return by asset class



## Geographic asset allocation (2010 vs. 2015, in EUR bn)



## Executive remuneration schemes in 2015 vs. 2010 (EUR thousands)

Year	Board members	Committee members	Executive Director	Total remuneration	Remuneration/ Total expenses
2010	1,010 (71%)	403 (29%)	N/A	1,413	0.5%
2015	1,034 (59%)	473 (27%)	236 (14%)	1,743	0.4%

Sources: ABP Annual Reports 2010-2015

# Stichting Pensioenfonds ABP



## Alternative Focus

In 2015, ABP invested 23% of its portfolio in alternative assets. Within alternatives, the fund invested 48.8% in Real Estate, and 51.2% in others, consisting of Hedge Funds (30.6%), Commodities (6.6%), and various other alternative asset classes (14%), such as Private Equity, Infrastructure, and Music Rights.

### Real Estate

Real Estate investments are mainly composed of investments in retail (34%), Infrastructure (16.6%), residential buildings (15.9%), and offices (12.8%).

There are two categories within Real Estate: strategic and tactical. Strategic Real Estate (about 78% of the total property portfolio) consists of listed and non-listed Real Estate companies, Real Estate funds, joint ventures and co-investments. In 2015, it returned 17.6%.

Tactical real estate (about 22% of the total property portfolio) consists of listed Real Estate companies and funds. In 2015, it returned 14.3%.

### Other Alternatives

While most alternative asset classes performed very well during 2015, Commodities had a return of -20%. ABP invests in liquid and illiquid commodities.

Private Equity returned 24.8%, and therefore, was the highest performing asset class this year. It outperformed its benchmark by 14.8% in 2015, profiting from strategic buyers. A large part of Private Equity investments are denominated in USD.

## Outsourcing Focus

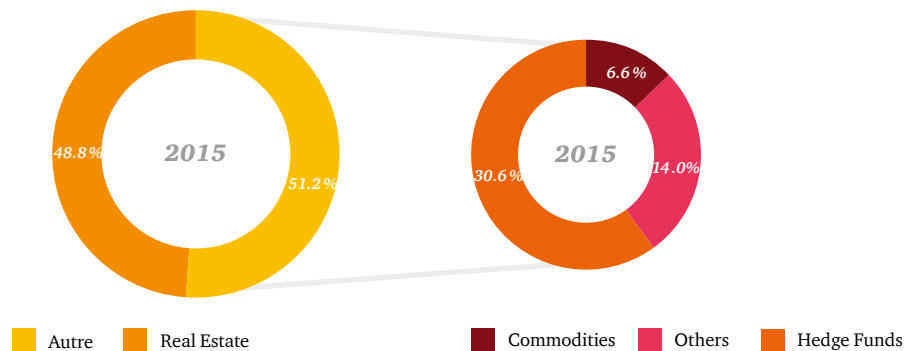
Only 9.1% of the investments in other Alternatives are made directly, whereas the remaining 90.9% are investments through mutual funds managed by an administrative organization. The indirect investments into Alternatives include mainly Hedge funds and Commodities.

ABP makes use of external managers to invest in Equity, Fixed Income, Infrastructure, and non-listed Real Estate.

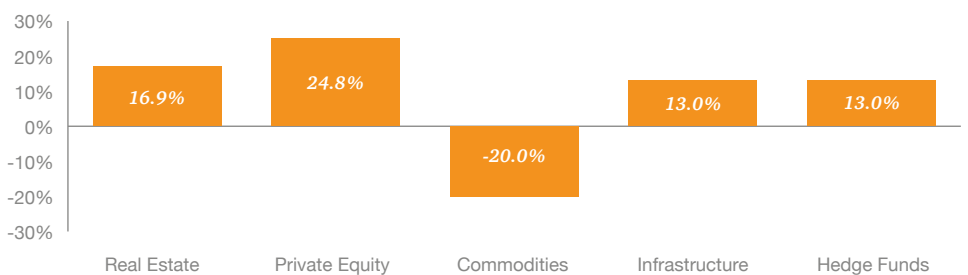
The size of ABP's assets managed by external managers varies from EUR 0.8bn to EUR 5.0bn.

Sources: ABP Annual Reports 2010-2015

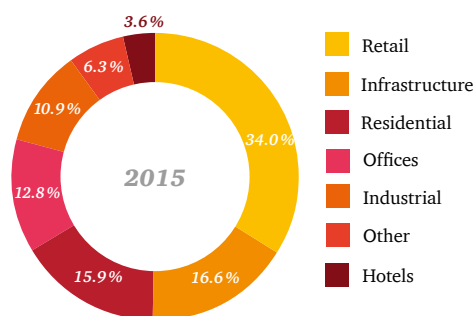
## Asset Allocation within Alternative Investments



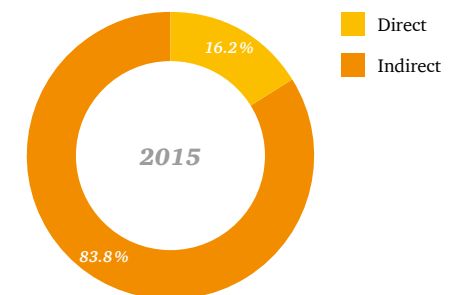
## Selected Alternative asset classes' returns (in 2015)



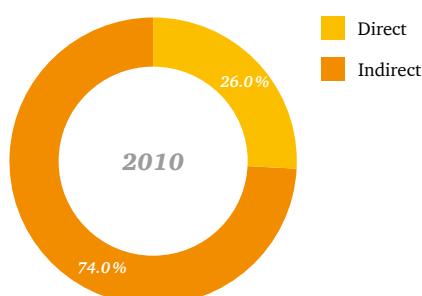
## Real Estate Investments by type



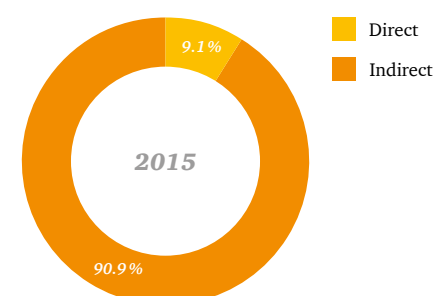
## Direct vs. indirect Real Estate Investments



## Direct vs. indirect Other Alternatives



## Direct vs. indirect Other Alternatives



Sources: ABP Annual Reports 2010-2015

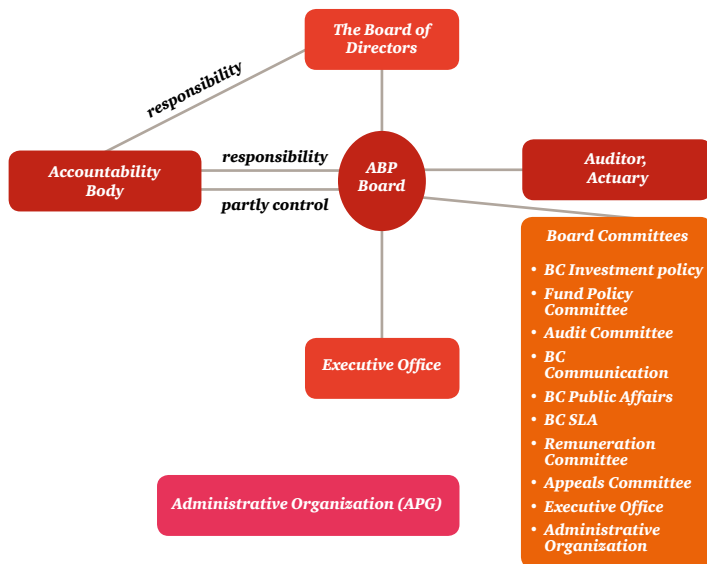
# Stichting Pensioenfonds ABP



## 1) Investment strategy

At the end of 2015, ABP set up its new strategic investment policy, which is included in the new “Strategic investment plan 2016-2018”. The main criteria for setting up the strategy were decreased risk and the analysis of the fund’s long-term results.

### Corporate Governance



## 2) & 3) Outsourcing of portfolio management / In-house portfolio management

ABP manages the bulk of its investments through APG Investments, a privately owned investment manager. APG operates as a subsidiary of ABP and was formerly known as ABP Investments.

A large part of the assets is invested through Fund for Joint Accounts (FGR), in which ABP participates. A FGR is the most common fund vehicle used in the Netherlands. The FGR is not a legal entity, but is created by an agreement between the manager, the depositary and one or more investors which obliges the manager to invest and manage assets for the joint account of the investors. Examples include:

- APG Strategic Real Estate Pool
- APG Tactical Real Estate Pool
- APG Infrastructure Pool 2011
- APG Infrastructure Pool 2012

In 2006, ABP and PFZW - two large Dutch pension funds – separated their investment management businesses and began coordinating their activities in Private Equity through Alpinvest Partners, one of the largest global investors in the Private Equity asset class.

Additionally, New Holland Capital (NHC) manages a USD 15bn portfolio of Hedge Fund investments exclusively on behalf of APG Investments.

Sources: ABP Annual Reports 2010-2015

New Holland Capital is a registered investment advisory firm located in New York. The firm manages 9 accounts totaling an estimated USD 29.8bn in assets under management. Its operation involves 35 employees and provide investment advisory services to 10 clients.

NHC offers APG Investments continuity in the professional management of its Hedge Fund portfolio.

## 4) Risk framework

The Board uses an integral risk approach based on the COSO-ERM-model which delivers risk management, such as the formulation of management measures, risk reports and risk monitoring. The fund aims to integrate risk management into its daily processes and to optimize internal controls as this approach can be applied to internal processes as well as those that have been outsourced to APG.

The Board also used this model to judge the quality of the controls and control systems regarding the objectives of their financial reporting. This judgment is recorded in the *In Control Statement*.

Further, the Board ensures continued risk management by the structure of its committees. The Supervisory Board oversees the risk management policy of the Board.

## 5) Responsible investing and ESG

ABP presented a policy regarding responsible investment called “ABP with ambitious approach towards 2020”. It states that ABP and their investment organization APG couples the integration of sustainability and corporate responsibility with profitability goals.

The policy includes concrete investment targets for 2020 to contribute to the reduction of climate change. The CO2 footprint of the Equity portfolio should be reduced between 2016 and 2020 by 25%.

Further, ABP wants to increase their investments in renewable energy to EUR 5bn and double their investments in solutions to social and environmental problems (EUR 58bn in 2020).

The fund also wants to invest EUR 1bn until 2020 in education, communication and infrastructure, preferably in the Netherlands.

# Stichting Pensioenfonds Zorg en Welzijn (PFZW)



## Quick facts

Stichting Pensioenfonds Zorg en Welzijn (PFZW) provides a mandatory corporate pension scheme for employees in the healthcare and welfare sectors in the Netherlands. PFZW, formerly known as PGGM, was established in 1969 through the combination of several smaller Dutch pension funds.

It is among the top 10 pension funds in the world.

## Evolution of total assets

In 2015, PFZW's total assets amounted to EUR 163.6bn (USD 177.6bn), having grown at a CAGR of 10.5% between 2010 and 2015 mainly due to the diversification of investments.

## Evolution of asset allocation

PFZW's portfolio in 2015 was highly diversified with investments ranging from Fixed Income and Equity to Alternatives such as Private Equity, Real Estate, and Infrastructure.

PFZW has steadily increased the share of its investments in Fixed Income, from 34.6% in 2010 to 42.6% in 2015. Equity and Alternatives' shares, therefore, decreased during that time.

## Total return

The total return on PFZW's investments amounted to -0.1% in 2015 which still led the fund's benchmark by 1.0%.

On average, Fixed Income investments achieved the highest returns during 2010 and 2015. However, this asset class' returns have fluctuated the most.

Alternatives returns has been more stable, with an average return of 7.6%.

## Currency exposure\*

In 2015, foreign currency exposure amounted to EUR 87.9bn, representing 53.7% of the total investment portfolio.

The largest share in 2015 and 2012 was USD, with 31.3% (EUR 50.8bn).

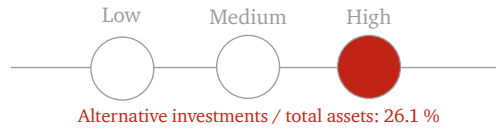
In 2015, 64% of the currency risk was hedged through forward contracts and swaps.

\*Taken as a proxy of foreign investments  
Sources: PFZW annual reports 2015-2010; and website

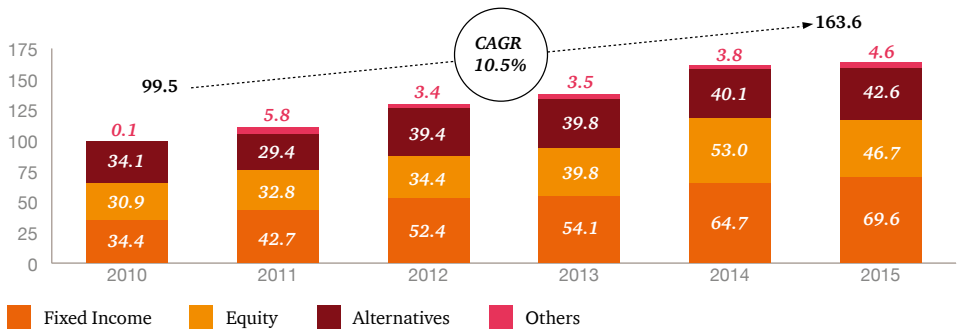
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1969	Around 50	177.6	26.1%	0.5%	-0.1%

\* Based on national currency

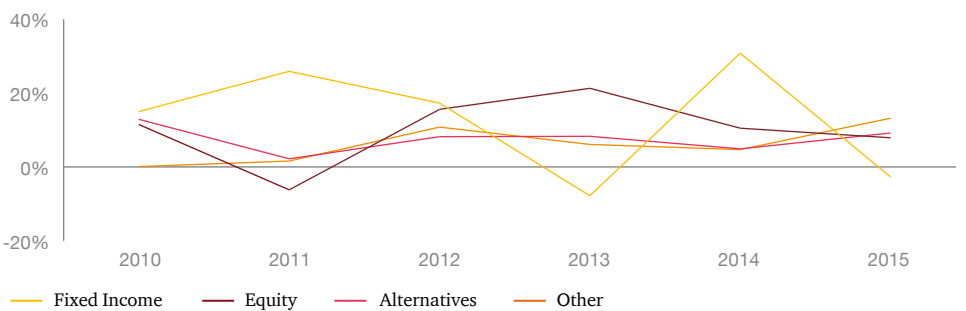
## Level of alternative exposure



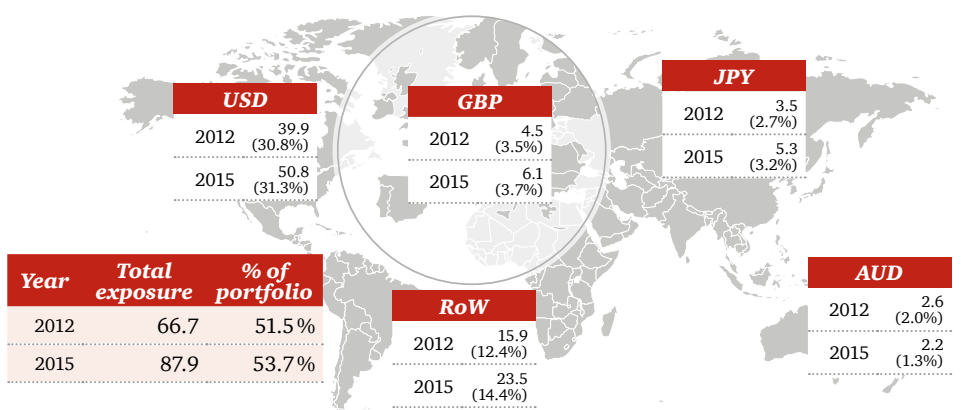
## Evolution of total assets by asset class (in EUR bn)



## Evolution of return by asset class



## Currency exposure (2010 vs. 2015, in EUR bn)



## Evolution of asset management costs (EUR mn)

Year	Fixed fees	Performance related fees	Total asset management costs	Total AM costs / total assets
2012	495	193	688	0.5 %
2015	513	300	813	0.5 %

Sources: PFZW annual reports 2015-2010; and website

# Stichting Pensioenfonds Zorg en Welzijn (PFZW)



## Alternative Focus

In 2015, PFZW invested about EUR 42.6bn in Alternatives, representing 26.1% of its portfolio.

Within the Alternatives, the fund invests in Real Estate (49.4%), Private Equity (23%), Commodities (14%), Infrastructure (13.2%) and Hedge Funds (0.2%).

### Real Estate & Infrastructure

PFZW's Real Estate and Infrastructure portfolio has remained largely invested in the USA (41.3% in 2015 versus 35% in 2010) over the last five years.

Indirect Real Estate investments consist of retail (31%), industrial (14%), residential (13%), offices (9%), mixed (13%) and others (19%).

### Private Equity

PFZW invests in Private Equity through venture capital and acquisitions, carried out both directly (16.4%) and indirectly (83.6%) through co-investments and funds.

### Commodities

Investments in Commodities are only investments in the commodity futures market. PFZW does not invest in the physical market. The PGGM Commodity Fund makes the investments in Commodities for PFZW.

### Hedge Funds

In 2015, PFZW announced it will no longer use Hedge Funds to manage investments, citing excessive costs, complexity and performance uncertainty.

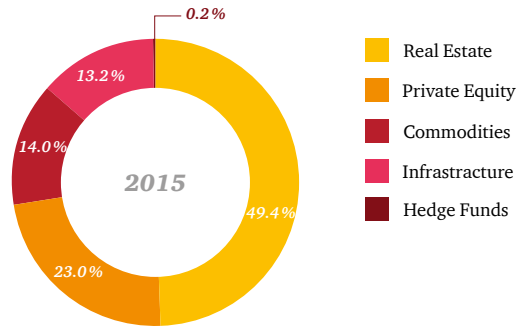
## Outsourcing Focus

PFZW made the decision to stop using Hedge Funds, as their methods had become too complex due to diverse investment strategies. The move will allow the fund to have greater control over its investments.

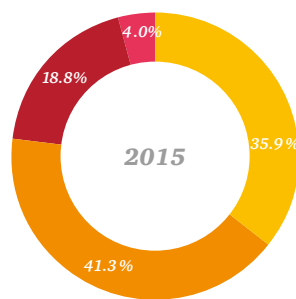
Nevertheless, PFZW continues to use external asset managers, which are increasing in number. These asset managers invest in asset classes where specific industry knowledge is an advantage, such as Emerging Market Debt, Real Estate, Private Equity, and Structured Credit.

Sources: PFZW annual reports 2015-2010; website; and IPE

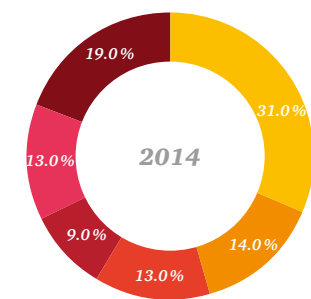
## Asset Allocation within Alternative Investments



## Geographic allocation of Real Estate & Infrastructure



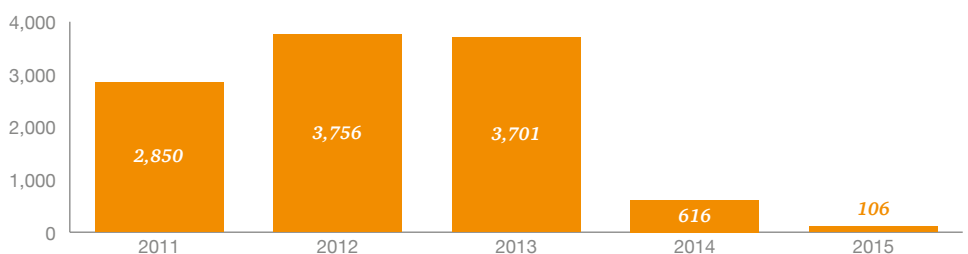
## Allocation of indirect Real Estate investments



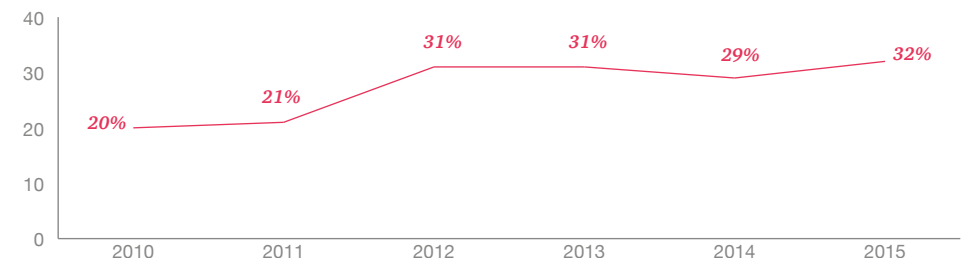
## Direct vs. Indirect Private Equity Investments



## Evolution of investments in Hedge Funds (in EUR mn)



## Evolution of the number of external asset managers



Sources: PFZW annual reports 2015-2010; and website

# Stichting Pensioenfonds Zorg en Welzijn (PFZW)



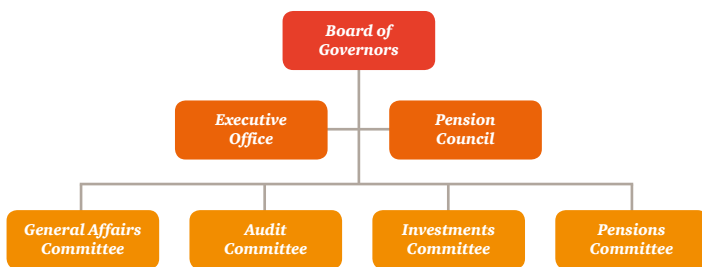
## 1) Investment strategy

In 2008, the governing board adopted a separation between its policy (structuring of pensions) and implementation (managing of assets and payments) functions. The policy was distributed to PFZW, and a newly created cooperative (PGGM) managed the fund's assets from that point forward.

### Corporate Governance

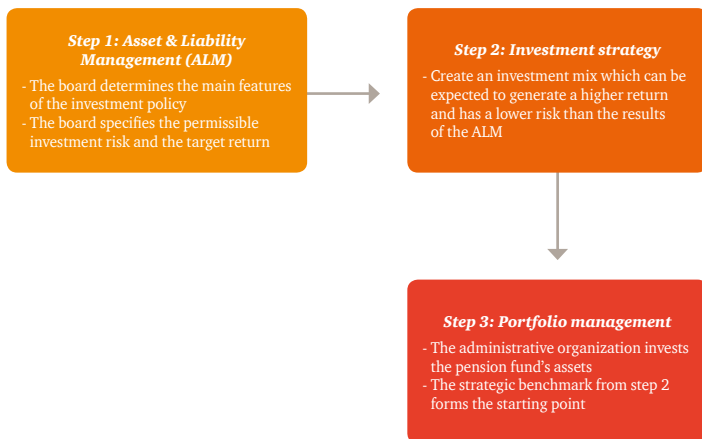
The Board of Governors is responsible for defining the policy and operating the pension scheme. The Board consists of six representatives of the employers' organizations, six employees' organizations and an independent chairman. The Pension Council consists of participants, pensioners and employers.

In order to implement the principles of good pension fund governance, PFZW decided to integrate co-determination and the new accountability function into the Pension Council.



### Investment targets

PFZW strives to achieve a high stable return in order to offer all participants an affordable, high-quality pension. In order to archive this, PFZW established the following Asset Allocation Policy:



### Performance assessment

PFZW's investment strategy is to create a diverse investment mix (Liquid Assets – Equity, Bonds, Commodities; Illiquid Assets – Infrastructure, Private Equity, Private Real Estate) which can generate a higher return and has a lower risk than the ALM study in step 1.

The pension fund applies three key principles:

1. Diversification of assets across different asset categories: As a long-term investor with a large amount of AuM, the fund can invest in asset categories which are not accessible to all institutional investors. The size of the fund also enables it to invest in innovative products.
2. Fund managers focus on better coverage of asset categories.
3. The fund takes into account the valuations and market conditions, meaning attractively priced investments will be added more swiftly to the investment portfolio.

Sources: PFZW annual reports 2015-2010; and website

## 2) & 3) Outsourcing of portfolio management / In-house portfolio management

PGGM, the fiduciary manager, is set up as a pension fund service provider that currently manages the pensions of more than 2.6 million participants of various pension funds.

PGGM's tasks involve:

- responsible investment activities;
- the ALM study;
- general support of the pension fund;
- analysis of investments most appropriate for the pension fund's portfolio and investment policy; and
- treasury management of PFZW.

Outsourcing the administration of the pension scheme has allowed PFZW to devote all of its attention on the pension fund's policy, and more closely follow the innovations taking place in the world of pensions. Moreover, costs and risks decreased.

## 4) Risk framework

In PFZW's risk management, risks are clearly identified and can be controlled as effectively as possible at every step in the process of turning assets into investments. Two committees are involved in the policy and risk reports. The Audit Committee advises the Directors on internal control, internal and external audits, compliance, ethics and policy proposals of the pension committee from a risk perspective. The Investments Committee weighs risks and returns to determine the investments' risks.

## 5) Responsible investing and ESG

Responsible investing has for many years been an important principle in determining the investment policy. The aim is to achieve a good and responsible return. Responsible investment means consciously taking into account the impact of environmental and social factors, and good corporate governance in all investment activities. The pension fund has chosen to specifically focus on select areas (weapons, human rights, climate change, health and good corporate governance) to avoid harmful activities or increase socially beneficial activities. PFZW is also a signatory to the United Nations Principles for Responsible Investment.

Since 1985, the pension fund has applied criteria whereby it does not invest in certain companies. Government bonds of countries in which United Nations sanctions have been imposed are also excluded.



# Pensioenfonds Metaal en Techniek (PMT)



## Quick facts

The Pensioenfonds Metaal en Techniek (PMT) is a pension fund for Dutch employees in the metalworking and mechanical-engineering sectors. The fund was established in 1948. PMT is the largest private sector pension scheme and the third largest pension fund in the Netherlands. To date, 33,000 employers have joined PMT which represents about 1.2mn participants.

## Evolution of total assets

The market value of the PMT Investment Portfolio was EUR 58.7bn (USD 71.3bn) as of 2014. Diversification and a sound investment strategy focused on sustainable long-term growth have enabled RMT assets to grow at a CAGR of 9.4% between 2010 and 2014.

## Evolution of asset allocation

The PMT portfolio is quite diversified, holding investments ranging from Fixed Income (57.9%) and Equity (27.7%) to Alternatives (14.4%), in 2014.

The most significant changes in asset allocation between 2010 and 2014 have been in Alternatives (24.4% in 2010), mostly due to the decrease of the Hedge Fund investments.

## Total return

PMT's total return stood at 20.6% in 2014. The fund performs a benchmark test which provides a measure of the actual investment return over a period of five years in comparison to the investment return of the benchmark portfolio over the same period. To assess the benchmark test, a figure derived from the result of the calculation plus 1.28 is disclosed. The benchmark test is satisfied if the stated result is greater than or equal to zero. In 2015, the calculated value was 2.94.

## Currency exposure\*

In 2014, the total foreign currency exposure equaled EUR 30.9bn, with the majority in USD (35.4%). Assets in local currency (EUR) represented 47.2%.

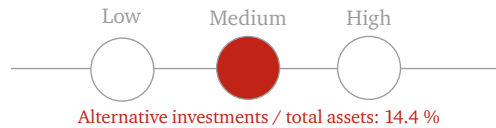
In 2010, the total foreign currency exposure was equal to EUR 18.3bn.

\*Taken as a proxy of foreign investments  
Sources: PMT Annual Reports 2010-2014

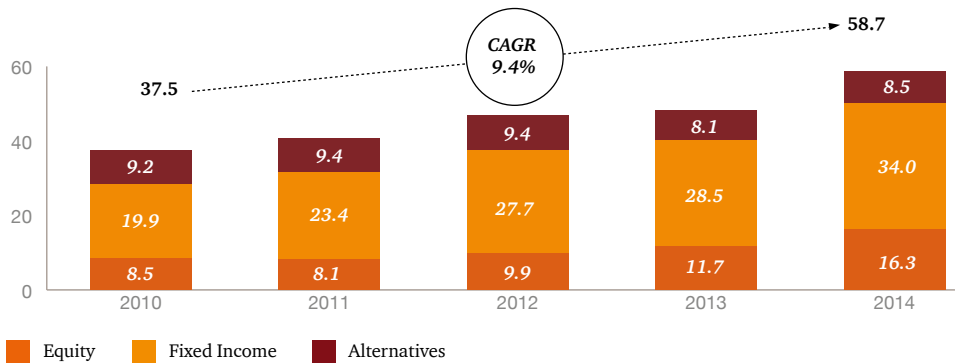
Inception date	Employees (2014)	Total Assets (USD bn, 2014)	% Alternative investments	External managers fees/ total assets	Total return* (2014)
1948	11-50	71.3	14.4%	0.4%	20.6%

\* Based on local currency

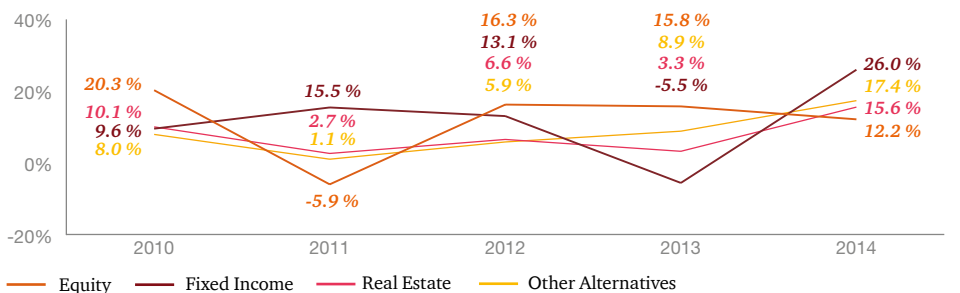
## Level of alternative exposure



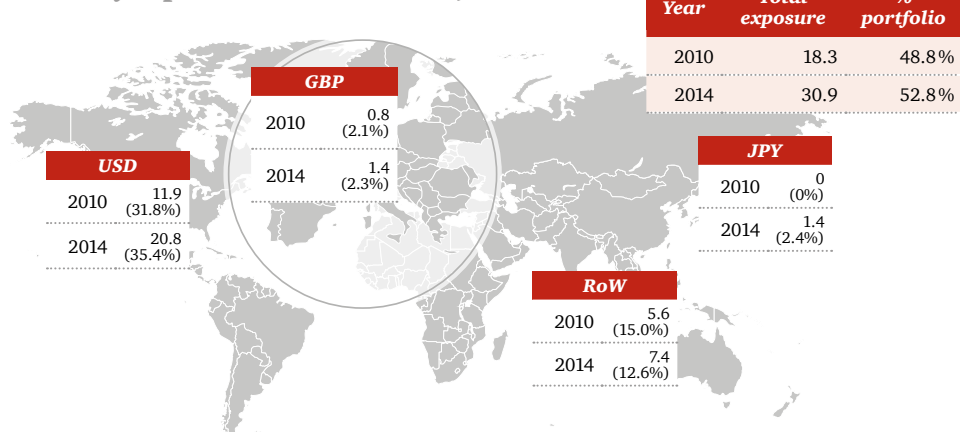
## Evolution of total assets by asset class (in EUR bn)



## Evolution of return by asset class



## Currency exposure (2010 vs. 2014, in EUR bn)



## Evolution of Asset Management Costs (EUR mn)

Year	Fixed Management Fees	Performance Fees	Other	Management Costs	Total Management Costs	Management Costs / Total Assets
2011	158.5 (77.1%)	41.1 (20.0%)	6.0 (2.9%)	205.6	0.5%	
2012	162.4 (75.9%)	41.9 (19.6%)	9.8 (4.6%)	214.1	0.5%	
2013	147.2 (84.7%)	17.2 (9.9%)	9.4 (5.4%)	173.7	0.4%	
2014	149.5 (63.9%)	75.1 (32.1%)	9.4 (4.0%)	233.9	0.4%	

Sources: PMT Annual Reports 2010-2014

# Pensioenfonds Metaal en Techniek (PMT)



## Alternative Focus

PMT prefers to invest in transparent and physical investment products instead of synthetic constructions and complicated derivatives.

In 2014, the Alternative investments portfolio represented 14.4% of the fund's total assets and included Private Equity & Infrastructure (EUR 3.0bn), Hedge Funds (EUR 0.8bn) and Real Estate (EUR 4.9bn).

### Private Equity & Infrastructure

Private Equity and Infrastructure increased from EUR 2.6bn in 2013 to 3.0bn in 2014. New investments in this asset class amounted to EUR 492mn in 2014.

### Hedge Funds

PMT decided to stop investing in Hedge Funds in 2014. The purpose of using Hedge Funds was to diversify risk and stabilize the funding ratio. However, because the benefit was minimal, the fund decided to sell all of its Hedge Fund assets by the end of 2015.

### Real Estate

PMT views Real Estate as an investment that increases the stability of the fund's overall returns. The Real Estate portfolio is the fund's largest alternative asset class, with investments of EUR 4.7bn, or 8.3% of the total fund, in 2014. Most Real Estate investments were made domestically (27.9%) in 2014.

## Outsourcing Focus

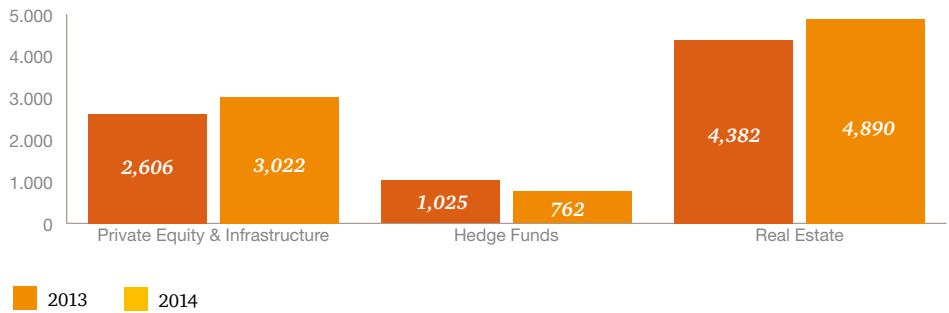
Indirect investments increased substantially in both Real Estate and Equity from 2010 to 2014, whereas Hedge Funds investments were curtailed between 2014 and 2015.

The discontinuation of Hedge Funds in 2014 led to a considerable reduction in costs, which became apparent in 2015.

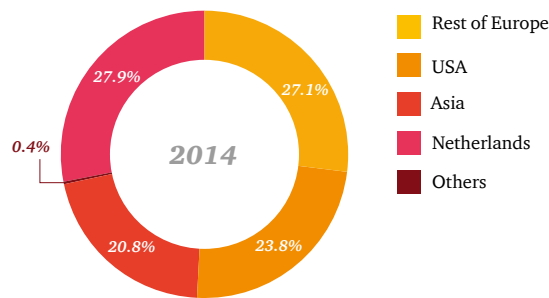
PMT prefers to invest through segregated mandates rather than through investment funds. The exceptions are Private Equity and international property investments, as an individual mandate is not possible for these asset classes.

Source: PMT Annual reports 2010-2014; IPE

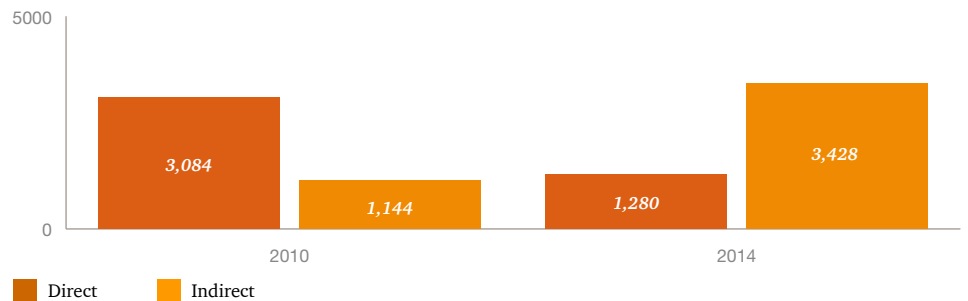
## Alternative Investments (in EUR mn)



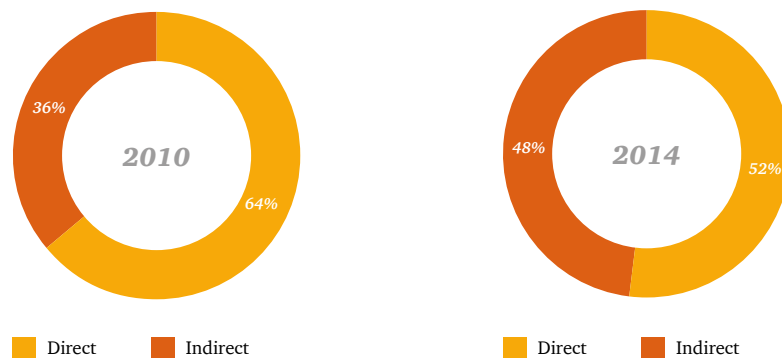
## Geographic asset allocation of Real Estate



## Direct vs. Indirect investments in the Real Estate portfolio (in EUR mn)



## Direct vs. Indirect investments in the Equity portfolio



Sources: PMT Annual Reports 2010-2014

# Pensioenfonds Metaal en Techniek (PMT)



## 1) Investment strategy

PMT avoids tactical investment because the fund does not want to predict market movements for the short term. Instead, the fund pursues a steady long-term investment policy.

In 2014, a new pension scheme and a new regulatory framework (nFTK) came into place, which divided the strategic investment policy into three clusters of asset classes: Property, Equity and High Yield. These account for 20%, 60% and 20% of the return portfolio, respectively.

### Corporate Governance

In 2014, PMT adopted the Pension Fund Code, based on proportional representation. The Management Board is now made up of representatives of employers, employees and pensioners. In addition, it is now possible to nominate outside experts.

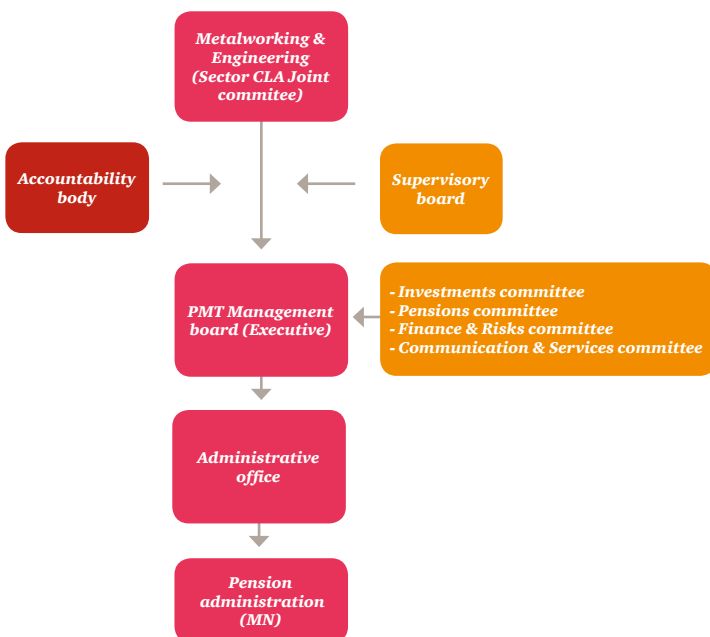
The model also includes an Accountability Body through which management decision are communicated to the PMT stakeholders. The vehicle is represented by the contributing participants, pensioners and employers.

The Supervisory Board is responsible for internal supervision.

The Management Board also has a number of management committees:

- Investments Committee (CBL)
- Pensions Committee (CPS)
- Finance and Risk Committee (CFR)
- Communication and Service Committee (CCD)

These committees either advise the Management Board or have a specific mandate to take decisions on certain matters.



There is also a board which is not part of the official governance illustrated above: the Industry-Wide Joint Committee, which the management board takes into account. This committee has the right to make recommendations in certain areas.

In 2014, PMT decided to participate in the newly established Netherlands Investment Institution (NLII). The NLII brings together major Dutch institutional investors to promote and fund promising investments in the Dutch economy.

Source: PMT Annual report 2014

## 2) & 3) Outsourcing of portfolio management / In-house portfolio management

PMT has outsourced pension administration and asset management to MN. With 1,132 employees, MN is one of the largest pension administrators and asset managers in the Netherlands. MN managed assets worth more than EUR 92bn in 2013 for a variety of pension funds in the Netherlands, and reached a turnover of EUR 204.5mn. The portfolio's management uses diversification as a key strategy to optimize the risk-return ratio. Therefore, MN invests in a wide range of asset management products such as Equity, Fixed Income, Real Estate, Private Equity, Hedge Funds, Infrastructure, etc., in Europe, North America, the Far East and Emerging Nations.

A more balanced portfolio is created through multiple return drivers. Diversifying across low-correlation return drivers, whilst bearing in mind costs and complexity, improves the risk–return profile of the portfolio.

## 4) Risk framework

The fund created its own Risk Appetite Statement which focuses on two processes: asset management and pension administration. The statement is the basis for every important decision affecting both policy and the implementation of policy. It specifies the risk which PMT can accept and further ensures that the risks and the management thereof are clearly understood, including PMT's responses to adverse consequences.

Due to the outsourcing to MN, PMT follows a specified process regarding ISAE 3402 to reduce the risks.

- MN outlines the risks identified at strategic, tactical and operational levels together with the corresponding risk management measures that are in place;
- MN also regularly tests the effectiveness of each of these risk management measures and reports on its findings. To supplement this report, MN's management issues an in-control statement with respect to the entirety of the risk management measures;
- MN's external auditors also examine whether the combination of risk management adequately mitigate the risks, using this report, the management's in-control statement and their own observations;
- The auditors also examine whether these risk management measures are effectively implemented during the reporting period;
- Based on their findings, MN's external auditors issue an assurance report to MN on the ISAE 3402 type II report. For 2014, PMT received an ISAE 3402 type II report for both the asset management processes and the pension administration processes performed by MN.

## 5) Responsible investing and ESG

PMT invests exclusively in shares of companies with ESG-scores standard in the top 90% of equities in developed countries. In 2015, the fund planned to expand this throughout the entire portfolio.

# Stichting Bedrijfstakpensioenfondsvoor de Bouwnijverheid (bpfBOUW)



## Quick facts

Stichting Bedrijfstakpensioenfondsvoor de Bouwnijverheid (bpfBOUW) provides pension plans for employers and employees of the construction industry in the Netherlands.

BpfBOUW was established in 1970 by employers' and employees' organizations and is the fifth largest pension fund in the Netherlands.

## Evolution of total assets

BpfBOUW's assets grew at a CAGR of 12.3% between 2010 and 2015, due to asset diversification and allocations in illiquid investments. In 2015, the total assets of the pension fund amounted to EUR 52.4bn (USD 56.9bn).

## Evolution of asset allocation

BpfBOUW's asset allocation has remained relatively stable over the last five years. The portfolio is highly diversified, holding investments ranging from Fixed Income (42.7%) and Equity (27.1%) to Alternative Investments (23.2%) such as Real Estate, Hedge Funds, and Private Equity.

Equity decreased slightly from 32.4% in 2010 to 27.1% in 2015. Fixed Income increased from 38.9% in 2010 to 42.7% in 2015, and Alternatives remained at around 23%.

## Total return

The total return on bpfBOUW's investments was 1.2% in 2015.

The most significant fluctuations in returns occurred in Equity in 2011 (from 18.6% to -6.0%) and in Fixed Income in 2013 (from 12.5% to -1.0%).

In 2015, the fund's asset classes outperformed almost all of their benchmarks, except for Fixed Income, which lagged behind by 0.1%, still returning a positive 2.8% on its investments.

## Currency exposure\*

The total currency exposure after hedging amounted to EUR 26.9bn in 2015, which represented 51.3% of its portfolio.

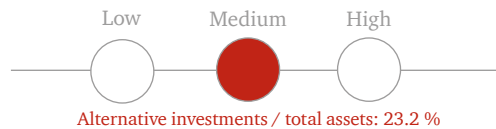
The investments in two new foreign currencies, Canadian and Australian dollars (aside from US dollars, British pounds, Japanese yen and Swiss francs), were hedged with forward exchange contracts.

\*Taken as a proxy of foreign investments  
Sources: bpfBOUW Annual Reports 2015-2011; and website

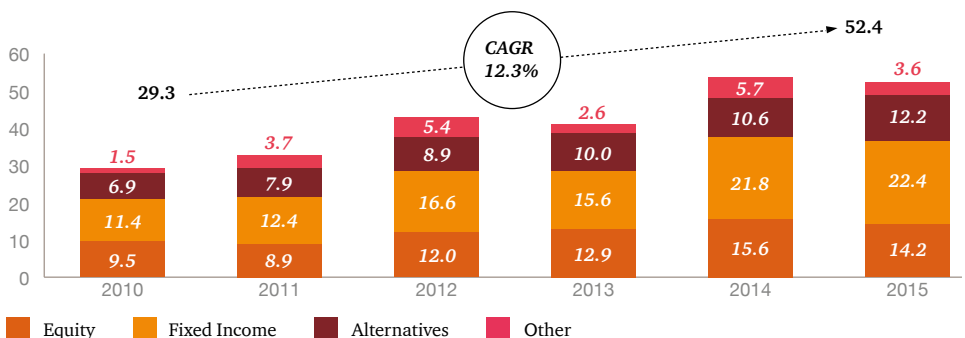
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1970	N/A	56.9	23.2%	0.3%	1.2%

\* Based on national currency

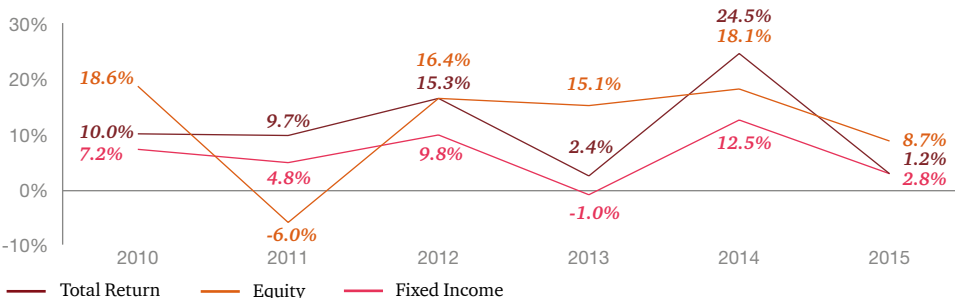
## Level of alternative exposure



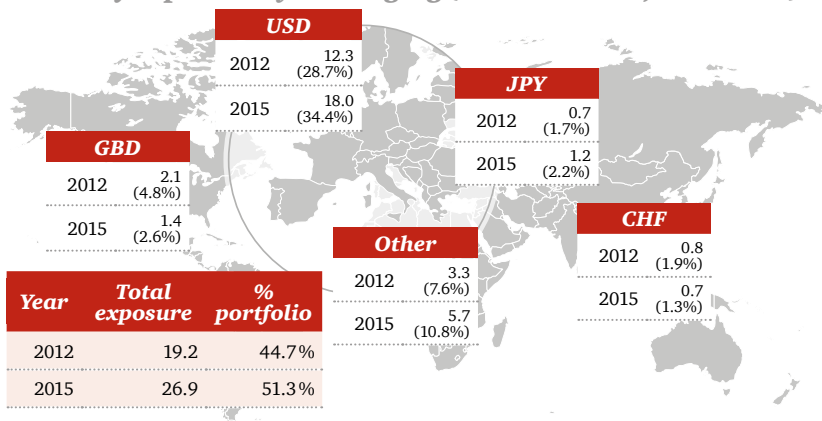
## Evolution of total assets by asset class (in EUR bn)



## Evolution of return by asset class



## Currency exposure after hedging (2012 vs. 2015, in EUR bn)



## Evolution of Total Asset Management costs (EUR mn)

Year	Management fees	Performance related fees	Transaction costs	Total Asset Management costs	Asset Management costs / Total assets
2012	141.9	32.5	29.5	203.0	0.5%
2013	164.1	56.0	52.3	272.4	0.7%
2014	175.6	71.7	50.0	297.3	0.6%
2015	211.1	78.0	48.0	337.1	0.6%

Sources: bpfBOUW Annual Reports 2015-2011; and website

# Stichting Bedrijfstakpensioenfonds voor de Bouwnijverheid (bpfBOUW)



## Alternative Focus

In 2015, BpfBOUW invested 23.3% in alternative assets. Within Alternatives, the fund invests in Real Estate (59.0%), Hedge Funds (17.4%), Private Equity & Infrastructure (13.8%), Commodities (9.4%) and Opportunities (0.4%).

Private Equity & Infrastructure had the highest returns in 2015, outperforming their benchmarks by almost 15% each. Although Commodities had negative returns of -23.3%, all alternative asset classes outperformed their benchmarks in 2015.

### Real Estate

The Real Estate portfolio stood at a market value of EUR 7.2bn or 13.7% of the total fund, as of 2015. Real Estate investments include sustainable Real Estate, environmental technology and infrastructure, economic participation and healthcare, and renewable energies. Most investments in Real Estate are made in the local market (64% of total Real Estate investments).

### Private Equity & Infrastructure

Investments in Private Equity and Infrastructure are made through unlisted investment pools. These investments have generated attractive returns in spite of high costs.

### Hedge Funds, Commodities and Opportunities

Investments in these alternative asset classes are made through investment pools. Opportunities include investments in rights of films and television series, pharmaceutical royalties and energy infrastructure.

## Outsourcing Focus

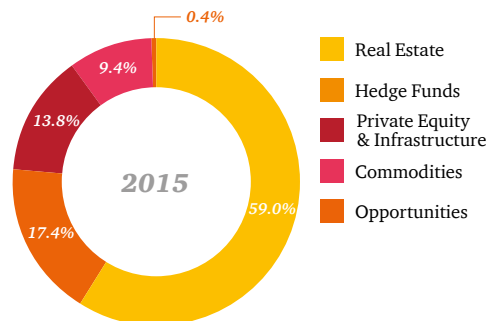
BpfBOUW outsources all of its asset management. The highest costs for external management come from Alternatives (65.4%), of which 43.3% consists of Real Estate investments, but the expected return is high.

In 2015, total external asset management costs amounted to EUR 181.6mn. The increased fees were caused by higher allocations to the more expensive asset classes such as Hedge Funds and emerging markets bonds.

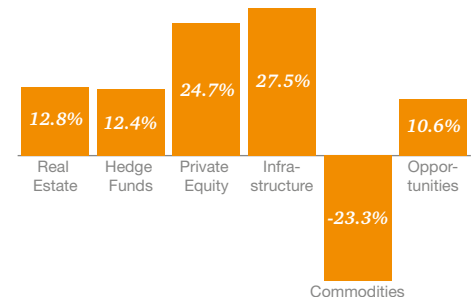
Sources: bpfBOUW Annual Reports 2015-2011; and website

## Asset allocation and returns for Alternative Investments

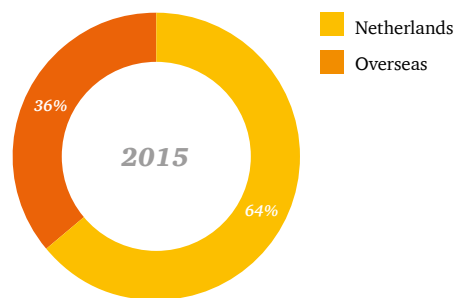
### Asset Allocation



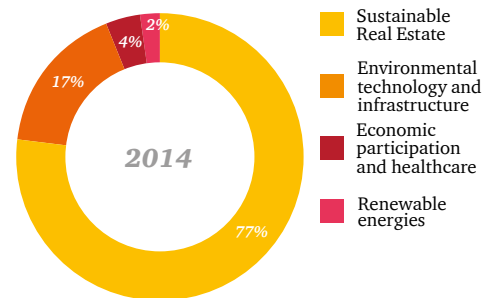
### Returns



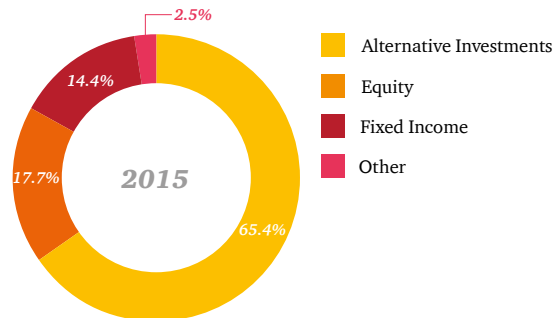
## Geographic allocation of Real Estate Investments



## Real Estate Investments by type



## External management costs by asset class



## Evolution of external management costs (in EUR mn)



Sources: bpfBOUW Annual Reports 2015-2011; and website



# Stichting Bedrijfstakpensioenfonds voor de Bouwnijverheid (bpfBOUW)



## 1) Investment strategy

### Corporate Governance

BpfBOUW has the following executive bodies: the Board, the Accountability Council, the Board of Trustees, the Investment Advisory Committee and the Executive Office. The Board consists of fourteen members, including six employers, six employees (representatives of the unions), and two independent experts. There are six committees to support the management:

- Committee on General Affairs
- Audit Committee
- Investment Committee
- Committee on Retirement Affairs
- Outsourcing Committee, Risk Management
- Asset and Balance Sheet Management

### Investment target

BpfBOUW invests in various asset classes, but traditionally a lot in Dutch Real Estate and securities including corporate bonds. The asset allocation consists of short-term and long-term investments, which are expected to produce good returns while maintaining responsible and social practices including the willingness to take fewer risks.

## 2) Outsourcing of portfolio management

The pension fund has outsourced its asset management to APG and Bouwinvest Real Estate Investment Management BV, its financial administration to APG, and its actuarial advice to APG.

The external asset managers are obliged to not only adhere to financial performance and business processes, but also to find out whether or not the companies follow environmental, social and governance (ESG) principles.

The expertise of these external managers gives bpfBOUW the best possible view on the risks and opportunities of the companies and funds in which they invest.

BpfBOUW outsources the asset management of its pension fund to APG, with the exception of Real Estate. APG is also responsible for liquidity management and non-listed derivatives. The liquidity management concentrates on expanding and attracting cash, transactions in foreign currency and collateral management. The investments in non-listed derivatives include hedging the interest rate risks and the currency risks.

The management of the Real Estate investments is outsourced to Bouwinvest, which is a 100% subsidiary of bpfBOUW. The Dutch Real Estate portfolio comprises five sector funds:

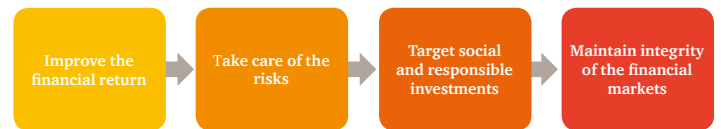
1. Residential Fund;
2. Retail Fund;
3. Office Fund, which is all open to institutional investors;
4. Hotel Fund; and
5. Healthcare Fund, which is managed for bpfBOUW.

Bouwinvest also provides bpfBOUW with asset allocation advice and investments in listed and unlisted Real Estate funds in Europe, North America and the Asia-Pacific region.

Sources: bpfBOUW Annual Reports 2015-2011; and website

## 3) In-house portfolio management

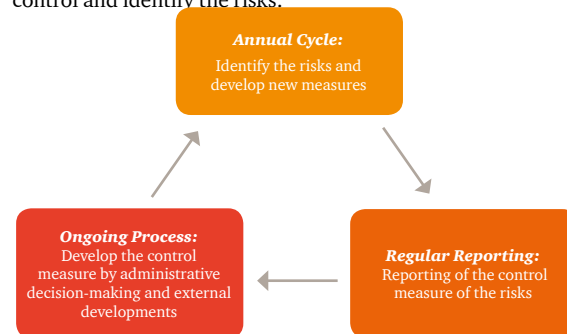
BpfBOUW uses five basic strategies: predictable return, low risk, recognized costs, optimal diversification and socially responsible investments. The fund has established an Asset Policy with the following goals:



The policy is based on the principles of Asset Liability Management. To achieve the aims of the policy, bpfBOUW is looking maintain a balance between sustainability and efficiency on the one hand and the long-term risks on the other hand.

## 4) Risk framework

Risk management is a key element of bpfBOUW's operations. The risks are divided into Integrity & Compliance, Governance, Strategic, Financial, and Operational. There are three processes which ensure that the Board can control and identify the risks:



## 5) Responsible investing and ESG

BpfBOUW's investment policy is strongly committed to environmental, social and good corporate governance principles (e.g. alternative energy, sustainable infrastructure and microfinance). The fund does not invest in companies which are directly involved in the production of landmines, cluster munitions, chemical, nuclear and biological weapons, and in government bonds of countries where an arms embargo is imposed by the UN Security Council.

BpfBOUW collaborates with other pension funds and asset managers in the world, e.g. research institutions and non-governmental organizations, to increase the responsible impact of the policy.

Further, bpfBOUW complies with the Dutch Corporate Governance Code which contains principles and provisions on corporate governance. ESG is part of all asset classes and has been integrated into the investment process.



# Pensioenfond van de Metalektro (PME)



## Quick facts

Pensioenfond van de Metalektro (PME) is a pension fund for metal and electronic engineering industry workers in the Netherlands. The fund was established in 1947 and is the fifth largest pension fund in the Netherlands.

## Evolution of total assets

The total assets of the PME amounted to EUR 40.5bn (USD 48.9bn) in 2015. Diversification and heavy investments in Dutch Real Estate, mortgages and Corporate Bonds (in EU and the US), but also in Dutch Government Bonds, enabled PME's total assets to grow at a CAGR of 15.0% between 2010 and 2014.

## Evolution of asset allocation

PME's asset allocation remained relatively stable over the last four years. The fund is highly diversified, holding investments ranging from Fixed Income (58.1%) and Equity (31.2%), to Alternative Investments (8.6%) and Others (2.0%).

The most significant change in asset allocation between 2010 and 2014 has been in Equity from 24.7% in 2010 to 31.2% of total investments in 2014. Fixed Income decreased slightly from 59.8% in 2010 to 58.1% in 2014.

## Total return

The total return on the pension trust fund investments amounted to 17.8% in 2014.

The prior year (2013) saw an unusually low return of just 1.0%, due to low interest rates in Europe and the US.

In 2014, the investments with the highest return were Fixed Income (15.3%), due to bond yields decreasing significantly.

## Currency exposure\*

PME holds a significant portion of its investment portfolio in foreign currencies. Changes in foreign exchange rates can reduce the pension obligations. In 2014, the total currency exposure was equal to EUR 9,869mn, which represented 24.4% of PME's portfolio.

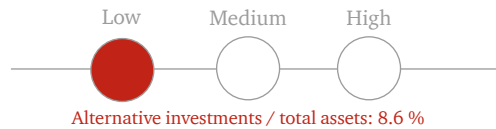
In 2010, 30.1% of the portfolio was exposed to foreign currencies (EUR 6,977mn).

\*Taken as a proxy of foreign investments  
Sources: PME Annual report 2010-2014

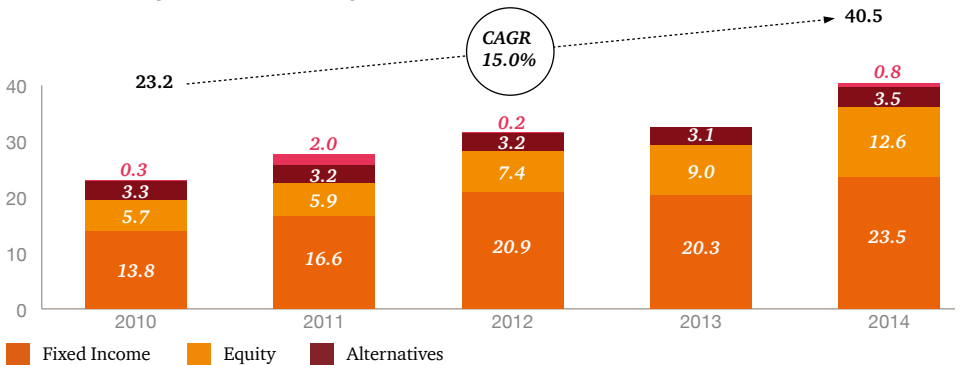
Inception date	Employees (2014)	Total Assets (USD bn, 2014)	% Alternative investments	External managers fees/ total assets	Total return* (2014)
1947	30-40	48.9	8.6%	0.4%	17.8%

\* Based on local currency

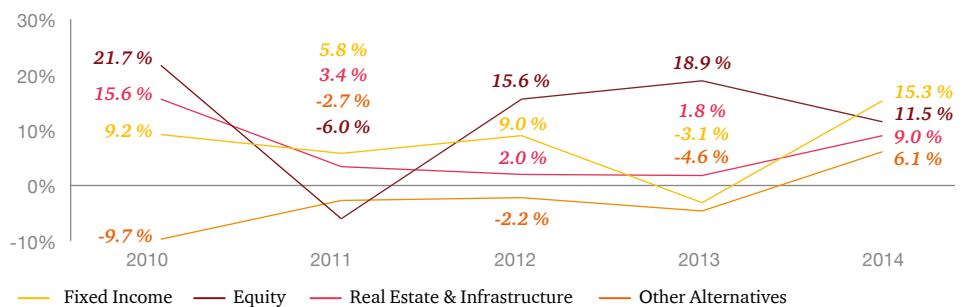
## Level of alternative exposure



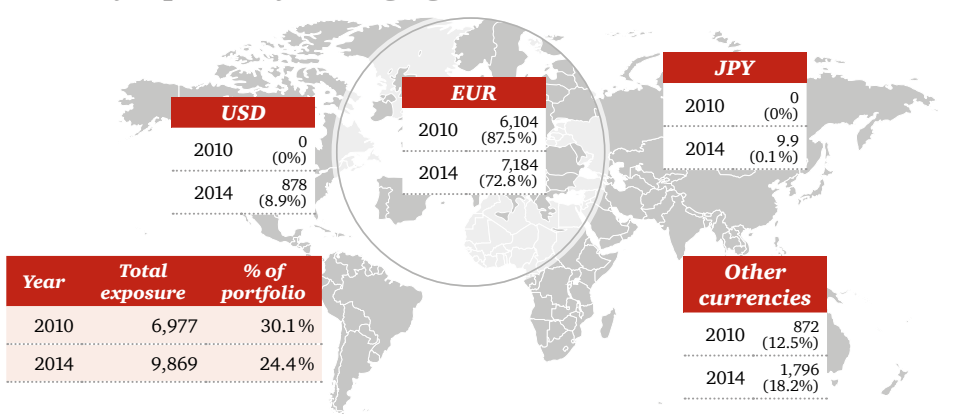
## Evolution of total assets by asset class (in EUR bn)



## Evolution of return by asset class



## Currency exposure after hedging (2010 vs. 2014, in EUR mn)



## Evolution of asset management costs (EUR mn)

Year	Fixed Management Fees	Variable Management Fees	Other	Total asset management costs	Total AM costs/ total assets
2010	100 (51.8%)	20 (10.4%)	73 (37.8%)	193	0.8%
2011	97 (53.0%)	22 (12.0%)	64 (35.0%)	183	0.7%
2012	97 (60.2%)	8 (5.0%)	56 (34.8%)	161	0.5%
2013	80 (62.0%)	4 (3.1%)	45 (34.9%)	129	0.4%
2014	81 (56.3%)	18 (12.5%)	45 (31.3%)	144	0.4%

Sources: PME annual reports 2010-2014, website

# Pensioenfondsen van de Metalektro (PME)



## Alternative Focus

In 2014, PME's alternative assets represented 8.6% of its portfolio. Within Alternatives, the fund invested in Real Estate (61.0%), Private Equity (20.8%), Hedge Funds (0.2%) and other alternative investments (18.0%) such as Infrastructure, raw materials, forestry, microfinance and life insurance. At the end of 2013, PME decided to cut investments in raw materials such as oil and gas, as the sector was not in line with the fund's responsible investment principles.

In addition, a smaller part of the portfolio consisted of metals, precious metals, agricultural products and livestock.

### Real Estate

PME invests principally in direct Real Estate in the Netherlands. In the rest of Europe, the US and Asia, PME invests through non-listed Real Estate funds.

Within indirect international Real Estate investments, the focus has shifted towards Core Real Estate funds\*, with the aim to make the portfolio less risky. Core funds tend to have a relatively lower risk and lower return compared to other Real Estate funds because they offer a range of strategies across sectors and geographies.

The fund generates a high proportion of its return through rental income.

### Private Equity

Investments in Private Equity and Real Estate usually have a higher risk, higher expected return and need to be more actively managed than other investments, e.g. bonds. The Private Equity Portfolio consists of investments in Buy-Outs (59%), Distressed Private Equity (25%), Venture Capital (11%) and Mezzanine Capital (5%).

PME's Private Equity portfolio has remained largely invested in the US (64% in 2014).

## Outsourcing Focus

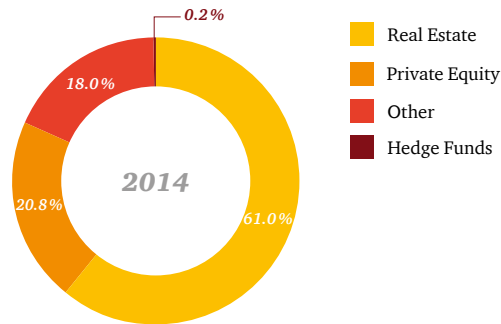
PME externalizes most of its asset management and risk management to the fiduciary MN Services. Moreover, PME uses various other external managers to invest.

In 2014, the total costs for external asset management amounted to EUR 144mn, of which EUR 26mn (18%) PME was paid to MN.

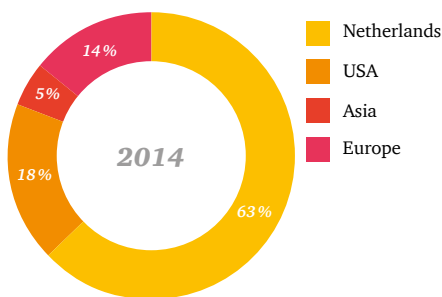
Total asset management costs have decreased over the past 4 years.

\*A core Real Estate fund typically invests in income-producing Real Estate investments.  
Sources: PME Annual reports 2010-2014

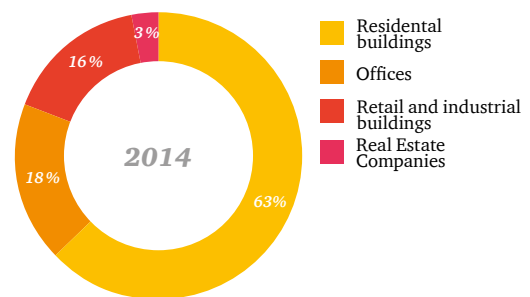
## Asset Allocation within Alternative Investments



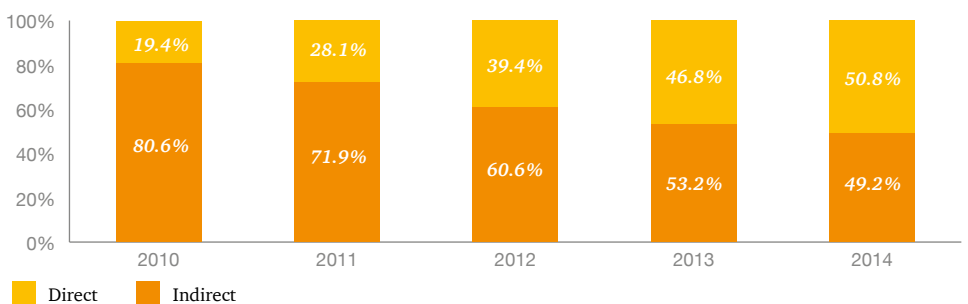
## Geographic allocation of Real Estate



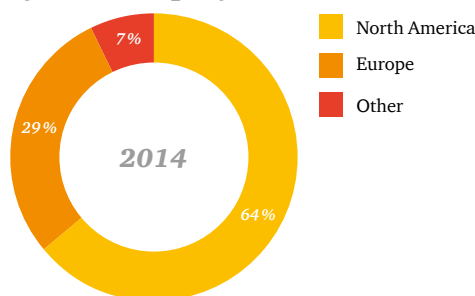
## Sectorial allocation of Direct Real Estate Investments



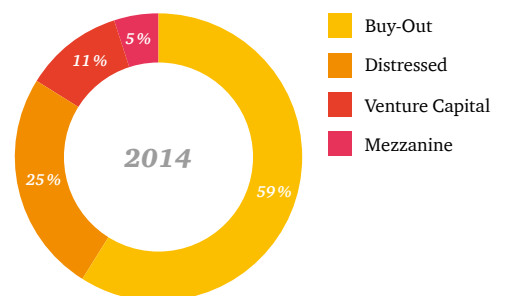
## Evolution of Direct vs. Indirect Real Estate Investments



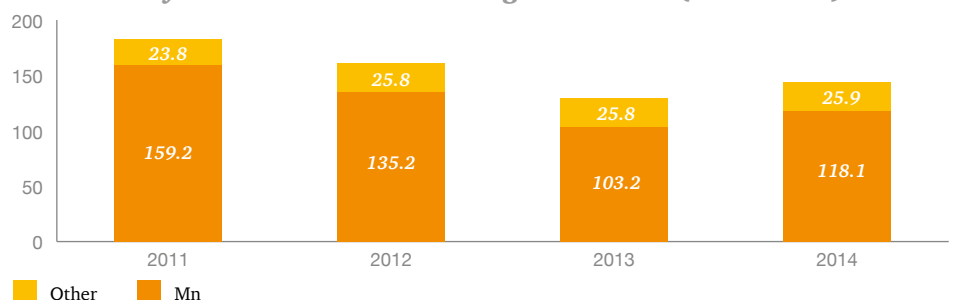
## Geographic allocation of Private Equity



## Types of Private Equity Investments



## Evolution of the external asset management costs (in EUR mn)



Sources: PME Annual reports 2010-2014

# Pensioenfonds van de Metalektro (PME)



## 1) Investment strategy

### Corporate Governance

In July 2014, PME adopted a new management model, with only two fund bodies: the management board and the accountability committee.

The management board is governed by one independent chairperson, three independent executive directors and 10 supervisory non-executive directors (representatives of various groups of stakeholders: employees, employers and pensioners). The executive directors are responsible for the day-to-day management of the fund. The management board is responsible for the general policy and strategy of the fund.

PME management chose this model in order to guarantee the involvement of its social partners, to improve managerial effectiveness and to reduce managerial complexity. Their mission is to administer the pension scheme of the metal and electrical engineering industry in a proper, balanced and cost-effective manner.

The accountability committee may express an opinion regarding the actions and policy of the management and policy decisions for the future. It also has the right to advise on the fund's remuneration policy, the form and organization of internal supervision, the communication policy, the joining of new pension funds and the administration agreements.

PME's general strategy is:

- to achieve correct pension administration and asset management;
- to obtain the highest yield possible within the established risk and administration frameworks including sustainability, cost reductions and the reduction of complexity;
- to optimize the service provided to employers and employees in the sector and to increase their pension awareness;
- to ensure clear communication regarding pension schemes, policy and results with all stakeholders; and
- to achieve closer collaboration with other pension funds, especially PMT.

In 2014, PME decided to participate in the Dutch Investment Institution (NLII). The NLII provides a platform that allows institutional investors to finance specific investments in Dutch initiatives. The greatly increased complexity of legislation and regulations, the increasingly demanding requirements regarding director expertise and the turbulent economic situation are leading small and medium-sized company pension funds to join larger sectorial pension funds. In January 2014, the pension fund of Océ joined PME, followed by various other pension funds, contributing assets of more than EUR 1.3bn.

## 2) & 3) Outsourcing of portfolio management / In-house portfolio management

MN is the main external asset manager. In order to gain sufficient insight into the processes and mastery, PME uses the reports and insights of MN's risk management department.

MN fulfills the following obligations:

- administrative, financial, secretarial, actuarial, legal
- and other activities;
- carry out work in an efficient, careful and professional manner;
- maintain the confidentiality of the fund's data and certify the expertise and reliability of the personnel performing the work;
- carry out the accounting and accountability in accordance with the Dutch General Accounting Principles.

Moreover, PME uses the expertise of several other asset managers to manage the pension fund's portfolio.

Asset Class	Selected External Managers
Fixed Income	MN, Axa Investment Managers, Babson Capital Management LLC, Pramerica Investment Management, Conning Inc
Equity	BlackRock Institutional Trust Company, UBS Global Asset Management, MN, Neuberger Berman Europe Limited
Alternatives	Apollo Management, FSN Capital Partners, Platinum Equity Capital Partners, Permira Advisers LLP, Trilantic Capital Partners

## 4) Risk framework

PME identifies, evaluates, communicates and reports risks such as balance sheet risk, liquidity risk, currency risk, interest rate risk, operating risk, reputation risk, credit risk and counterparty risk. In addition, PME has direct contact with MN's risk management team.

Year	Fixed Income	Equity	Real Estate	Other
2010	29%	1%	99%	0%
2014	11%	0%	85%	7%

### Liquidity risk 2010 vs. 2014

## 5) Responsible investing and ESG

PME aims for good and responsible returns on investments, while taking their social impact into account. Further, the fund contributes, wherever possible, to economic stability and sustainable economic growth. PME expects that the companies and investment objects it invests in are committed to creating economic value in the medium to long term, and do not invest in companies that make products in violation of international treaties to which the Netherlands is a signatory. PME prevents any direct or indirect involvement in bribery, corruption, cartels and other forms of market abuse. Further, the fund respects the international human rights and labor standards set down in the International Labor Organization (ILO) standards.

While investing, PME exercises caution with respect to challenges to the environment, nature and biodiversity.

# Stichting Shell Pensioenfond (SSPF)



## Quick facts

Stichting Shell Pensioenfond (SSPF) was launched in 1949. The target of the fund is to provide Shell's employees with retirement benefit services. SSPF is among the biggest corporate pension funds in the Netherlands.

## Evolution of total assets

The market value of the SSPF Investment Portfolio was approximately EUR 26.1bn (USD 28.3bn) as of 2015 with a CAGR of 8.4% over the last five years.

The management of the fund is focused on stable and reasonable returns.

## Evolution of asset allocation

The investment portfolio of the fund is diversified in various asset classes. In 2015, the largest share of the investments was represented by Fixed Income (55.2%), followed by Equity (26.4%). The share of Fixed Income increased substantially from 39.1% in 2010, while Equity decreased from 40.8% in 2010. About 17.6% of the fund's portfolio was invested in Alternatives in 2015, with this asset classes share remaining relatively stable during the last five years.

## Total return

In 2015, the fund generated a 4.4% return on its investments, the same return as its internal benchmark.

For the last five years, the returns for Equity and Fixed Income have been positive, with the exception of Equity in 2011 and Fixed Income in 2013.

## Currency exposure\*

SSPF developed a strategy to cover its foreign currency risk. In the case of Real Estate and Fixed Income investments, the risk exposure in foreign currencies is strategically hedged in full, except for currencies in emerging markets and currencies of countries in the AAA OECD non-EMU portfolio. Listed shares and Private Equity are strategically hedged in part. The foreign currency risk relating to Hedge Funds and other Alternatives is strategically hedged in full.

## Management costs

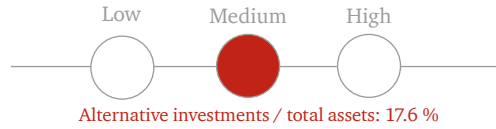
The pension fund does only have a small pension administration. All investments are administrated by external companies and managers.

\*Taken as a proxy of foreign investments  
Sources: SSPF's Annual reports 2010-2015; and website

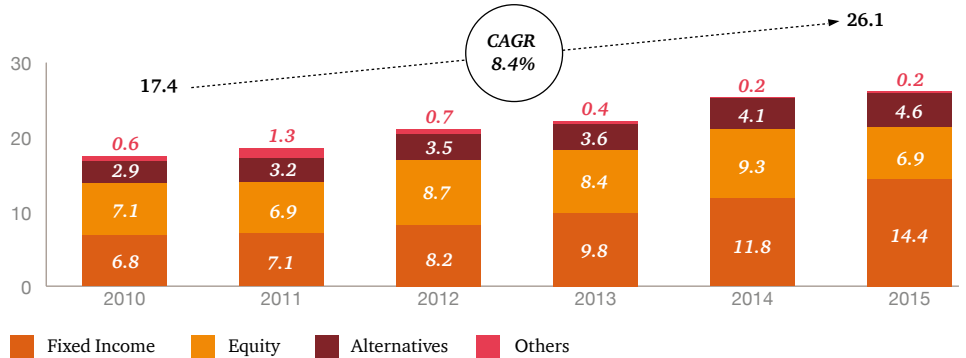
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1949	20-40	28.3	17.6%	0.6%	4.4%

\* Based on local currency

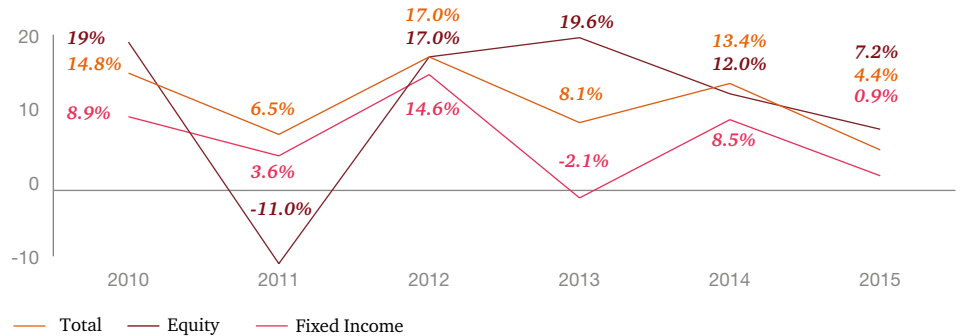
## Level of alternative exposure



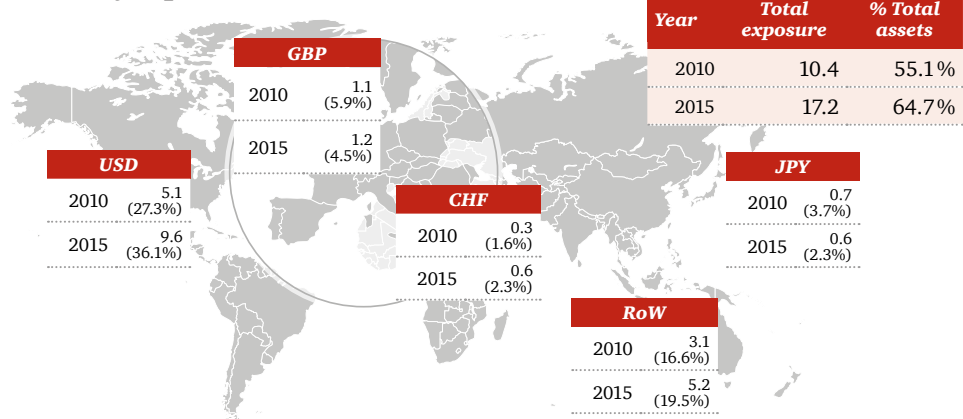
## Evolution of total assets by asset class (in EUR bn)



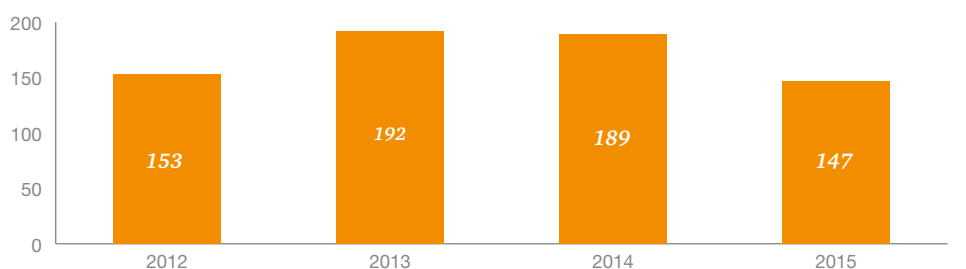
## Evolution of return by asset class



## Currency exposure (2010 vs. 2015 in EUR bn)



## Evolution of Management Costs (EUR mn)



Sources: SSPF's Annual reports 2010-2015; and website

# Stichting Shell Pensioenfond (SSPF)



## Alternative Focus

In 2015, 17.6% of SSPF's investment portfolio was represented by alternative asset classes. The biggest share is invested in Private Equity (44%), followed by Real Estate (26.4%), Hedge Funds (23.3%), and other Alternatives (6.3%).

Alternative investments of SSPF increased by 9% (CAGR) between 2010 and 2015, having a higher growth than total assets. The fund's Board plans to raise the share of alternative investments. The latest policy targets a 19% share in the portfolio.

### Private Equity

Private Equity remained the largest alternative asset class from 2010 to 2015, with assets of EUR 2.5bn in 2015.

### Real Estate

Within the last five years, the share of Real Estate investments has grown exceptionally compared to the rest of Alternatives, increasing from 8.4% in 2010 to 26.4% in 2015. This asset class also had the highest return (12.5%) in 2015.

The fund purely invests indirectly in Real Estate, either through external managers, funds, or wholly-owned subsidiaries.

### Hedge Funds

The Hedge Funds portfolio had a return of 0.9%, which outperformed its benchmark by 0.6%.

## Outsourcing Focus

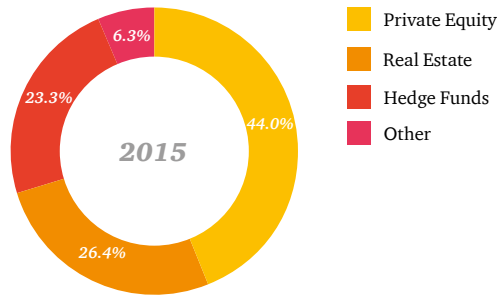
SSPF's whole portfolio is outsourced to external managers and management companies.

The management of assets is outsourced to Shell Asset Management Company B.V. (SAMCo) on the basis of an Investment Management Agreement. On behalf of SSPF, SAMCo has appointed external asset managers to manage a share of the assets.

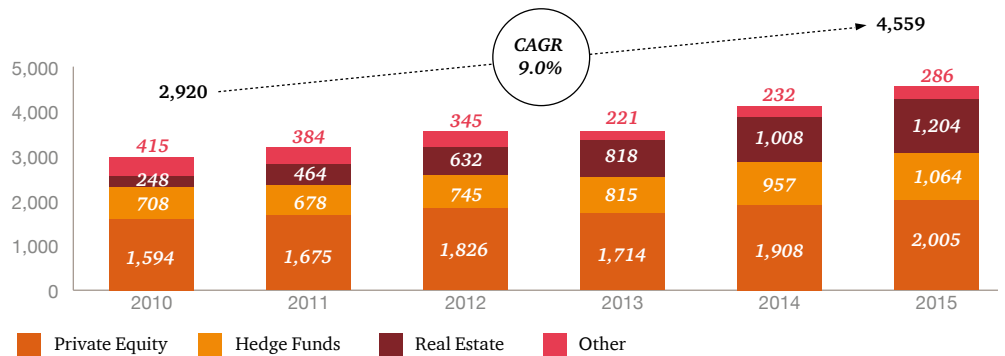
Alternatives represent 17.6% of the Investment Portfolio, but generate about 73% of all management fees. Furthermore, for alternative investments, about EUR 39mn is related to performance fees. Real Estate generates about 33% of all performance fees.

Sources: SSPF's Annual reports 2010-2015; and website

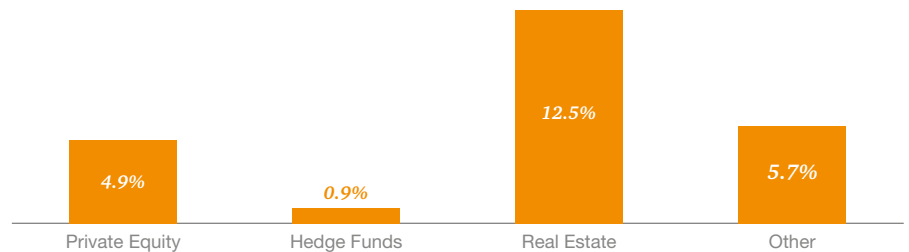
## Asset allocation within Alternative Investments



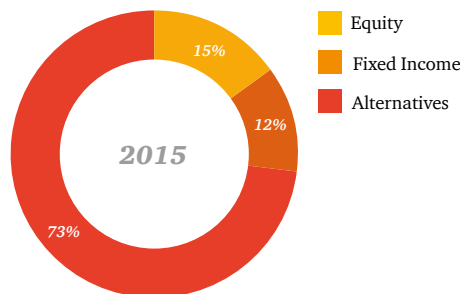
## Evolution of Alternatives (in EUR mn)



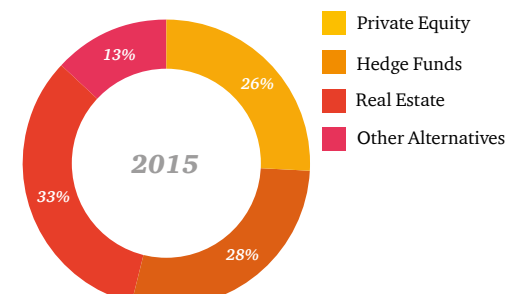
## Returns of Alternative asset classes (in 2015)



## Share of management fees by asset class



## Share of performance fees by alternative asset class



Sources: SSPF's Annual reports 2010-2015; and website



# Stichting Shell Pensioenfond (SSPF)



## 1) Investment strategy

The Board of the fund formulates the strategic investment policy after consulting with Shell Petroleum N.V. The objective of the investment policy is to provide for pension rights and entitlements while endeavoring to protect pensions in payment and deferred pension entitlements against inflation. The Board defines its investment beliefs as follows:

- Diversification improves the ratio between return and risk;
- A long-term investor uses a wide investment spectrum;
- Active management can add value;
- Committed share ownership encourages good management and corporate responsibility;
- Cost effective administration of the investment policy adds value.

### Corporate Governance



- I. The task of governance is to explore new opportunities for outsourcing of the fund's business. The rapid developments in the pension sector require fast adaption to the market. Outsourcing is an easy solution for ever faster changing markets.
- II. The mission of the Risk Management is continuously and actively dealing with the day-to-day business of SSPF. The objective is to provide the directors with latest information about the developments and risks of the fund. The Board should have a leeway by deciding about long- and short-term objectives.
- III. The Board aims is to consider the interests of all participants of the fund. The Board pays attention to an active dialogue between participants, in which the Netherlands government also participates.
- IV. Costs generated by the investments should constantly be analyzed to find alternatives and to reduce costs.

## 2) Outsourcing of portfolio management

SSPF's portfolio is fully outsourced to external management companies. However, the Board remains ultimately responsible for investment policy at all times. The asset manager can make tactical investment decisions within these categories. An investment organization advises the Board in formulating and administrating the investment policy (the organization is comprised of the following: an Investment Committee, an external investment consultant, Shell Pensionsbureau Nederland (SPN), and SAMCo). This enables the Board to ensure that discussions are being made in the appropriate manner.

SSPF has a suitability plan relating to asset management for the benefit of the Board, the Accountability Council and employees of SPN. The Board of Supervisors, which consists of four external experts, constantly supervises the execution of the investment policy and other matters.

Sources: SSPF's website; Annual reports

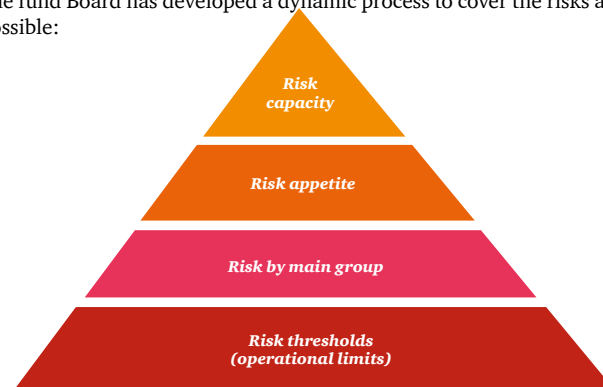
## 3) In-house portfolio management

The whole portfolio of SSPF is outsourced to external managers and management companies.

## 4) Risk framework

The risk-bearing capacity of SSPF is mainly determined by the willingness of Shell Petroleum N.V. (SPNV) to take risk.

The fund Board has developed a dynamic process to cover the risks as far as possible:



This process is assessed quarterly and reported to the Board. During the assessment, the Board pays attention to long-term and short-term risk. This allows it to react faster and to change the fund's strategy in the short-term if necessary.

## 5) Responsible investing and ESG

The Responsible Investment policy of SSPF amounts to the fact that the fund monitors the companies in which it invests, actively makes use of its voting rights wherever possible and, where necessary, seeks an active dialogue with those companies in order to help bring about improvements in the fields of environmental, social and governance (ESG) policy. Companies which do not make any progress regarding Responsible Investments (RI) will be excluded of SSPF's target investments. Further, compliance with the required law is very important. The fund guards the reputation of its target investments.

SSPF expects its Real Estate managers to participate in the Global Real Estate Sustainability Benchmark (GRESB) survey. In 2015, 89% responded. The Board continues to strive for 100% participation in the survey. The purpose of the survey is to increase shareholder value and protection by evaluating and improving ESG performance. The survey serves to compare Real Estate funds on ESG policy and management, ESG implementation and ESG performance.

Recent years have shown progress, but until now SSPF has remained dependent on managers to take the survey seriously.



# Stichting Pensioenfonds ING



## Quick facts

Stichting Pensioenfonds ING aims to provide pensions and other benefits regarding incapacity for work or death to employees and former employees of ING in the Netherlands.

The fund administers the pension entitlements accrued until the end of 2013, pays out the pensions and invests the fund's assets.

As from 1 January 2014, ING employees entered a new pension scheme with ING CDC Pensioenfonds and NN CDC Pensioenfonds.

## Evolution of total assets

The fund's investment assets have grown over the past 4 years at a CAGR of 11.9%, from EUR 15.9bn in 2011 to EUR 25.0bn in 2015, mainly due to Fixed Income investments.

## Evolution of asset allocation

In 2015, Fixed Income represented 72.9% of the total assets, increasing from 56.0% in 2011. Equity represented 15.2% (24.9% in 2011), and Alternatives represented 8.4% (11.1% in 2011).

## Total return

The Fund had a total return of 1.2% in 2015 compared to 32.4% in 2014. Despite this decrease in total return, it still outperformed its benchmark by 0.1%.

The best performing asset classes in 2015 were Real Estate (18.3%) and other Alternatives (18.3%), particularly Private Equity.

## Currency exposure\*

Total foreign currency exposure was EUR 6.3bn in 2015, representing 25.3% of the fund's investments.

## Remuneration scheme

Under the pension management costs, the fund includes all costs that are related to the administration of the fund. This concerns both the costs of outsourced services to the executive AZL, as well as the costs attributable to the Board, the Committees and the Board's Office.

The costs in 2015 increased due to an expansion of the number of staff, partly relating to Risk and Control areas.

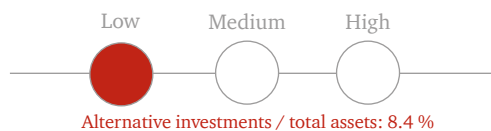
Asset Management costs make up 83% of total expenses.

\*Taken as a proxy of foreign investments  
Sources: Stichting Pensioenfonds ING Annual Reports 2010-2015

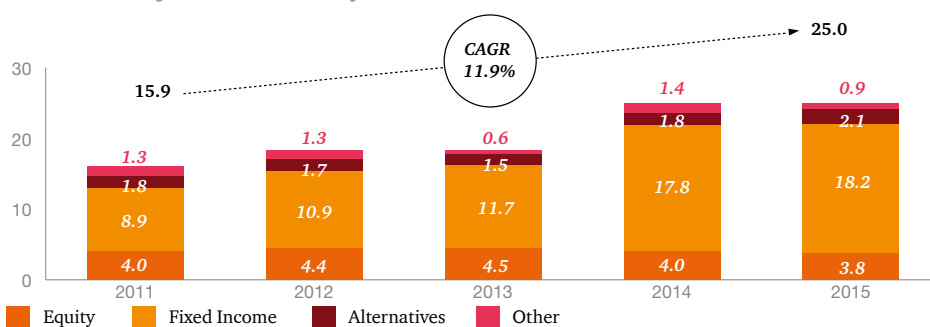
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1995	N/A	27.7	8.4%	0.3%	1.2%

\* Based on local currency

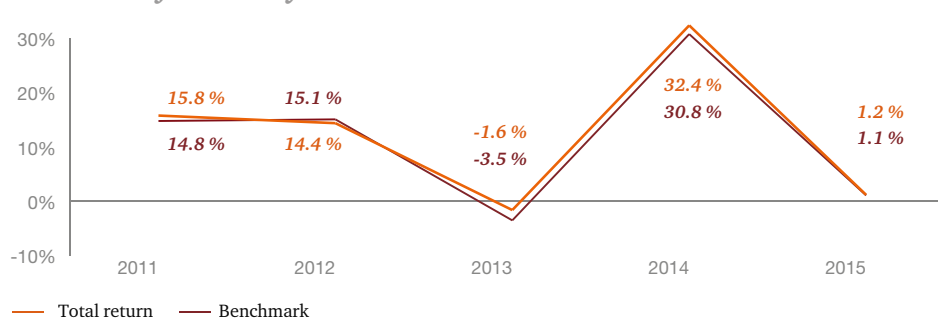
## Level of alternative exposure



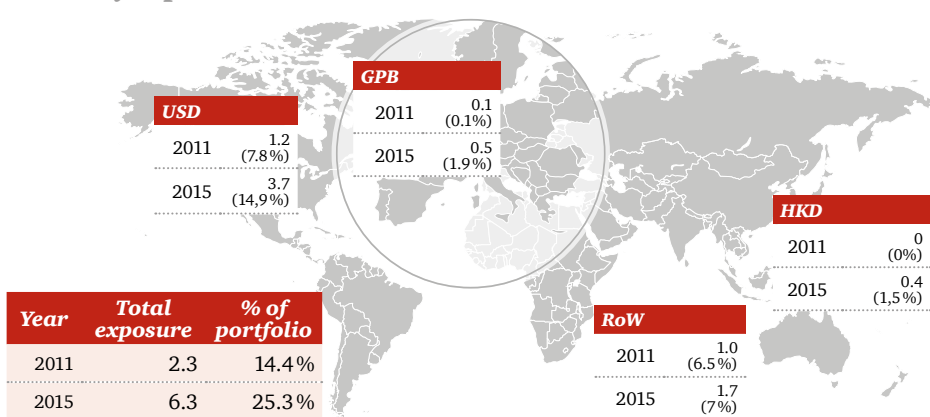
## Evolution of total assets by asset class (in EUR bn)



## Evolution of return by asset class



## Currency exposure (2011 vs. 2015 in EUR bn)



## Administrative expenses (thousands EUR)

Year	Pension Management costs	Asset Management costs	Other	Total costs	Total costs/ Total assets
2015	10,255	85,183	7,189	102,627	0.41%
2014	9,015	68,432	11,657	89,104	0.35%

Sources: Stichting Pensioenfonds ING Annual Reports 2010-2015

# Stichting Pensioenfond ING



## Alternative Focus

In 2015, Stichting Pensioenfond ING invested 8.4% in Alternative assets. Within Alternatives, the fund invests in Real Estate (74.0%) and Private Equity (26.0%).

Private Equity had the highest returns in 2015 (20.4%), outperforming its benchmark by 8.5%.

The fund has increased its investments in Real Estate and Private Equity in the past years, also increasing these asset classes shares with respect to total assets.

As from 2015, the fund no longer invests in Hedge Funds. At the beginning of 2015, all investments in Hedge Funds were sold for EUR 188mn.

### Real Estate

The fund invests in listed and non-listed Real Estate, in a variety of Real Estate types and in different countries all over the world.

Investments in Real Estate include investments of the related Stichting Lion Real Estate Investments. This foundation invested in Real Estate funds worth EUR 42.6mn in 2015.

### Private Equity

Investments in Private Equity have generated very attractive returns during the past 4 years – an average of 18.1%.

The fund invested in Private Equity in North America (46.6%), Europe (41.7%), and Asia (11.7%) in 2015.

## Outsourcing Focus

The fund's investments are fully managed by various external asset managers (e.g. AXA and BlackRock), either through funds or direct investments.

In 2015, asset management costs amounted to EUR 85.2mn, representing 0.3% of the fund's total assets.

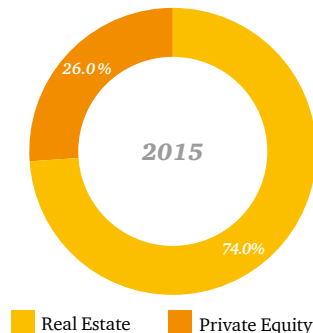
Direct asset management costs comprise fees charged by external asset managers, custodians, and other related service providers.

Indirect costs are not directly visible, including investments through Fund of Funds.

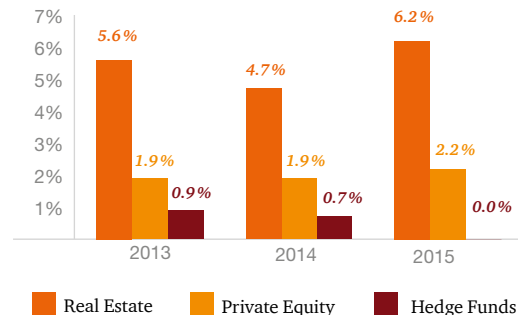
Sources: Stichting Pensioenfond ING Annual Reports 2010-2015

## Asset Allocation within Alternative Investments in 2015 & evolution of share of Alternatives in total assets by asset class

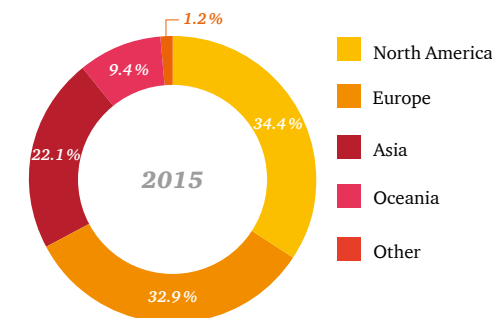
Shares within Alternatives



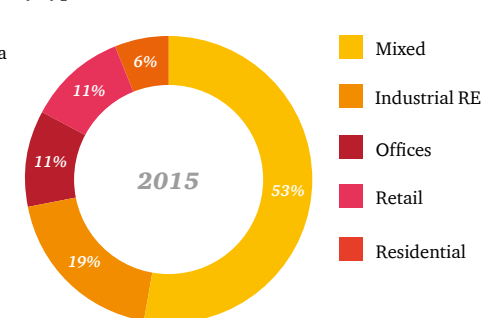
Shares within total assets



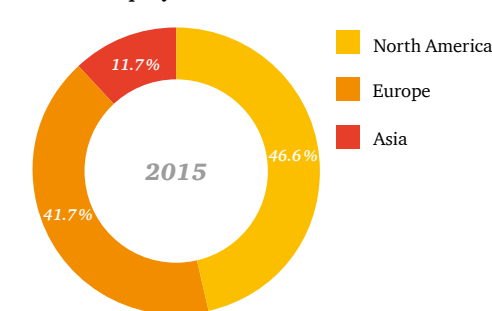
Geographic allocation of Real Estate Investments



Real Estate Investments by type



Geographic allocation of Private Equity Investments



## External asset management fees (in 2015, EUR mn)

	Direct		Indirect		Total
	Management fees	Other	Management fees	Performance fees	
Fixed Income	5.6	4.5	0	0	10.1
Equity	14.2	1.7	0	0	15.9
Alternatives	4	0.4	34.6	16.0	55.0
Other	3.7	0.6	0	0	4.2

Sources: Stichting Pensioenfond ING Annual Reports 2010-2015

# Stichting Pensioenfonds ING



## 1) Investment strategy

The fund invests its assets in a prudent manner and bases its investment strategy on risk management with the aim of creating enough return to ensure that current and future retirement entitlements can be paid out. Therefore, the fund's goal is to limit the funding deficit risk to 1%.

### Corporate Governance

The Fund is organized in the following way:



- The Board consists of 8 board members who manage the Fund;
- The Committees are composed of consultants who advise the Board;
- The Execution consists of an executive office, asset managers, an administrator and a compliance officer;
- The Control of the Fund is exercised by the actuary and the accountant;
- The internal supervision falls under the responsibility of the Accountability council and the Review committee;
- De Nederlandsche Bank (DNB) and the Autoriteit Financiële Markten (AFM) exercise the external supervision.

## 2) Outsourcing of portfolio management

In 2007, ING acquired AZL. The company provides advisory, actuarial, and administrative services.

The combined strength of ING and AZL allows the company to expand its position as a high profile player in the Dutch pension market. Through the customized service, ING can focus on its core business.

AZL is one of the largest pension administrators in the Netherlands, servicing 58 pension funds with 900,000 participants. AZL offers not only administration, but also management consulting, communication consulting and actuarial services. The company:

- employs 400 skilled employees;
- has 100% pension professionals, most are HBO+ or university educated;
- has over 40 years experience with pension and retirement;

As Stichting Pensioenfonds ING has outsourced the investment of its assets to external parties, these have to act in accordance with the policy adopted by the fund. Therefore, prior arrangements are defined and subsequently reviewed by the Board which monitors the implementation by external managers on an ongoing basis.

Sources: Stichting Pensioenfonds ING Annual Reports 2010-2015; AZL website

## 3) Risk framework

Risk management is addressed by the Risk Management department of the Fund. This department analyses financial and non-financial risks and reports any issues to the Board.

The Fund has developed the following risk management cycle used for every decision:

1. Establish a risk framework;
2. Identify the various risks;
3. Estimate the effectiveness of the current control measures in place in order to estimate the remaining risks;
4. Relate the remaining risks to the risk tolerance of the fund;
5. Establish a risk profile;
6. Design and implement additional risk control measures; and
7. Control the additional risk measures and monitor the risk profile.

## 4) Responsible investing and ESG

Responsible investing is at the heart of the fund's investment strategy. The fund established a socially responsible investment code whereby it states that all investment decisions have to be taken considering ESG criteria.

The Fund refuses to invest in:

- controversial weapons;
- animal experiments for the cosmetic and fur industry;
- severe forms of fraud or corruption;
- use of child labor;
- human rights violations; and
- severe forms of environmental pollution.

The fund is associated with Eumedion to help them with responsible investment decisions inside the Netherlands and it is affiliated with Hermes EOS for investment decisions outside the Netherlands.

ING believes it is important to make businesses aware of the society and the environment in which these companies operate.



# Norway Government Pension Fund Global (GPFG)

## Quick facts

The Government Pension Fund Global (GPFG) is a Sovereign Wealth Fund (SWF) where the surplus wealth produced by Norwegian petroleum income is held. GPFG was set up in 1990, but the first capital was transferred to the fund in 1996. The Ministry of Finance tasked Norges Bank to manage the fund on their behalf, and gave operational management of the fund to Norges Bank Investment Management (NBIM).

## Evolution of total assets

Today, GPFG invests in Equity, Fixed Income and Real Estate. The market value of the fund's investment portfolio was NOK 7,475bn as of 2015 (USD 853.6bn). Total assets grew at a CAGR of 19.4% between 2010 and 2015. The Ministry of Finance projects an average increase of 6% over the next four years.

## Evolution of asset allocation

GPFG's asset allocation has remained relatively stable over the last five years with a proportionate evolution, with 61.5% of assets invested in Equity in 2010 compared to 61.1% in 2015. Fixed Income decreased slightly from 38.5% in 2010 to 35.7% in 2015. The fund started investing in Real Estate in 2012, which grew to 3.2% by 2015.

## Total return

Total return on GPFG's investments amounted to 2.7% in 2015 with a record net investment result of NOK 334bn. Equity contributed the most, generating NOK 175.1bn of net investment results. Real Estate investments generated favorable results in 2015 of NOK 23.5bn with the largest return of 10%

## Geographic asset allocation

The management mandate requires the fund to be invested widely outside Norway.

In 2015, the fund mainly invested in North America, with 40% of all investments.

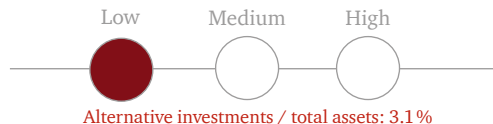
The fund continues to add new markets to its portfolio as soon as they meet the requirements for market standards. These are based on their own assessments which take into account the classifications used by index suppliers.

Sources: GPFG Annual reports 2010-2015

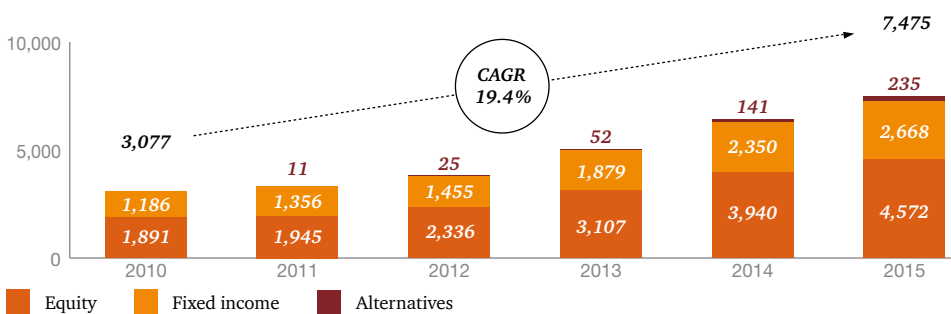
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1996	518	853.6	3.1%	0.02%	2.7%

\* Based on an international currency basket

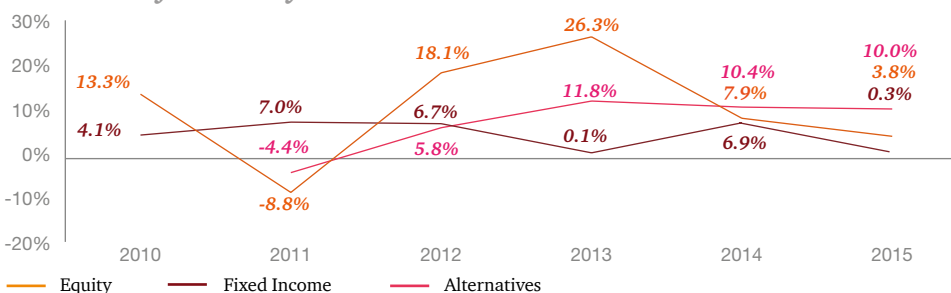
## Level of alternative exposure



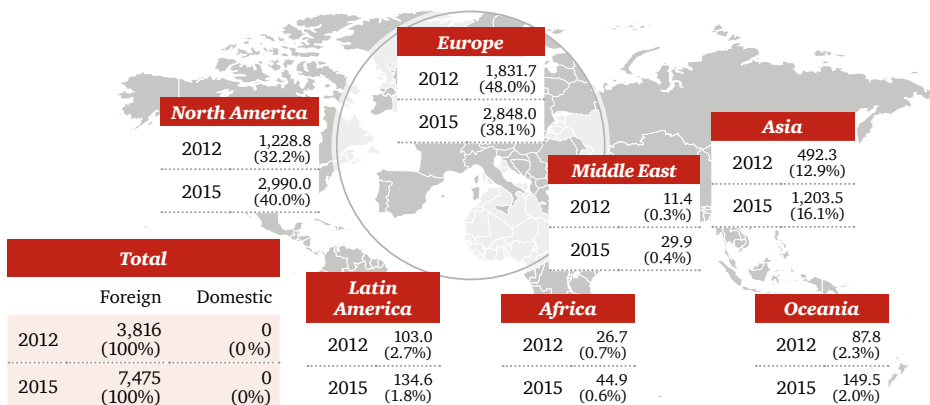
## Evolution of total assets by asset classes (in NOK bn)



## Evolution of return by asset class



## Geographic asset allocation (2015 vs. 2012 in NOK bn)



## Operating expenses in 2015 (NOK million)

Years	Management costs	Tax expenses	Other expenses	Total	Total expenses/ Total assets
2010	2,959	N/A	9	2,968	0.1%
2015	3,933	2,628	18	6,579	0.09%

Sources: GPFG Annual reports 2010-2015



# Norway Government Pension Fund Global (GPFG)

## Alternative Focus

Under its current strict investment mandate, GPFG is limited to Equity, Fixed Income, and Real Estate.

### Real Estate

Real Estate operations have been reorganized as a separate unit with its own leader group, and consist of 104 people (20% of employees) - *Norges Bank Real Estate Management*.

NBIM made the first Real Estate investment in spring 2011, gradually increasing Real Estate investments to as much as 5% of its assets through a corresponding decrease in its bond holdings. Before the fund invests in a property, it must conduct a thorough due diligence of the parties involved in the transaction and the property itself, spanning financial, legal, tax, structural, operational, technical and insurance matters.

Currently, GPFG has no allocation to other Alternative asset classes. Their reasons are many: Infrastructure investments are exposed to high regulatory and political risk. Conflicts with the authorities of other countries regarding the regulation of transport, energy supply and other important public goods would generally be difficult to handle and entail reputational risks for the fund. It would be uncertain whether unlisted Infrastructure improved risk diversification or raised expected returns.

The fund also has no Private Equity investments because the selection of good companies is demanding, and management fees are high. Moreover, many are highly leveraged, and the sector's behavior is procyclical.

## Outsourcing Focus

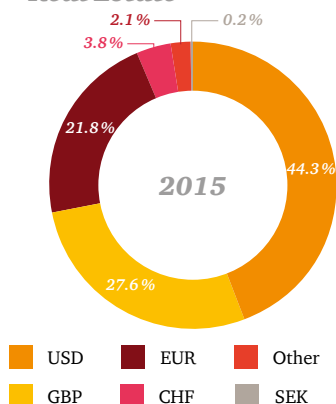
Before 2000, assets managed by external managers represented over 20% of total assets. After losses in the financial crisis, all of the external Fixed Income mandates, which were awarded before, were terminated by the end of 2010.

The strategy report for 2014 to 2016 states that the share of the assets managed by external managers will rise to 5%, and is expected to reach 100 external mandates by 2016.

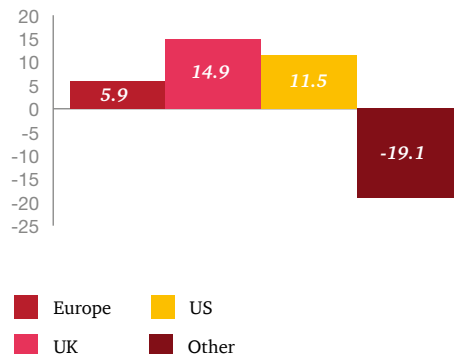
Fees to external managers have two components: a fixed fee and a performance-based fee. The performance-based fee is based on the difference between the return on a mandate and the return on a comparable index. In 2009, NBIM introduced a ceiling for the fees paid each year under agreements with external managers.

Sources: GPFG Annual reports 2010-2015

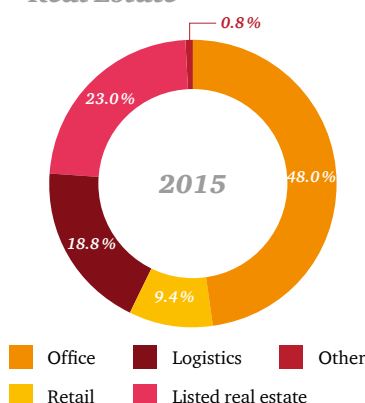
### Investments by Currency – Real Estate



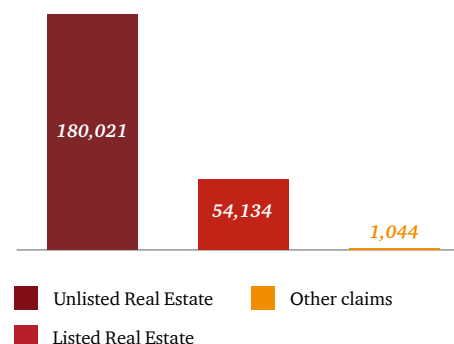
### Returns by region in 2015 – Real Estate



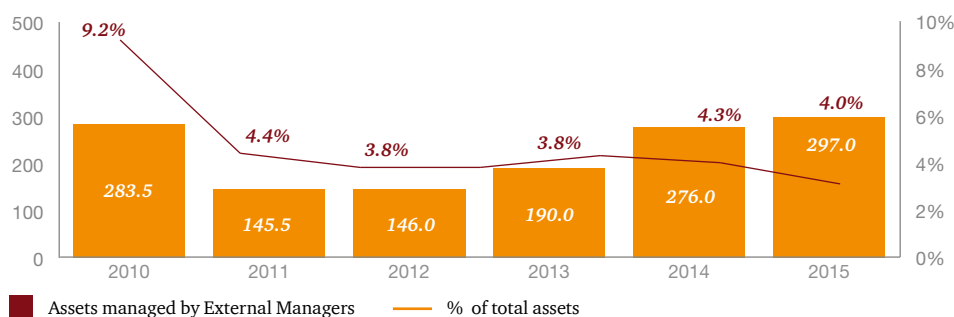
### Investments by sector – Real Estate



### Investments Market value in 2015 – Real Estate (in NOK mn)



### Evolution of assets managed by External Managers



Year	2010	2011	2012	2013	2014	2015
Number of managers	45	45	51	59	68	70
Number of mandates	62	52	55	70	80	84

### External Management Costs

Years	Base	Performance based fees	Total
2010	452	986	1,438
2011	371	546	917
2012	272	307	579
2013	313	684	997
2014	445	649	1,094
2015	615	578	1,193

Sources: GPFG Annual reports 2010-2015





# Norway Government Pension Fund Global (GPFG)

## 1) Investment strategy

The fund invests globally across three asset classes and widely outside Norway with a target asset allocation of 60% in Equity, 35-40% in Fixed Income and up to 5% in Real Estate.

### Corporate Governance

The Executive Board of Norges Bank has delegated the responsibility for the management of the GPFG to the Chief Executive Officer (CEO) of NBIM. The CEO of Norges Bank Investment Management is authorized through a job description and an investment mandate. The Executive Board has issued principles for risk management, responsible investment and compensation to Norges Bank Investment Management employees.



## 2) Outsourcing of portfolio management

The use of external managers is an important element of the fund's investment strategy. It gives mandates to Equity and Fixed Income managers. Over time, NBIM has increased the proportion of specialized country and sector mandates, particularly in small and medium-sized markets where having a local presence is an advantage. Mandates are in markets and segments where it is not expedient to build internal expertise and the potential for excess returns is considerable. NBIM's experience is that managers who are based where a company is established and listed have a better understanding of, and better access to, information about the company. Local managers have greater opportunities to visit the company and meet its management.

### Process of choosing external managers

The process includes information-gathering, analysis, meetings and assessments. It normally takes 6-8 months from the first meeting between NBIM and the manager to the decision to award a mandate:

1. Information about the relevant market is analyzed;
2. External managers must complete a questionnaire with information on ownership structure, AuM, investment process, personnel and portfolio composition;
3. Meetings with 20-30 different managers - on the management company's premises (provides information about local conditions & the possibility of meeting everyone who influences investment decisions);
4. Limited number of managers selected for more detailed information (historical data on portfolios & performance);
5. Decision is based on the expectation of its ability to create value over time.

Sources: GPFG Annual reports 2010-2015

## 3) In-house portfolio management

Norges Bank Investment Management expanded its workforce by 90 people to 518 in 2015. Most were hired at offices outside Norway to increase proximity to the market they invest in. More than a third of GPFG employees are directly involved in investment decisions. To help the fund's plans for Real Estate investments, they opened separate Real Estate offices in Singapore and Tokyo in 2015, and plan to increase staff in Real Estate operations by 200 during the coming years.

The strategic benchmark index set by the Ministry of Finance is divided into three asset classes. The benchmark for equities is constructed based on market capitalisation for equities in the countries included in the benchmark. The benchmark for bonds specifies a defined allocation between government bonds and corporate bonds.

### Fees and performance assessment

In addition to a fixed salary, those working directly on investment decisions and various other employees may also be entitled to performance-based pay. Performance-based pay is calculated on the basis of the performance of the fund, group and individual performance are measured against set targets, and are paid over a number of years. Half is paid the year after accrual, while half is held back and paid over the following three years. The amount held back is adjusted in line with the return on the fund. The Fund's leader group receives only a fixed salary.

## 4) Risk framework

Clear roles and responsibilities are a cornerstone of process design at Norges Bank Investment Management. Changes to existing investment mandates, the portfolio hierarchy and new counterparties are monitored and require approval by the Chief Risk Officer (CRO), or a person authorized by the CRO. Market risk for the GPFG is measured along the dimensions concentration (absolute and relative to the benchmark), volatility and correlation risk, systematic factor risk and liquidity risk. Norges Bank's Executive Board sets limits for operational risk management and internal controls at NBIM. It has decided there must be less than a 20% probability that operational risk factors will result in gross losses of NOK 750mn or more over a 12-month period, referred to as the Executive Board's risk tolerance.

Identifying unwanted events and constantly improving processes to prevent such incidents, reporting and following up on these incidents are an important part of efforts to improve operations and internal controls.

## 5) Responsible investing and ESG

Responsible investment is an important and integral part of the fund management task. The fund is required to integrate responsible investment activities, work with international organizations on standards and principles and communicate expectations to companies. The fund invests in environmental technology through environment-related mandates. For Real Estate, an environmental due diligence is performed ahead of each investment, in which they often use external experts to identify any risks from materials that could harm the environment or health and thereby affect the financial value of the property.

Sources: GPFG Annual reports 2010-2015



# Alecta Pensionsförsäkring



## Quick facts

Alecta Pensionsförsäkring has been an occupational pensions specialist since 1917, managing assets on behalf of its 2.3 million private customers and 33,000 corporate clients as of 2015.

## Evolution of total assets

Alecta's total assets grew at a CAGR of 8.1% between 2010 and 2015, reaching over SEK 732bn (USD 87.1bn) in 2015. The acquisition of airport properties and the continued focus on US equity contributed largely to increased AUM between 2014 and 2015.

## Evolution of asset allocation

Alecta's asset allocation has remained relatively stable over the last five years, with 50.5% of assets invested in fixed income in 2010 compared to 49.5% in 2015. Equity decreased slightly from 42.9% in 2010 to 42.1% of total investments in 2015. The share of assets invested in real estate increased from 6.6% in 2010 to 8.5% in 2015.

## Total return

The total return on Alecta's investments amounted to 5.9% in 2015. The return primarily benefitted from rising property values (18.4% compared to 12.3% in 2014) and the positive performance of equity (9%) throughout the year despite a drop compared to 2014 returns (17.4%). Fixed income had a return of 1.2%, down from 9.4% in 2014.

## Currency exposure\*

Alecta hedges its entire holdings of foreign bonds and real estate and a portion of its foreign equity holdings. Total currency exposure (after hedging) was equal to SEK 116.5bn (USD 13.8bn) in 2015. Total portfolio exposure increased from 10.3% in 2010, driven mainly by increased currency exposure to USD and EUR (9.3% and 2.0% in 2015 compared to 1.3% and 0.2% in 2010, respectively).

## Remuneration scheme

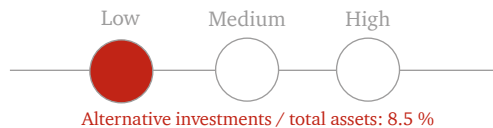
Total remuneration in percentage of operating expenses in 2015 ranged from 1.45% for Senior Executives to 0.28% for the Board. Only the Deputy CEO benefits from the investment performance incentive programme (which accounted for 43.8% of total remuneration in 2015).

\*Taken as a proxy of foreign investments  
Source: Alecta Annual reports 2010-2015

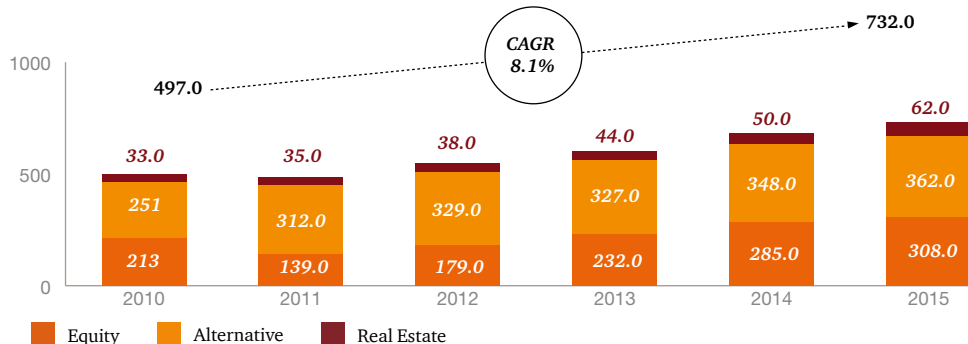
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1917	392	87.1	8.5%	0%	5.9%

\* Based on national currency

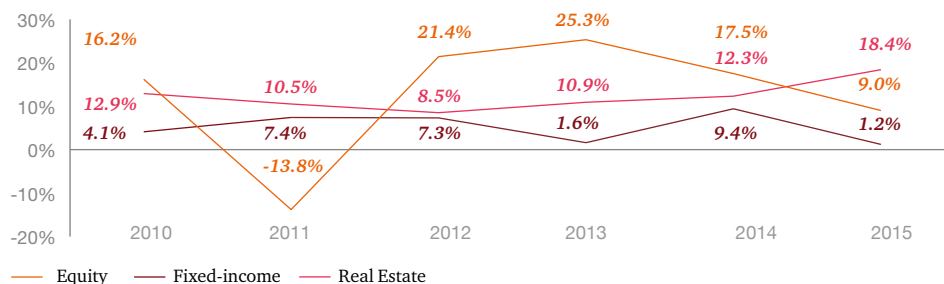
## Level of alternative exposure



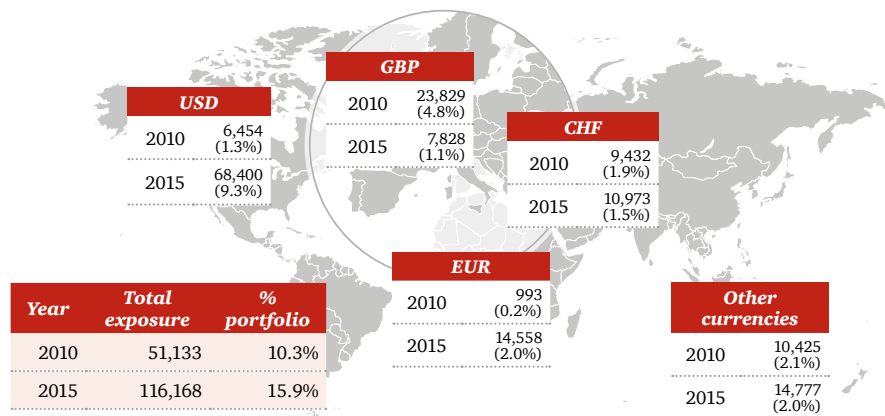
## Evolution of total assets by asset class (in SEK bn)



## Evolution of return by asset class



## Currency exposure after hedging (2010 vs. 2015, in SEK mn)



## Executive remuneration schemes in 2015 (SEK thousands)

2015	Salary	Variable*	Other**	Total remuneration	Remuneration / Total expenses
CEO	5,522 (98.9%)	0 0%	57 (1.2%)	5,579	0.62%
Deputy CEO	3,168 (55.9%)	2,479 (43.8%)	19 (0.3%)	5,666	0.63%
Senior Executives	12,878 (98.5%)	0 0%	202 (1.5%)	13,080	1.45%
Board of Directors	2,525 (100%)	0 0%	0 0%	2,525	0.28%

\* Attributable to the investment management incentive programme  
\*\* Such as a company car, mortgage interest, household services and healthcare insurance

Note: Numbers in parentheses represent remuneration components in percentage of total remuneration  
Sources: Alecta Annual reports 2010-2015

# Alecta Pensionsförsäkring



## Geographic asset allocation of real estate

Alecta's real estate portfolio has remained largely invested in Sweden (48% of total real estate assets in 2015 versus 50% in 2010) throughout the last five years. While the US represented 21% of the real estate portfolio in 2010, its share increased to 31% in 2015. On the other hand, UK real estate investments decreased from 24% in 2010 to 20% in 2015.

Alecta refocused its real estate portfolio on Sweden, the US and the UK between 2010 and 2015, with other countries accounting for a mere 1% in 2015, compared with 5% (including the Netherlands) in 2010.

## Recent developments regarding alternatives investments

### Acquisition of 20 airport properties in Sweden during 2015

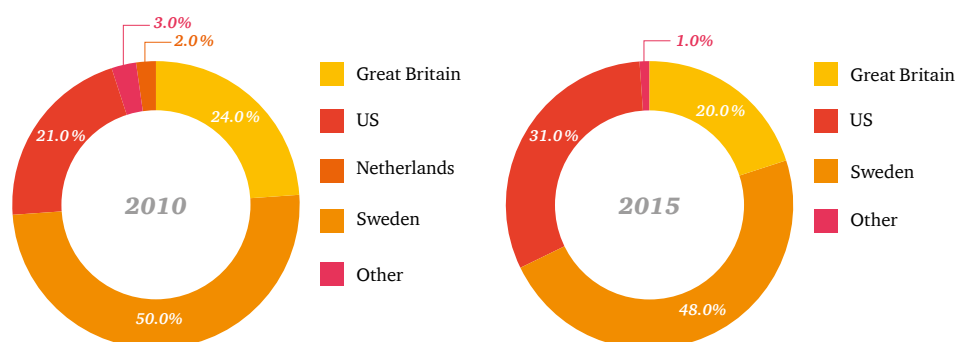
Alecta formed a joint venture with Swedavia, owner of a network of Swedish airports, to manage 20 major properties for logistics, hangars and offices at Sweden's three largest international airports in 2015. The agreement covers some 260,000 square meters of leasable space, with an underlying property value of SEK 3.9bn. According to the Director of Properties Sweden at Alecta, "acquiring part of a property portfolio of an infrastructure nature that generates stable cash flows makes a positive contribution to Alecta's total return and offers attractive development potential in the future."

### Exit from international direct real estate in the UK and the US

As of April 2016, Alecta decided to exit its directly held international real estate in the UK and the US, selling a portfolio of 48 real estate assets in the two countries. One of the primary motivations for this divestment was to restructure the way Alecta invests in the asset class. "Even though foreign operations have been successful, they have created organizational difficulties in Alecta's streamlined business, which focuses on economies of scale within its investment strategy," explained the company's CEO, who feels the move will give Alecta "an opportunity to be the most efficient occupational pension fund in the world."

Sources: Alecta Annual reports 2010-2015, IPE, Ethics Policy report

## Geographic asset allocation of real estate in 2010 and 2015



# Alecta Pensionsförsäkring



## 1) Investment strategy

Alecta's investment strategy is driven by the ultimate goal of positioning itself at the forefront of cost-efficient and responsible pension fund management. With this strategy, Alecta differentiates itself from its Nordic peers who focus mainly on technical innovations, especially around systematic risk-premia strategies.

### Investment limits / targets

Alecta aims at maintaining the following investment ranges for its two pension plans:

Defined Benefit plan	Defined Contribution plan (Alecta Optimal Pension)
Maintain a conservative investment approach with around 50% of assets allocated to fixed income, with the rest in equity and real estate.	1) Savings phase: 60% in equity, 30% in fixed income and 10% in real estate 2) Pay-out phase: 40% in equity, 50% in fixed income and 10% in real estate

In addition, it should not invest in companies that conduct operations violating the requirements or norms set out in conventions/agreements in which Alecta is a signatory.\*

In line with its investment strategy, Alecta does not invest in unlisted alternatives, especially private equity, as the company prefers to invest alongside entrepreneurs and long-term owners.

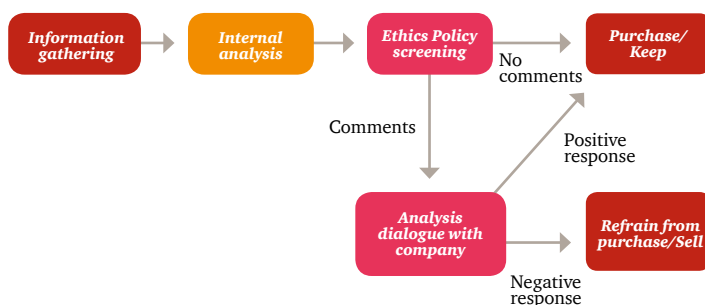
\* UN, EU and ILO treaties and conventions  
Source: Alecta Annual reports 2010-2015

### Corporate Governance

The Board of Directors is accountable for Alecta's investment decisions and controls. The Board determines the operations' strategic direction and long-term objectives, and ensures that its risk exposure is carefully considered.

Alecta's decision-making process is applied to all investments in equity and credit (around 75% of total AUM in 2015), and sustainability is the main criterion. Information gathering, internal analysis and screening of holdings allow Alecta to appreciate sustainability issues and make informed decisions on its investments.

### Alecta's decision-making process for investments



## 2) Outsourcing of portfolio management

According to Per Frennberg, Alecta's CIO, the intensive focus on keeping costs low pushed the pension fund to make all investments internally.

## 3) In-house portfolio management

Alecta has made the strategic choice to manage all investments in-house, building an in-house investment team for each asset class. It engages in active management only and each of its investments is the result of individual analysis.

Alecta devotes a significant amount of time to each investment decision and builds up a sound understanding of the respective companies' operations.

### Types of vehicles

Alecta invests in carefully chosen equity, fixed-income and real estate in Europe and the USA.

Its commitment to keep costs low has contributed to Alecta's overall asset allocation. In fact, in contrast to its Scandinavian peers, Alecta has no exposure to emerging market equities or unlisted alternatives, such as private equity, private debt and infrastructure.

Sources: Alecta Annual reports 2010-2015, IPE, Ethics Policy report

### Fees and performance assessment

A general incentive programme has been in place since 2012 for all employees in Sweden\*. The outcome of the programme is governed by achievement of the goals stated in the business plan for each year and the maximum pay-out is kSEK 12 per employee in the form of enhanced pension premiums.

An investment management incentive programme is designed for personnel in the investment management department with an evaluation period of three years covering 42 employees. A cap for possible outcomes and targets is determined by the Board and performance is measured by:

- Total return on investment assets
- Return relative to competitors
- Return on the active management within the equity, fixed income investments and real estate

## 4) Risk framework

Risk management is a key element of Alecta's operations. It is the Board of Directors' responsibility to ensure that insurance, financial, operating and other risks (compliance and information security risks) are well balanced and that internal controls maintain a high standard.

Alecta has established independent controls for Compliance, Information and Security, Risk Control and Actuarial function to support its risk activities. The responsibility for day-to-day management of financial risks is delegated to Risk & Performance, an independent function within Investment Management. Additionally, company-wide self-assessment methods are used annually to identify and assess Alecta's various risks.

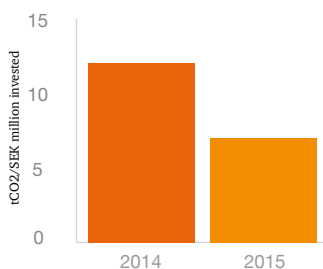
## 5) Responsible investing and ESG

Alecta invests in companies that it believes can make the most of their business opportunities without compromising the environmental and social aspects of their operations. Potential and existing holdings are screened by the GES Investment Services, an analysis company focusing on sustainability compliance. It also participates in the Nomination Committee and votes at Annual General Meetings of companies that its owns.

Alecta holds investments in green bonds (SEK 4 bn in 2015), in which the capital is utilized in various environmental projects.

It is a member of the Sweden Green Building Council, promoting sustainability work within the construction and real estate industries.

Alecta signed the Montreal Pledge, committing itself to measure and report its portfolio's carbon footprint every year. As of 2015, its investment management division has a sustainability manager.



### The equity portfolio's carbon footprint

\*Except senior management, employees in the Internal audit and Risk departments, as well as the employees within investment management who are already covered by other incentive programmes

# Pensionsforsikringsanstalten (PFA)



## Quick facts

PFA Pension was founded in 1917 as an independent company by a number of labour organizations, with the sole purpose of ensuring a financially secure future for the employees and their families. Today, PFA has approximately 1.1 million individual customers from a wide range of the largest companies and organizations in Denmark.

## Evolution of total assets

Today PFA invests in Equity, Fixed Income and Alternatives. The market value of the fund's investment portfolio was approximately DKK 266.9bn (USD 38.8bn) as of 2015. The fund's total investment assets have grown at a CAGR of 1.9% between 2010 and 2015.

## Evolution of asset allocation

PFA's asset allocation remained strongly focused on one asset class over the last five years. Fixed Income is the largest asset class by far, with a share of 86.4% in 2015. The Alternatives share decreased from 8.0% in 2010 to 6.4% in 2015. The share of assets invested in Equity decreased from 8.9% in 2010 to 7.1% in 2015.

## Total return

Total return on PFA Pension's investments amounted to 3.4% in 2015, with record net investment results of DKK 1,127bn. In 2015, Equity investments contributed the most, generating returns of 18.0%. Since 2013, alternative investment returns increased from 6.6% to 14.7%. The return on Fixed Income amounted to 2.5% in 2015.

## Geographic Equity allocation

In 2015, 19.3% of Equity investments were made domestically, while 80.7% were made in foreign countries. The pension fund mainly invested in European Equity (34.8%). Asset allocation to North America increased from 25.9% in 2010 to 33.2% in 2015. The fund is also active in Japan and emerging countries.

## Remuneration scheme

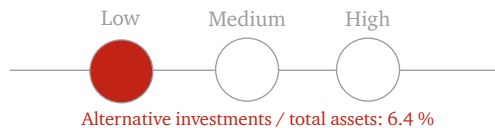
In 2015, executive remuneration represented 2.0% of total operating expenses. Variable remuneration accounted for 15.8% of the CEO's total remuneration in 2015. The fixed and variable salaries are relatively the same for each director.

Sources: PFA Pension Annual reports 2010-2015

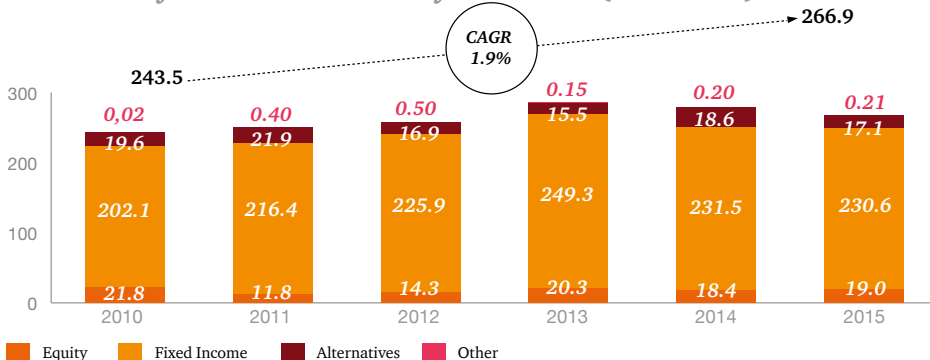
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1917	1,167	63.6	6.4%	0%	3.4%

\* Based on national currency

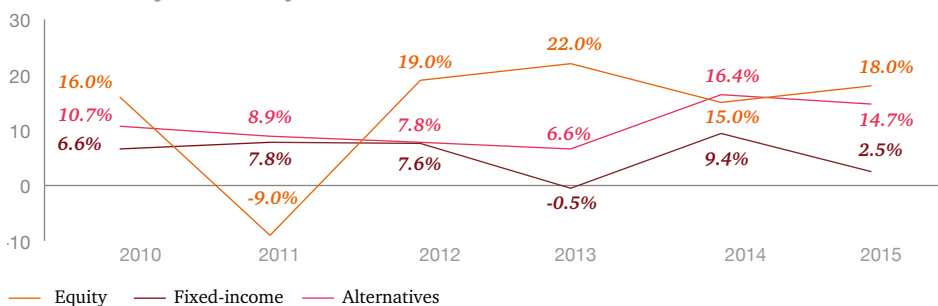
## Level of alternative exposure



## Evolution of investment assets by asset class (in DKK bn)

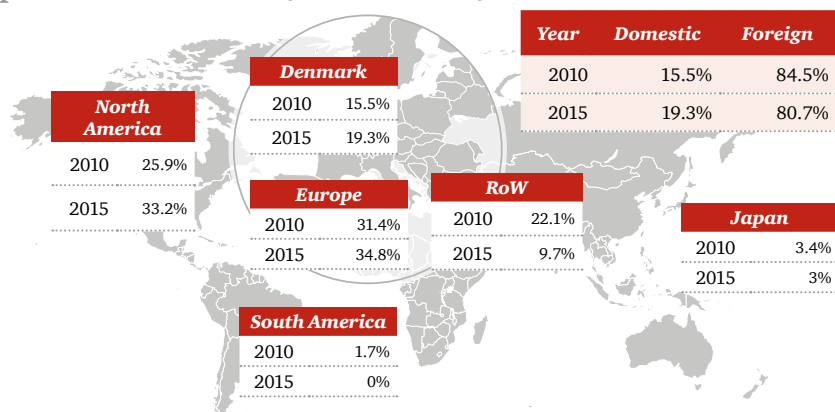


## Evolution of return by asset class\*



\*Note: Returns were estimated based on a weighted average of returns disclosed in the annual reports for each sub-asset class.

## Geographic asset allocation (2010 vs. 2015)\*



\*Note: Percentage breakdown of Equity investment by regions

## Executive remuneration schemes in 2015 (DKK thousand's)

2015	Salary	Variable	Total remuneration	Remuneration / Total operating expenses
Chief Executive Officer	5,296 (84.2%)	990 (15.8%)	6,286	0.73%
Chief Financial Officer	4,471 (84.8%)	800 (15.2%)	5,271	0.61%
Chief Operating Officer	4,751 (84.2%)	885 (15.8%)	5,637	0.66%

Sources: PFA Pension Annual reports 2010-2015

# Pensionsforsikringsanstalten (PFA)



## Alternative Focus

Since 2010, the share of Alternatives in the fund's total portfolio has decreased by 1.6%. During the past five years, Real Estate investments increased marginally.

For PFA, it is important to be selective in order to offer quality alternative investments that live up to the fund's requirements and, hence, achieve an attractive balance between the expected return and the risk attached to the investment.

PFA regularly assesses potential for investing in good Alternatives for the future in order to improve the knowledge and expertise in financial products. Therefore, PFA Pension is the parent company of various firms specialized in Alternatives - examples include:

### PFA Invest International A/S

The objective of PFA Invest International is to acquire Real Estate outside Denmark, directly or indirectly, by acquiring Equity in companies, including Real Estate funds or similar businesses. The company is the parent of five wholly-owned subsidiaries that own one property in Germany and participate in partnerships. As of January 2015, the subsidiary of PFA Pension merged with European subsidiaries and changed its name to PFA Property Investment A/S.

### PFA Ejendomme A/S

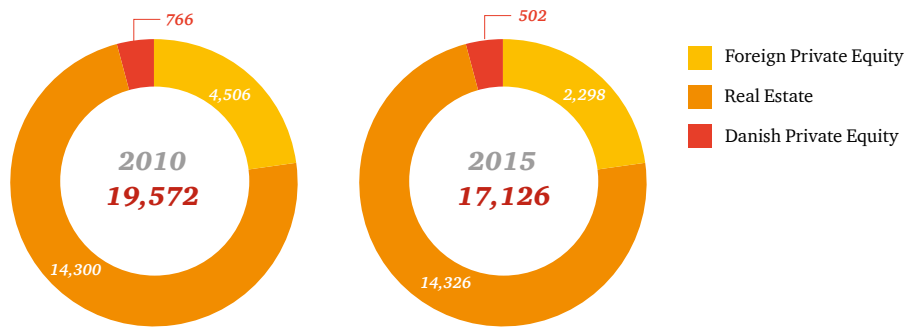
The subsidiary manages PFA's investments in foreign Real Estate funds and in Danish Real Estate. As a result of the low interest rates and the general notion that it is a favorable time to increase property exposure, PFA decided to increase the allocation to Real Estate investments.

## Outsourcing focus

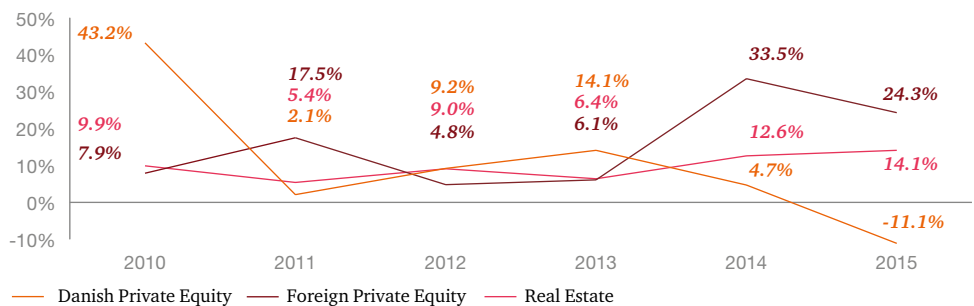
PFA Pension uses various subsidiaries to invest the fund's assets.

PFA Asset Management was established in 2014 through a merger. The company manages the investments for PFA Pension, and is authorized to manage alternative investment funds, shares, bonds, related derivatives and investment funds. However, the company is subject to the supervision of the Danish Financial Supervisory Authority. PFA Pension and PFA Kapitalforening are its largest customers.

## Investments in Alternatives (DKK mn)



## Evolution of return of Alternatives



## Recent developments regarding alternative investments

### 2015

#### Købmagergade Post office – Copenhagen

The property is a landmark building in a prominent Copenhagen high-street location. In the past, the building served as the main post office and distribution centre for the Danish postal services, but today only one-third of its space is used for post office and the Post & Tele Museum.

The ground floor of the property will accommodate high-quality retailers, while the other floors will be converted into up-to-date office space. The redevelopment scheme will be carried out with due respect and consideration for the history of this landmark building.

Acquisition in 2015 for DKK 500 million.

### 2014

#### Conditional agreement for the purchase of four properties

PFA entered into a conditional agreement for the acquisition of four properties from Ejendomselskabet August 2003 A/S. The gross leasable area of the properties is about 88,000 m<sup>2</sup>, and the agreement also comprises building rights for about another 33,500 m<sup>2</sup>.

The properties are currently primarily used for office accommodation. The properties are located at Amager Strandvej in Copenhagen with direct access to Metro stations. The buildings originally housed SAS' activities in Denmark, and today the largest lessees are SAS, Vestas, Arriva and Ikea.

Sources: PFA Pension Annual reports 2010-2015





# Pensionsforsikringsanstalten (PFA)

## 1) Investment strategy

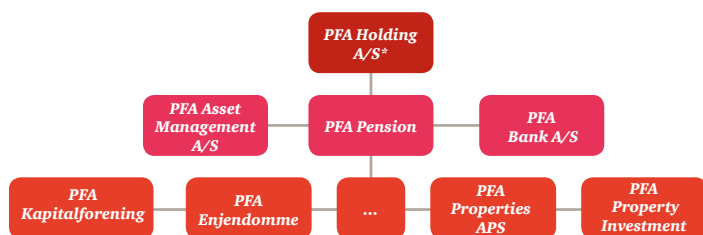
PFA uses its customers for advice. Therefore, the fund formed a Customer Board consisting of 70 executive employees from its largest corporate customers, who make sure that PFA is in touch with the customers' needs and requirements. This entails a special obligation to create long-term value for each customer in a responsible manner.

The fund invests globally across three asset classes and widely outside Denmark with a target asset allocation of 7.1% Equity, 86.5% Fixed Income and 6.4% Alternatives.

PFA has established a number of strategic objectives, divided into five key areas: (1) identity, (2) corporate & organizational customers, (3) private customers, (4) investment, and (5) efficiency. The key areas are broken down into overall key performance indicators (KPIs). The KPIs are followed up quarterly so that the Board of Directors and Executive Management as well as executive staff members and other employees know how well PFA is performing. The KPIs are also incorporated into bonus models, and bonuses are thus affected by PFA's overall performance.

In addition, a development plan has been drafted for each key area, describing the central initiatives that are to be implemented to make it possible to adhere to the strategy. Executives and employees are currently briefed via the intranet and at dialogue meetings on the status of overall goals and development plans. In addition, PFA's management system and the ongoing process of strategic developments ultimately causes the policy to be firmly rooted in all of levels of the PFA organization.

### Organization chart



\*PFA Holding's Board of Directors is identical to PFA Pension's Board of Directors.

## 2) & 3) Outsourcing of portfolio management / In-house portfolio management

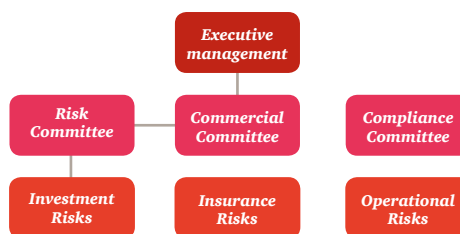
PFA pension has various subsidiaries and associates who manage its assets. PFA Asset Management is authorized by the Danish Financial Supervisory Authority to carry out asset management on behalf of PFA Pension and other professional investors. PFA Asset Management is in charge of shares and unlisted investments.

PFA Ejendomme's primary objective is to acquire, build and manage Real Estate in Europe and to undertake other business activities deemed compatible with the objective defined by the Supervisory Board.

Sources: PFA Pension Annual reports 2010-2015

## 4) Risk framework

The overall objective of risk management in the pension area is to ensure that customers obtain a competitive return, while their pension savings are responsibly invested. This gives customers the best basis for maintaining healthy finances upon retirement. For customers with an average interest rate plan, risk management of PFA ensures the right balance at all times between total reserves and investment risks. For customers who have opted for a market rate plan, risk management maintains a focus on matching investments with the individual customer's personal financial situation as well as age, estimated retirement date and risk tolerance. Risk management is an integral part of PFA's business. To provide the strongest risk management setting, the fund clearly outlines the division of responsibility and duties. The board of directors of each company is responsible for determining the overall framework for risk management and risk tolerance. On this basis, the individual companies' management teams handle the overall day-to-day control and monitoring. As a supplement to the risk management system in the individual Group companies, the Executive Management has appointed three committees on a group-wide level with related sub-working committees.



## 5) Responsible investing and ESG

PFA's list of possible countries suitable for investment is screened for any violations of international standards based on the UN Global Compact's ten principles. In order to assess the countries, PFA regularly decides on and updates criteria which are suited to assess various countries' development, economic conditions, human rights and the degree of democracy and corruption. Countries subject to international sanctions are excluded. If a country is assessed to be questionable by a number of internationally recognized indices, a country analysis is prepared.

The screening of PFA's portfolios as well as the engagement dialogue with companies may, wholly or partly, be carried out by an external business partner. However, PFA is responsible for its investments and any exclusions at all times.



# Varma Mutual Pension Insurance Company



## Quick facts

Varma Mutual Pension Insurance Company was founded in 1998 and is the largest pension insurance company in Finland. Varma provides its services to more than 860,000 people.

## Evolution of total assets

The market value of Varma's Investment Portfolio was approximately EUR 41.3bn (USD 44.9bn) as of end 2015. The fund invested in different asset classes to diversify its portfolio and reach a high risk distribution level. Within the last four years Varma's assets grew at a CAGR of 6.8%.

## Evolution of asset allocation

Varma's portfolio includes different asset classes. In 2015, the largest portion was Equity, which amounted to 38.5% of the portfolio, followed by Alternatives with 31.7% and Fixed Income with 29.8%. Equity increased the most from 2011, when its share was 23.9%, while Fixed Income decreased from 41.5%.

## Total return

Varma generated a 4.2% return in 2015. The highest return was due to Equity (9%). About 5% return was generated by Alternative investments.

Within the last five years the return rates for different asset classes were relatively stable, except for Equity. The fund's management related this to the high correlation between Equity return rates and the global economy.

## Geographic allocation

In 2015, Varma invested 35% of its portfolio in Finland. The rest of its investments were distributed around the world, primary in Europe. As from 2012, the geographic distribution of investments has remained almost the same.

## Personnel costs

The number of employees has decreased within the last five years, but the total amount of salaries has remained stable – consequently, the costs per employee have increased.

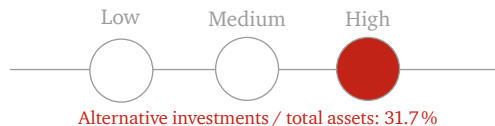
The largest share of personnel is employed in pension insurance & customer service (56%), and only 13% are employed in investment operations.

Sources: Varma Annual Reports 2011-2015; website

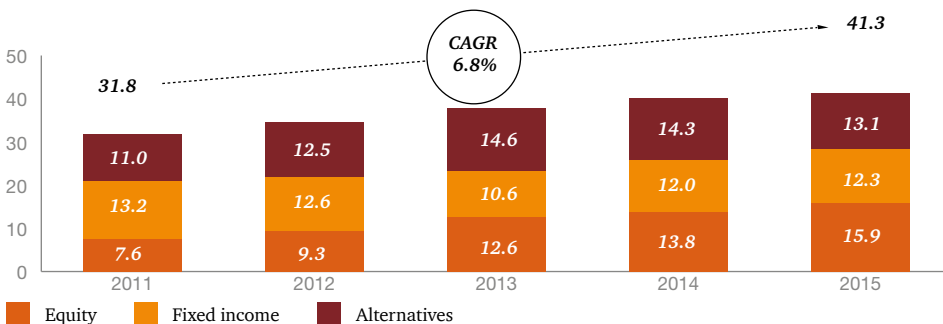
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1998	549	44.9	31.7%	N/A	4.2%

\* Based on local currency

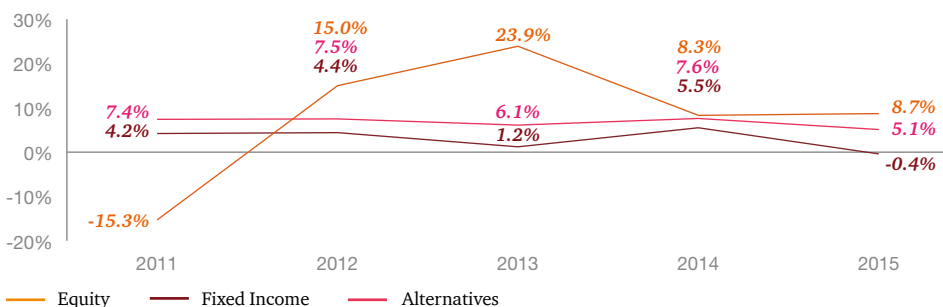
## Level of alternative exposure



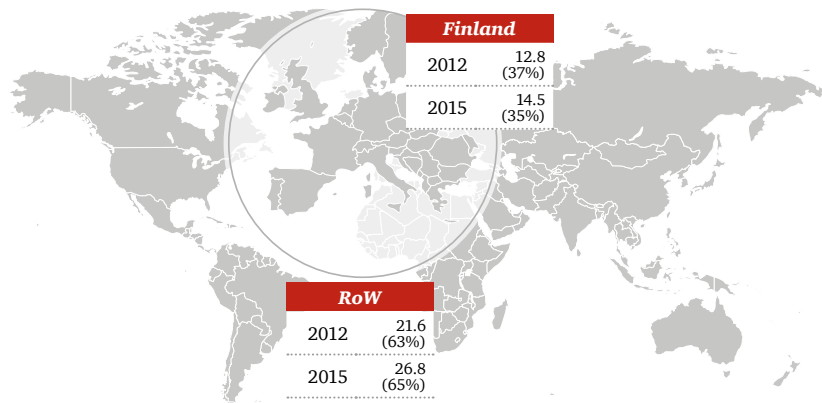
## Evolution of total assets by asset class (in EUR bn)



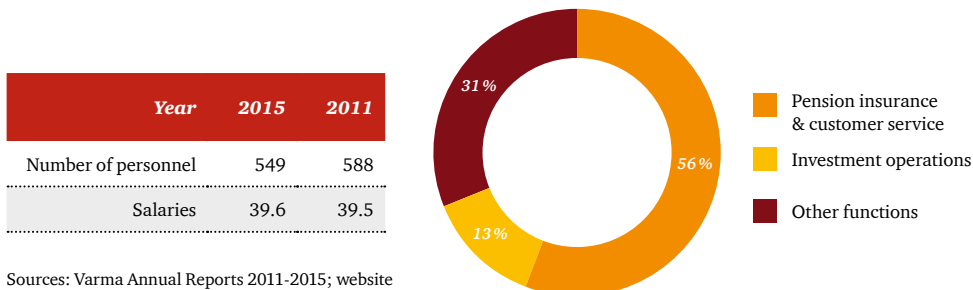
## Evolution of return by asset class



## Geographic allocation 2015 vs. 2012 (in EUR bn)



## Parent's company personnel distribution



Sources: Varma Annual Reports 2011-2015; website

# Varma Mutual Pension Insurance Company



## Alternative Focus

Within Varma's Alternatives portfolio, the fund invests in Hedge Funds (50.8%), Real Estate (29.5%), Private Equity (19.7%) and in other alternative asset classes such as commodities (3%).

The fund invests domestically 100% of its direct Real Estate, 24% through Real Estate funds, and 3% of Private Equity.

### Hedge Funds

In 2015, Hedge Funds placed a share of 16.7% in Varma's investment portfolio. The fund invests in Hedge Funds in order to effectively diversify the risk caused by market fluctuations in Equity and Fixed Income. Because of their low volatility, Hedge Funds are very attractive for pension funds.

### Real Estate

In 2015, all of Varma's direct Real Estate investments were made in Finland – generally concentrated in Helsinki. However, the fund continued to increase the international diversification of its Real Estate investments through Real Estate Funds.

As a Real Estate investor, Varma plays a key role in supporting Finland's industry and trade, as well as Finnish employment.

### Private Equity

Varma's Private Equity investments consist mainly of indirect Private Equity fund investments, made in collaboration with various other investors. In legal terms, Varma is a limited partner in the funds it invests in and has no decision-making powers concerning the investments.

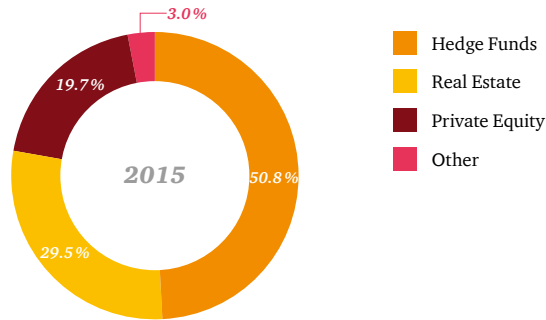
## Outsourcing Focus

Varma uses external expertise for investing in alternative asset classes. In particular, the fund prefers to use Hedge Funds, Real Estate Funds and Limited Partnerships in Private Equity.

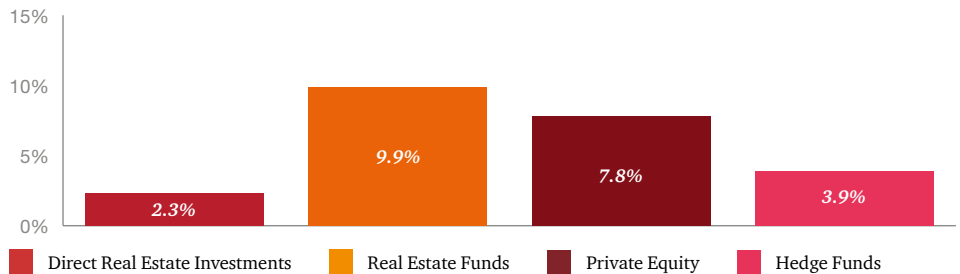
In addition to the knowledge of the external managers, the fund has benefitted from the indirect investments in recent years, with Real Estate Funds achieving the highest return (9.9%) of Alternatives in 2015.

Sources: Varma Annual Reports 2011-2015; website

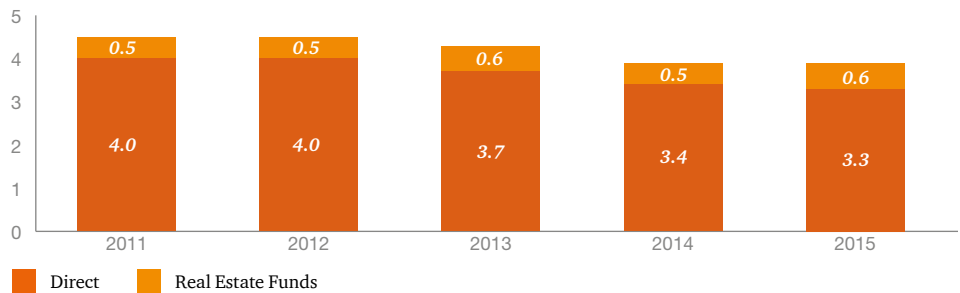
## Asset Allocation within Alternative Investments



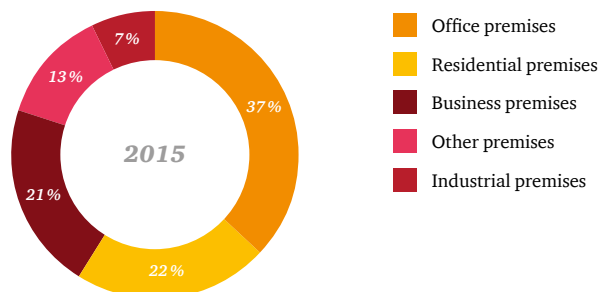
## Return on Alternatives in % (in 2015)



## Evolution of Real Estate Investments in EUR bn (in 2015)



## Direct Real Estate Investments



Sources: Varma Annual Reports 2011-2015; website

# Varma Mutual Pension Insurance Company



## 1) Investment strategy

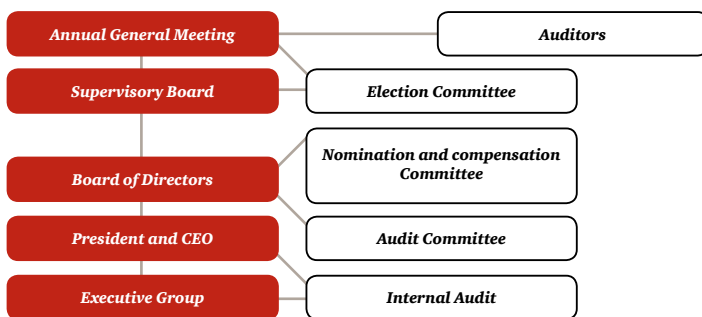
Varma defines itself as a responsible and long-term investor. The major goal of the fund is to maintain as high an ROI (return on investment) as possible. To keep the risk at a desired level, Varma diversifies its portfolio in different asset classes, as well as internationally. Diversification is also a guiding principle within the different asset classes. As a pension investor, Varma wants to minimize the volatility of its investments.

Another important part of Varma's investment plan is liquidity. The portfolio is kept as liquid as possible. This has been beneficial, e.g. when the demand for pension loans to Varma's pensioners increased. The importance of liquidity is highlighted in difficult market environments.

### Corporate Governance

The fund's investment plan must be confirmed by the Board of Directors annually.

Organizational chart



## 2) Outsourcing of portfolio management

Varma outsources specific investments for which knowledge is scarce within the fund. Diversification of outsourced investments, which include Private Equity investments and Hedge Funds, is implemented through different fund types and external managers.

The selection of external managers or funds is linked to strong conditions. The manager must meet the most stringent institutional requirements.

The assessment process for selecting an external party covers:

- the investment's strategy and structure;
- the background;
- fees; and
- operating policies of the external party.

During the due diligence process for investments, such as indirect Real Estate, the external managers or funds are required to fill in INREV's (European Association for Investors in Non-Listed Real Estate Vehicles) questionnaire, which also includes questions on how ESG factors are taken into account in the fund's operations. Selected external parties must incorporate and accept ESG principles.

Sources: Varma Annual Reports 2011-2015; website

## 3) In-house portfolio management

Varma has developed an investment plan to maximize its long-term profits. Functions and responsibilities are clearly defined. The function responsible for preparing and implementing investment decisions has been separated from the supervisory and reporting function. The decision-making powers and the maximum limits for investments are presented as separate risk limits in the investment plan. The risk control function, which is independent of the investment operations, is responsible for monitoring investment risks in accordance with the limits set by the Board of Directors, including financial- and risk-theory-based assessments of investment risks and the reporting of results. Financial Administration is involved in reviewing the changes in the investment plan and in the implementation process of new investment products and controls. To do this, it uses random inspections of the solvency classification of investments and instrument pricing. The Board of Directors approves the basic allocation of the investment portfolio laid down in the investment plan.

## 4) Risk framework

Varma defines risk management as an element of internal control. Varma clearly defines its risks and responsibilities in order to control them. As a pension expenditure, Varma focuses its investments strongly on liquid instruments. The fund defines fluctuations in the value of investments as its major risk. Additional risks are designated as interest risk, foreign currency risk, and the value change risk of Real Estate objects.

Furthermore, the fund concentrates on the model risk which is linked to errors in the valuation of investments. To reduce this risk, Varma requires assumptions and simplifications concerning calculation methods and materials, which may deviate from reality.

At least once a year, the Board of Directors assesses the status and outlook of Varma's operating environment, the investment risks in terms of changes in value, expected returns, security, the foreign currency business, the company's short-term and long-term risk-bearing capacity and the development of the company's solvency position.

## 5) Responsible investing and ESG

Responsible investing takes an important part in Varma's strategy. Varma developed its Principles for Responsible Investment with the major objective of incorporating ESG into investment operations and ownership policies. The ultimate goal of this program is to produce returns which must be accounted for in the application of the Principles for Responsible Investments and in the allocation of resources.

Furthermore, Varma has signed the UN Principles for Responsible Investments, which commit the fund to:

- Incorporate ESG;
- Active ownership and adoption of ESG policies;
- Promote appropriate reporting on ESG; and
- Promote ESG within the investment sector.

# Universities Superannuation Scheme Limited (USS)



## Quick facts

Universities Superannuation Scheme Ltd (USS) is the corporate trustee of one of the largest private sector pension funds in the UK. It was established in 1974, and in 1975 began to manage the principal pension scheme for academic and comparable staff in UK universities and other higher education and research institutions.

## Evolution of total assets

USS is one of the largest occupational pension schemes in the UK, with AuM of GBP 49.5bn (USD 73.4bn) in 2015. The fund increased its assets by GBP 19.3bn from 2010 to 2015, showing a CAGR of 10.4%.

## Evolution of asset allocation

USS' portfolio is highly diversified and changed quite a lot over the last five years. In 2015, investments ranged from Equity (44.5%) and Fixed Income (28.1%) to Alternatives (25.3%) such as Private Equity, Property, and Infrastructure.

Significant changes in asset allocation between 2010 and 2015 have been in Equity (from 67.0% to 44.5%) and Alternatives (from 17.4% to 25.3%).

## Total return

Total return on USS' investments amounted to 17.9% in 2015, outperforming the year to year benchmark of 16.8% by 1%.

The net investment return consisted of an investment income of GBP 7.4bn.

## Geographic allocation

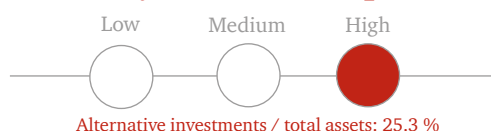
There is an overall dynamical shift in the geographical Equity allocations of the fund. When in 2010 37.9% (GBP 11.4bn) of the Equity investments were made outside the UK, in 2015, 30.4% (GBP 15.0) was invested outside the UK. Whereas investments into Asia-Pacific decreased, investments into Emerging Markets grew the most from GBP 1.7bn in 2010 to GBP 4.0bn in 2015.

## Operating costs

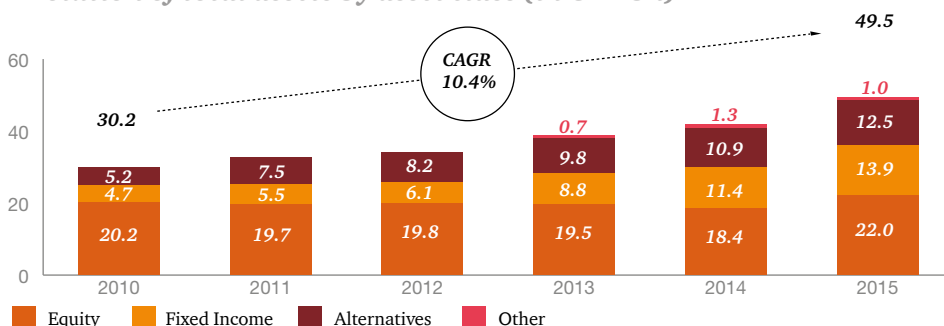
The operating costs for 2015 amounted to GBP 96.1mn, representing an overall increase of 15% compared to the previous year. The biggest share accounts the investment costs with GBP 28.6mn.

Inception date	Employees (2015)	Total Assets (USD bn.) 2015	% Alternative investments	External managers fees/ total assets	Total return (2015)
1974	379	73.4	25.3%	0.02%	17.9%

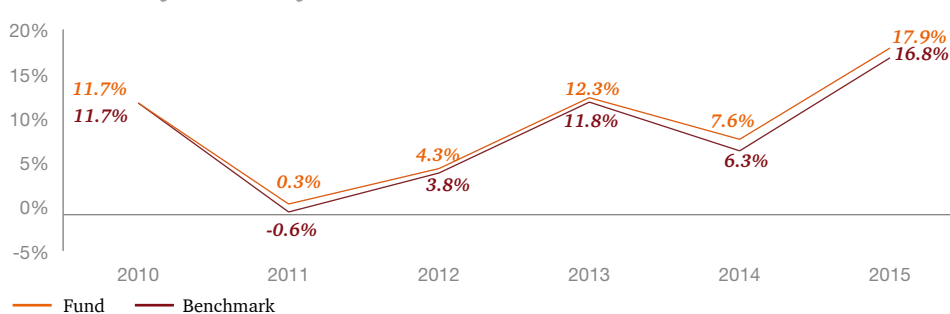
## Level of alternative exposure



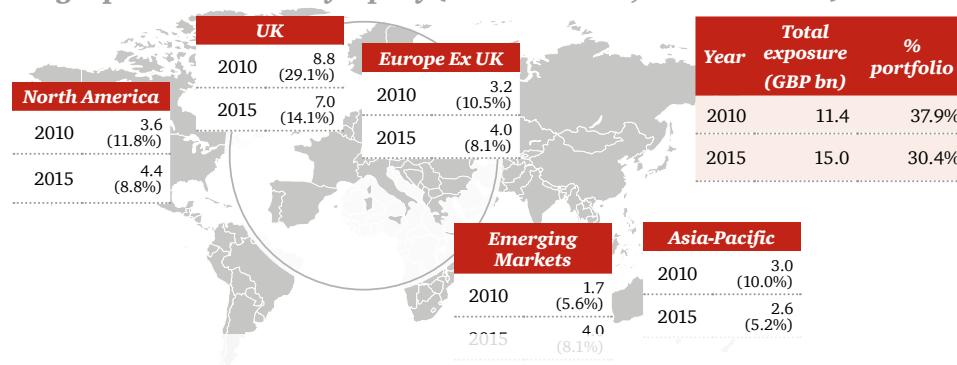
## Evolution of total assets by asset class (in GBP bn)



## Evolution of Fund Performance



## Geographic allocation of Equity (2010 vs. 2015, in GBP billion)



## Operating expenses (GBP million)

Year	Personnel costs	Premises costs	Investment costs	Other	Total
2010	16.7	3.0	17.7	14.6	52.0
2015	44.1	3.5	28.6	19.9	96.1

Sources: USS Report & Accounts, 2010-2015

# Universities Superannuation Scheme Limited (USS)



## Alternative Focus

In the past five years, USS invested in Private Equity, Infrastructure, Property and Hedge Funds.

### Private Equity

The fund gives particular focus on low risk private equity transactions that provide a combination of income and capital return over a longer investment horizon than traditional private equity.

The investments span across all sectors but the fund target assets which have specific characteristics: low volatility revenues; strong asset backing; supportive secular trends; pricing power; difficult to replicate assets or businesses; and prudent capital structures.

### Infrastructure / Real Assets

The fund's Real Assets mandate is focused on directly acquiring stable assets generating inflation-linked equity returns, particularly in the infrastructure sector.

The fund has deployed over GBP 3bn in Real Assets and executed around 15 transactions globally over the last five years with special focus on OECD countries (particularly UK, US, Europe and Australia) and mainly target sectors where there is a clear monopoly business providing essential services.

### Property

USS is a long-term investor in property with a focus on income and strong property fundamentals primarily through direct ownership and freeholds.

### Hedge Funds

Hedge funds form part of the fund's strategy to diversify portfolio risk and utilize strategies that can enhance returns. The Absolute Return Portfolio is overseen by the Manager Selection team who invests with a range of external fund managers.

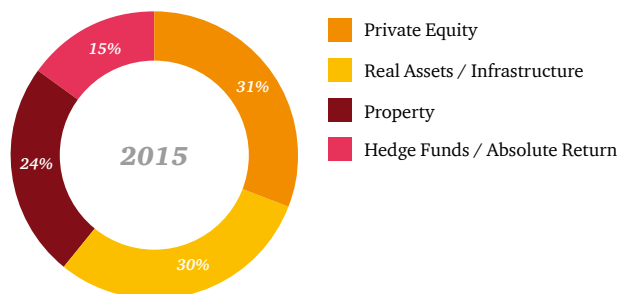
## Outsourcing focus

Externally managed assets increased from GBP 9.3bn in 2010 to GBP 16.3bn in 2015.

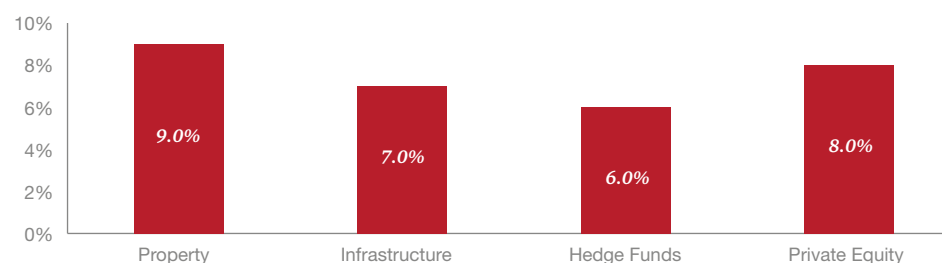
Therefore, external management fees also increased to a total of GBP 11.5mn in 2015. The share of performance related costs amounted to 20% (GBP 2.3mn) in 2015, while in 2010 no performance fees were paid to external managers.

Sources: USS Report & Accounts, 2010-2015

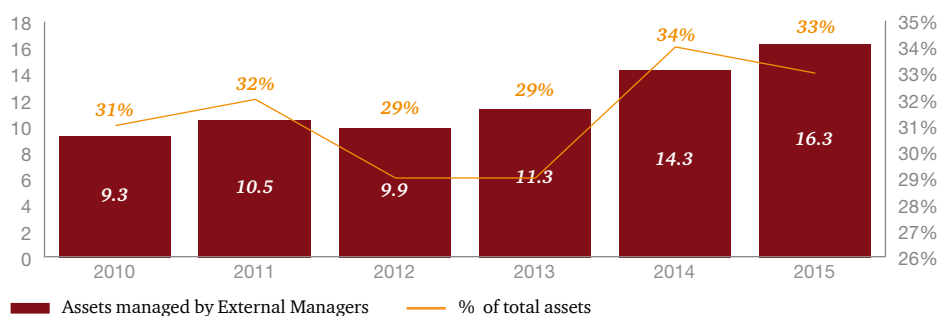
## Asset Allocation within Alternatives investments



## Strategic asset allocation for Alternatives (in 2015)



## Evolution of assets managed by External Managers



## External Management costs (GBP million)

Year	2010	2011	2012	2013	2014	2015
Base fee	5.9	6.7	6.2	5.4	7.2	9.2
Performance fee	0	1.6	0.4	0.2	1.4	2.3
<b>Total</b>	<b>5.9</b>	<b>8.3</b>	<b>6.6</b>	<b>5.6</b>	<b>8.6</b>	<b>11.5</b>

Sources: USS Report & Accounts, 2010-2015

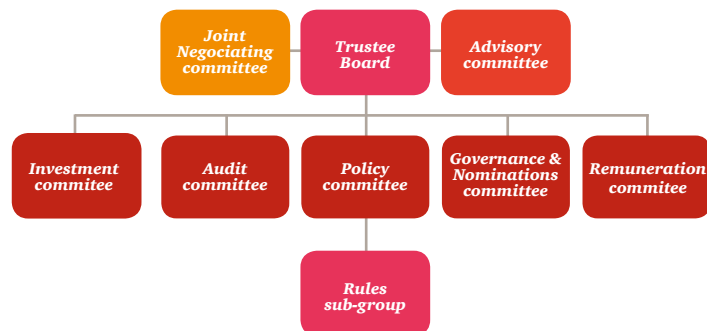


# Universities Superannuation Scheme Limited (USS)

## 1) Investment strategy

### Corporate Governance

Universities Superannuation Scheme (USS) is managed by the trustee in accordance with the scheme's Trust Deed and Rules. The trustee company is Universities Superannuation Scheme Limited, a company established as the corporate trustee of the scheme.



The board is responsible for the effective governance and oversight of the scheme to ensure that the promised benefits are paid to all beneficiaries in accordance with the trust, and in accordance with governing legislation and regulatory guidance.

## 2) Outsourcing of portfolio management

USS Investment Management Limited (USSIM Ltd), a wholly owned subsidiary of Universities Superannuation Scheme Limited, is the principal investment manager and advisor to the scheme.

Some areas of investment sought for the scheme may not be possible using existing internal capabilities in a cost-effective, timely manner. In these circumstances, USSIM Ltd will select external managers to undertake investment on its behalf.

## 3) In-house portfolio management

The key investment belief is that a well-run and appropriately governed internal investment team is the best way for the fund to meet its long term investment objectives in a cost-effective manner. This was the basis for developing a reference portfolio approach and delegating more granular strategic asset allocation and implementation to the internal team.

Under the reference portfolio framework, the trustee board focusses on strategic scheme objectives, the investment committee on the appropriateness of the overall investment strategy and delegations, and USSIM Ltd on the specifics of asset allocation, implementation and reporting.

The reference portfolio represents a mix of assets and a market-based return that the trustee Board would be able to access without requiring the full range of investment and operational expertise within USSIM Ltd.

The in-house investment team is tasked with delivering greater returns than those derived from the reference portfolio whilst targeting a similar level of risk.

As the majority of the fund's assets are managed internally, the trustee believes in-house investment management encourages a greater focus on delivering the investment requirements of the scheme, and a strong alignment of interests as it removes the potentially conflicting commercial motivations.

Sources: USS Report & Accounts, 2010-2015

## 4) Risk framework

In order to meet the long-term funding objective to pay the scheme benefits as they fall due whilst managing the level of contributions, the trustee company takes a degree of investment risks relative to the liabilities. This targets a greater return than the liability matching assets would provide whilst maintaining a prudent approach to meeting the scheme's liabilities.

The trustee company's willingness to take investment risk is dependent on the continuing financial strength of the employers and their willingness to bear the associated risk of contribution increases to the scheme, the funding position of the scheme and the scheme's cash-flow and liability profiles. The trustee company monitors these factors regularly with a view to altering the investment objectives, risk tolerance and/or return target as appropriate in the event of significant changes in any of the factors.

The overall investment risk to the scheme is diversified across a range of different investment opportunities, which are expected to provide excess return over time, commensurate with risk. The trustee company aims to diversify the asset allocation exposures geographically, by asset class and across active management strategies.

## 5) Responsible investing and ESG

The trustee requires its investment managers to integrate all material financial factors, including corporate governance, environmental and social considerations, into the decision-making process for all scheme investments. The trustee has instructed USSIM Ltd, as its principal investment manager and advisor, to follow good practice and use its influence as a major institutional investor and long-term steward of capital to promote good practice in the investee companies and markets to which the scheme is exposed.

The fund continues to diversify into illiquid asset classes, where it is essential that appropriate attention is paid during the due diligence process to the future governance of assets and their exposure to long term risks such as climate change. This builds on the experiences gained from the due diligence process conducted on Private Equity and Hedge Funds developed by the in-house investment team.





# BT Group pension scheme (BTPS)

## Quick facts

The BT Group pension scheme (BTPS) is a pension scheme for employees, former employees, and their dependents, of BT and some of its associated companies. There were 308,183 members of the Scheme at 30 June 2015.

Membership falls into one of three "sections":

- Section A for members who joined before 1 December 1971;
- Section B for members who joined between 1 December 1971 and 31 March 1986; and
- Section C for members who joined between 1 April 1986 and 31 March 2001.

## Evolution of total assets

In 2015, BTPS invested in Equity, Fixed Income and Alternatives. The managed value of the pension fund's assets was GBP 43.1bn as of 2015 (USD 67.7bn). Total assets grew at a CAGR of 3.5% between 2012 and 2015.

## Evolution of asset allocation

The BTPS portfolio is highly diversified and has remained relatively stable over the last three years. In 2015, investments ranged from Equity (29.3%) and Fixed Income (43.8%) to Alternatives (26.9%) such as Private Equity, Property, and mature Infrastructure.

The most significant changes in asset allocation between 2012 and 2015 have been in Equity (from 23.5% to 29.3%) and Alternatives (from 31.9% to 26.9%).

## Total return

Total return on BTPS's investments amounted to 8.3% in 2015. The largest contributor were inflation-linked assets with a performance of 13.2% which contributed 3.4% to the fund's overall return. Equity, up 8.4% for the year, added 2.5% to the fund and Alternatives detracted 0.6% from the overall fund.

## Geographic allocation

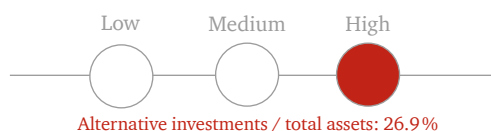
The fund invests widely outside UK. In 2015, the geographical analysis of securities (Equities, Fixed interest, Index linked, Pooled Investment Vehicles) showed the allocation of 17% of the investments in Europe (outside UK), 28% in North America and 13% in Asia-Pacific and Emerging markets.

Sources: BTPS Annual reports 2012-2015

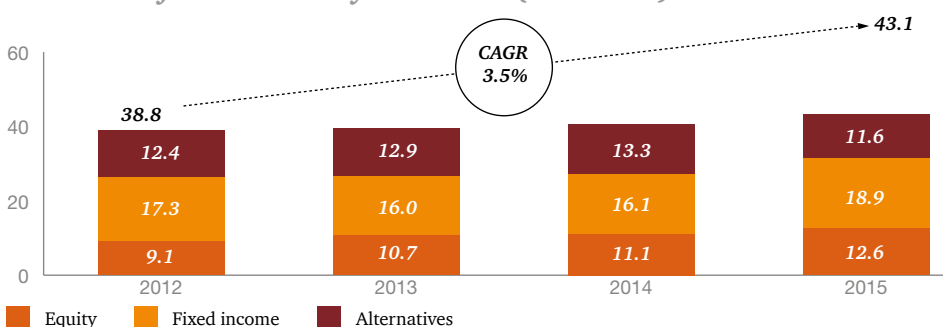
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1969	50	67.7	26.9%	0.4%	8.3%

\* Based on local currency

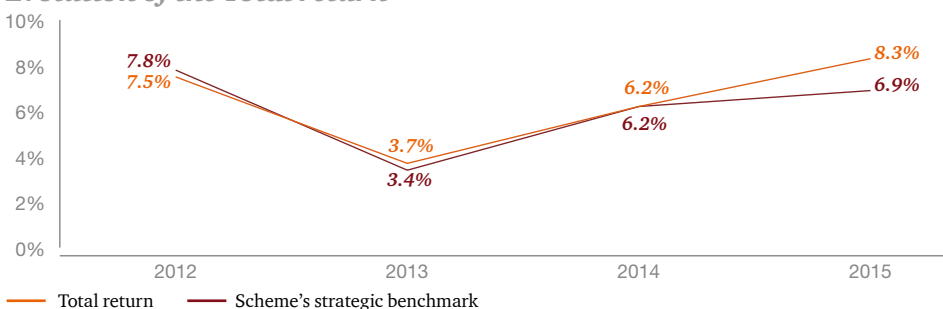
## Level of alternative exposure



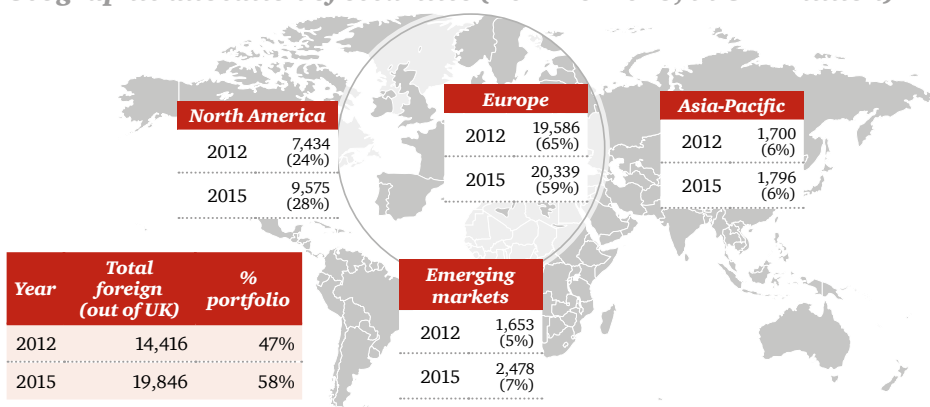
## Evolution of total assets by asset class (in GBP bn)



## Evolution of the Total return



## Geographic allocation of securities (2012 vs. 2015, in GBP million)



## Administration expenses (GBP million)

Year	PPF Levy*	Administration expenses	Total
2012	17	18	35
2013	9	11	20
2014	19	28	47
2015	24	27	51

\*A fund established by the Government to pay compensation to members of eligible defined benefit pension schemes, where there is a qualifying insolvency event in relation to the employer and where there are insufficient assets in the scheme to cover PPF levels of compensation.

Sources: BTPS Annual reports 2012-2015

# BT Group pension scheme (BTPS)



## Alternative Focus

In 2015, BTPS invested in six different asset classes under the Alternatives umbrella, after abolishing investments in commodities during 2015.

### Property

The scheme's property portfolio represented 10.5% of the total fund and was managed by Hermes Real Estate Investment Management Limited as of 2015. The property portfolio was invested approximately 85% in UK and 15% overseas. The portfolio is managed according to a strategy that balances exposure to growth with consistent income return and prudent level of risk.

### Absolute return / Hedge Funds

In 2015, the fund had 4.3% invested in Absolute return with the majority allocated to four global macro hedge fund managers.

### Credit opportunities

The Credit opportunities portfolio, which was established in 2009 to exploit specific dislocations arising across the credit market, had 4.1% invested as of 2015.

### Private Equity

The Private Equity portfolio stood at a managed value of GBP 1.4bn or 3.3% of the total fund, as of 2015. The majority of the scheme's Private Equity allocation is managed by Hermes GPE LLP with a global strategy deployed through a combination of Private Equity funds and co-investments. The objective of this allocation is to outperform listed equities by 2%-3% per annum net of fees.

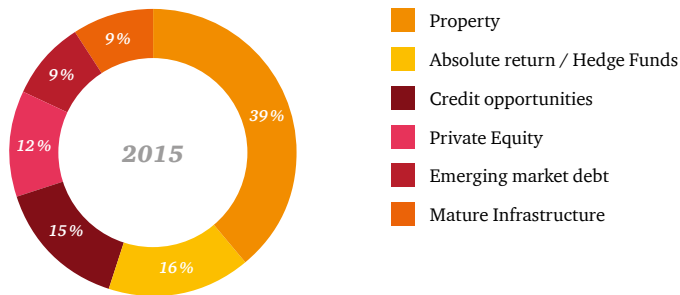
## Outsourcing Focus

Other than using Hermes GPE LLP within the Alternatives portfolio, BTPS externalizes management of assets of its other classes of assets. For example, Hermes manages approximately GBP 2.7bn for listed Equity, and GBP 3.6bn of Fixed Income are managed in a UK portfolio by M&G Investment Management Limited.

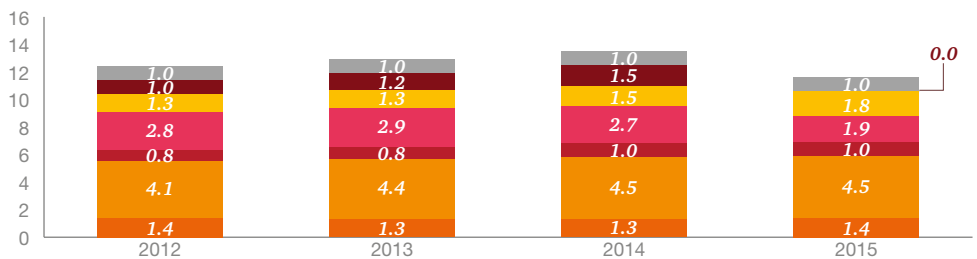
In 2015, the fund paid a total of GBP 173mn in fees to external asset managers, which is equal to 0.4% of the fund's total assets.

Sources: BTPS Annual reports 2012-2015

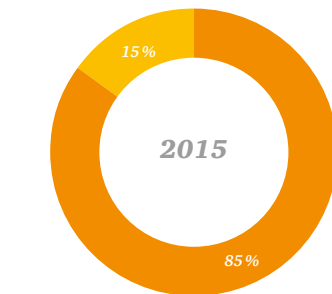
## Asset Allocation within Alternatives investments



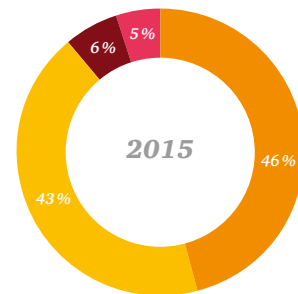
## Evolution of Alternatives by asset class (GBP million)



## Property portfolio by geography



## Property portfolio by type

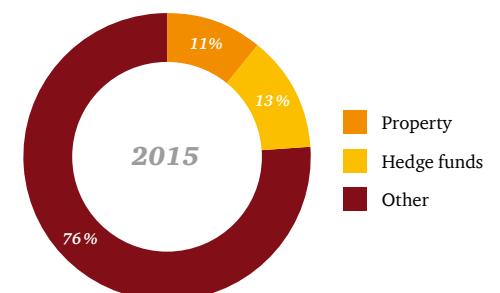


## External Management Costs (GBP million)

Years	Base fees	Performance based fees	Other	Total
2012	199	11	2	212
2013	75	4	1	80
2014	165	17	-	182
2015	156	17	-	173

Sources: BTPS Annual reports 2012-2015

## Managed Funds Allocation





# BT Group pension scheme (BTPS)

## 1) Investment strategy

### Corporate Governance

The scheme is managed and administered by the Trustee, BT Pension Scheme Trustees Limited, on behalf of members and in accordance with the terms of the pension scheme's rules and relevant legislation. The governance arrangements for the scheme take account of the recommendations and Codes of Practice of the Pensions Regulator and best practice, and are kept under continuous review.

BTPS has nine Trustee Directors. In addition to the Chairman, there are four employer nominated Trustee Directors and four member nominated Trustee Directors on the board.

The Chairman of the Trustee Board is responsible for ensuring that Trustee Directors which take investment decisions are familiar with the issues involved and are able to evaluate critically any advice received. The Trustee applies the Myners Principles, but has taken a deliberate decision that strategic investment issues should be considered by the Trustee body as a whole, and not by a subcommittee. The Trustee Directors believe that investment strategy (as opposed to day-to-day) decisions should be considered by the full Trustee body. The Investment Committee considers more detailed and tactical issues. A sub-committee with appropriate expertise may be appointed from time to time for specific projects.

### Trustee Board



## 2) Outsourcing of portfolio management

The Trustee has appointed a number of investment managers to manage the Scheme's assets. All investment managers have agreed in writing with BTPS, on behalf of the Trustee, the services to be provided and, where appropriate, the performance objective and how they will be measured.

The fees paid to investment managers for these active mandates may comprise a base fee plus, where appropriate, an additional fee calculated as a proportion of the amount by which the manager exceeds a performance target. Linking fees to performance in this way can help align the investment managers' interests with the interests of the pension scheme.

Any managers demonstrating consistent or significant under performance or where there are other significant concerns will be subject to a detailed review, undertaken by BTPS on behalf of the Trustee.

Sources: BTPS Annual reports 2012-2015

## 3) In-house portfolio management

The Trustee is responsible for the stewardship of the assets of the pension fund. All of the Trustee Directors are therefore involved in decisions on the overall level and shape of the fund's risk profile and the preferred outcomes from the fund's assets. In making these decisions the Trustee is assisted by other advisers.

The scheme's Investment Committee makes recommendations to the Trustee Board on strategic areas, including the outcomes targeted from the assets (including level of risk, returns, diversification, liquidity, hedging, and maturity profile), and the management of the scheme's funding risk through the use of derivatives.

The Trustee receives regular reports, at least quarterly and usually more frequently, on investment performance from BTPS, who monitors the position on an ongoing basis. These reports include an update on progress towards meeting the scheme's strategic investment objectives and may include detail on the fund's risk level, assets by asset type, cash flows, the performance of individual managers and such other matters as may be required by the Trustee from time to time.

## 4) Risk framework

The Trustee considers that a degree of investment risk can be taken in the expectation of generating higher returns, particularly in the short to medium-term when it has clearer visibility over the covenant provided to the scheme by BT. In setting the appropriate level of investment risk and return the Trustee considers a range of factors, including the impact and probability of a worsening of the funding position, the financial strength or covenant of BT and the financial strength of the scheme. The Trustee's current intention is to move to a substantially lower risk investment strategy over the next 20 years, when it is expected that the vast majority of liabilities will relate to pensions in payment. The Trustee is targeting a ratio of interest rate and inflation hedging of around 40% (on a gilts basis) to reduce the scheme's exposure to these risks and consequently the volatility of the scheme's funding position.

## 5) Responsible investing and ESG

In 2014/15, along with a number of other partners, the scheme sponsored the investment consultant Mercer to help build the fund's understanding of the potential impact of climate change risks on its portfolio.

In addition, to help improve the quality of asset managers reporting on responsible investment, in January 2015, having

successfully managed to gain support of over 16 asset owners with over GBP 200bn AuM, BTPS authored and launched a landmark 'Guide on Responsible Investment Reporting in Public Equity.

Furthermore, to ensure the Scheme's stewardship activities deliver long-term value, day to day stewardship activities, including holding portfolio companies' management to account and proxy voting, are delegated to agents including Hermes Equity Ownership Services (HEOS) and the scheme's active managers where appropriate.



# Railways Pension Scheme (RPS)

## Quick facts

Railways Pension Scheme was established in 1965 during privatization of the railway industry. With almost 340,000 active and retired members representing more than 150 rail companies, this pooled fund structure is one of UK's largest defined benefits pension schemes.

## Evolution of total assets

With a CAGR of 3.9% between 2010 and 2015, the evolution of RPS' total assets has remained quite stable, culminating at GBP 23.7bn in 2015.

## Evolution of asset allocation

RPS' asset allocation is mainly divided into three classes as of 2015: Equity (46.8%), Fixed Income (25.7%) and Alternatives (23.5%).

Of these three, Fixed Income was subjected to the most significant change. From 2010 to 2015, RPS' exposure to Fixed Income moved up from 18.2% to 25.7% of total portfolio. As the scheme recently moved the management of the GBP 2bn government bond portfolio in-house, the share of Fixed Income is unlikely to diminish in the foreseeable future, especially since RPS needs to compensate its newly risk appetite in Equity and Alternatives.

## Total return

Return on the Growth Pooled Fund, the fund with the largest assets, amounted to 3.9% in 2015, against a benchmark of 1.2%, and a target of 5.2%. Since the merger of the Private Equity and Infrastructure Pooled Funds, an ambitious target of +4% above UK Retail Price index has been set for the Growth Pooled Fund.

The Private Equity Pooled Fund recorded an excellent annual gain of 16.6%, against a benchmark of 3.8% and target of 4.8%.

## Geographic allocation

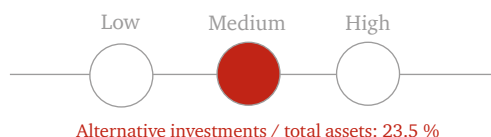
Looking at Equity investments, RPS has undertaken a massive change in its geographical allocation. In 2010, the company's Equity portfolio only consisted of Equity from the UK. However, in 2015, the fund became diversified and Equity from the UK represented only 5.5% of the portfolio.

Sources: RPS Annual Reports 2010-2015

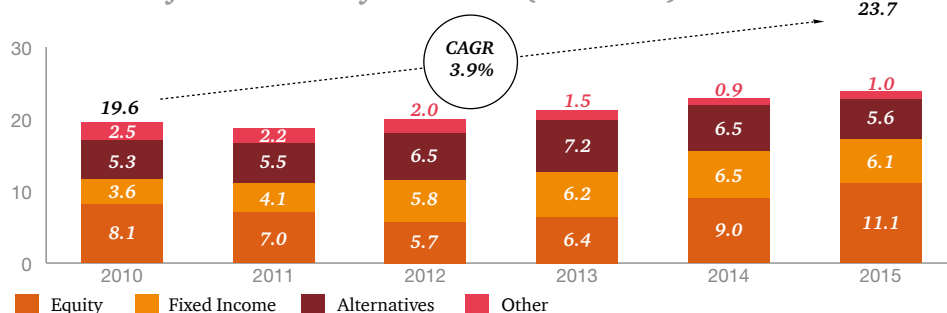
Inception date	Employees (2015)	Total Assets (USD bn.) 2015	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1965	292	35.0	23.5%	0.1%	3.9%

\* Based on Growth Fund

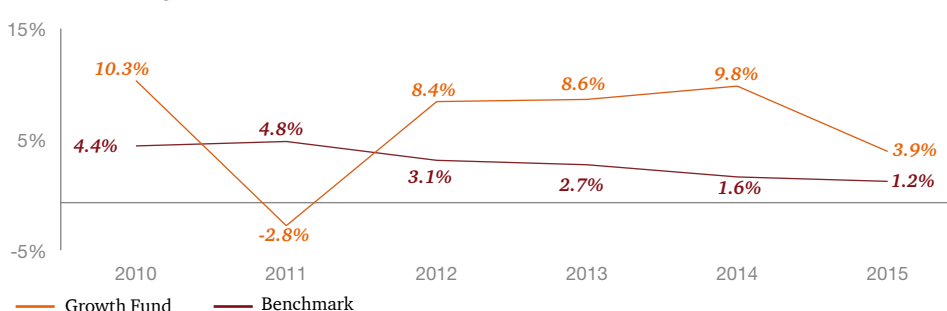
## Level of alternative exposure



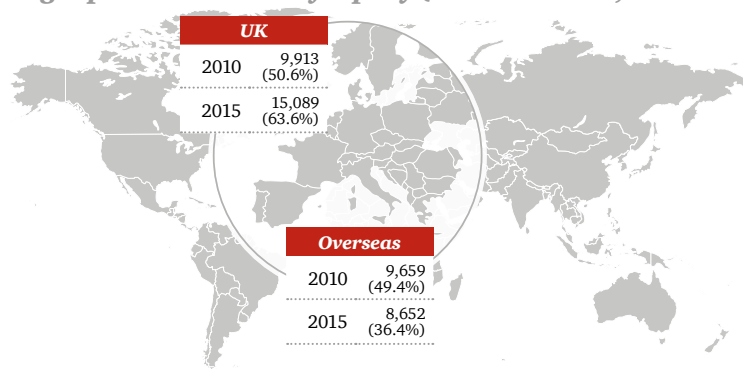
## Evolution of total assets by asset class (in GBP bn)



## Evolution of return



## Geographic allocation of Equity (2010 vs. 2015, in GBP billion)



## Administrative expenses (GBP million)

Year	Pension administration		Actuarial fees		Trustee governance		Other		Total
	Value	%	Value	%	Value	%	Value	%	
2010	9	45%	4	20%	2	10%	5	25%	20
2011	10	48%	5	24%	2	10%	4	19%	21
2012	10	56%	2	11%	2	11%	4	22%	18
2013	12	60%	3	15%	2	10%	3	15%	20
2014	10	56%	3	17%	2	11%	3	17%	18
2015	10	56%	2	11%	2	11%	4	22%	18

Note: Administrative expenses do not include investment management expenses and costs.  
Sources: RPS Annual Reports 2010-2015

# Railways Pension Scheme (RPS)



## Alternative Focus

Railways Pension Schemes invested about 23.5% of its total investments in Alternative assets in 2015, for a total value of GBP 5.6bn. The investment portfolio includes four types of asset: Private Equity (GBP 2.3bn), Property (GBP 1.9bn), Infrastructure (GBP 0.9bn) and Hedge Funds (GBP 0.5bn).

### Private Equity & Infrastructure

These two types of investments are managed by two specific independent funds: the Private Equity Pooled Fund and the Infrastructure Pooled Fund. With a total return of 16.6% and 27.9% respectively, Private Equity and Infrastructure outperformed their benchmark of 3.8% and 1.2% by far.

### Hedge Funds

While RPS' exposure to Hedge Funds stood between 5.8% and 12% between 2010 and 2013, this share has dropped to only 2.2% in 2015. This can be explained by the board's doubts on Hedge Fund managers' ability to deliver non replicable excess returns.

### Commodities

Since 2010, RPS has undertaken a complete investment review. As a result, Commodities, which represented 2% of RPS' total portfolio in 2010 slightly decreased until 2014, when the Commodity pooled fund was closed entirely.

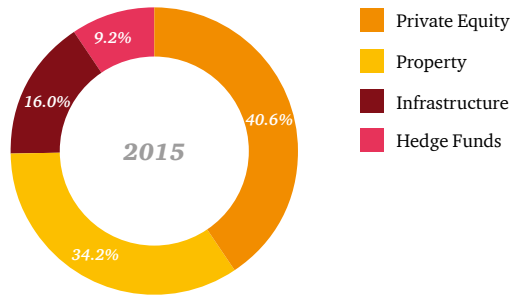
## Outsourcing focus

For 25 years, RPS has relied on a great number of external managers, resulting in leaking a great deal of value to them. In 2014, Railpen's own cost analysis suggested that the RPS was paying GBP 70mn a year upfront fees to external fund managers (equivalent to 35 basis points of its assets), and between GBP 240-280mn of underlying fees were added to that sum.

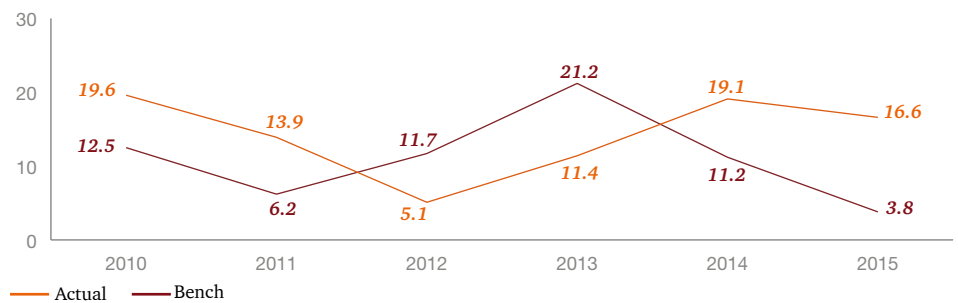
During 2015, RPS has implemented a cost efficient policy regarding external fund management. Equity investments have been increasingly carried out through Risk Premia Strategies, which identify underlying drivers of return and build portfolios cheaply and systematically.

Sources: RPS Annual Reports 2010-2015

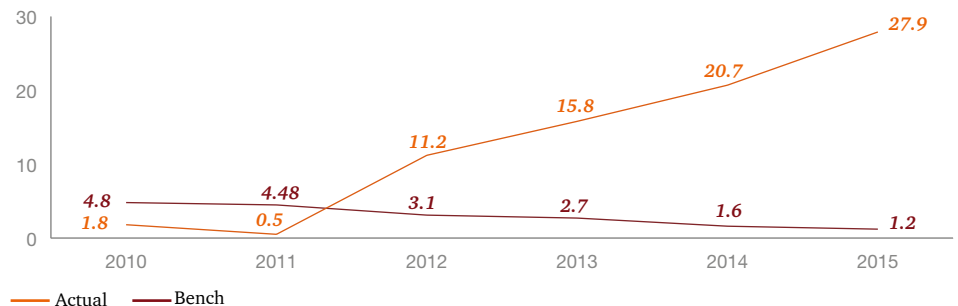
## Asset Allocation within Alternatives investments



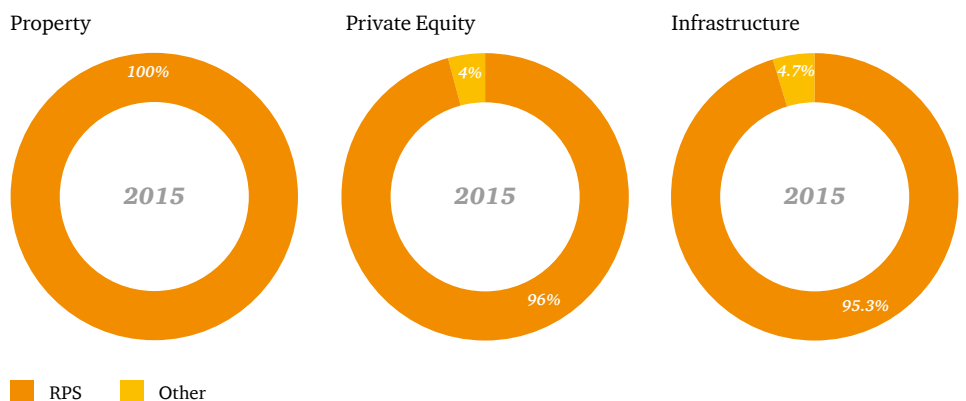
## Evolution of Private Equity Investments' return (in %)



## Evolution of Infrastructure Investments' return (in %)



## Ownership proportion of pooled fund



Sources: RPS Annual Reports 2010-2015



# Railways Pension Scheme (RPS)

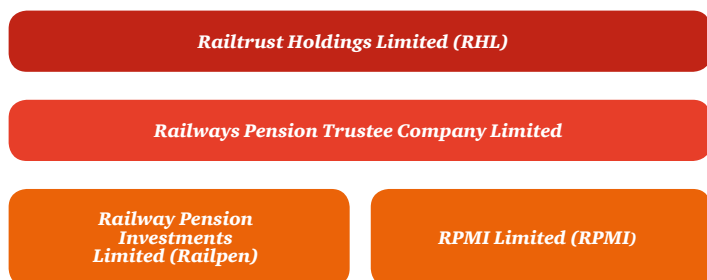
## 1) Investment strategy

The Railways Pension Scheme operates a pooled fund approach to investments. While the scheme used to have 14 open funds, each one specialized in one specific single asset, it is now composed of only 5 multi-assets funds supported by 25-strong teams of investment professionals. These funds are: Growth Fund, Passive Equity Fund, Illiquid Growth Fund, Long Term Income Fund and De-Risking Fund Platform. On top of simplifying the pooled funds range, this revamp aimed at putting together portfolios of return drivers, instead of portfolios of investment managers or assets.

### Corporate Governance and structure

From 2013 to 2014, Railways Pension Scheme's trustee board has disbanded its investment committee and replaced it with the Railpen Investment Board, an investment board with full delegated authority to invest scheme assets. This structure is complemented with an investment leadership team which oversees day-to-day investment, and makes recommendations on portfolios to the RIB.

RPS has two wholly-owned operating subsidiaries which ensure day-to-day portfolio management: RPMI and Railpen. RPMI carries out back-office activities such as administration and payment of pensions, Railpen is responsible for investment management:



### Investment objectives

To this end, RPS introduces each year a Return, Risk and Liquidity framework which includes several components:

- The expected investment return is considered taking into account risk and affordability while being judged over the long-term with reference to the financial assumptions adopted by the Scheme;
- Investment risk is considered using several measures with a focus on downside risk; and
- Liquidity requirements are evaluated with reference to a number of criteria including maturity, size and cash-flow projections.

## 2) Outsourcing of portfolio management

RPS' drives a strategy to reduce the number of external managers through in-house investments. Despite this, the scheme will continue to partner with third-party specialists in private markets but look towards a more co-investment approach, where it can gain a competitive advantage.

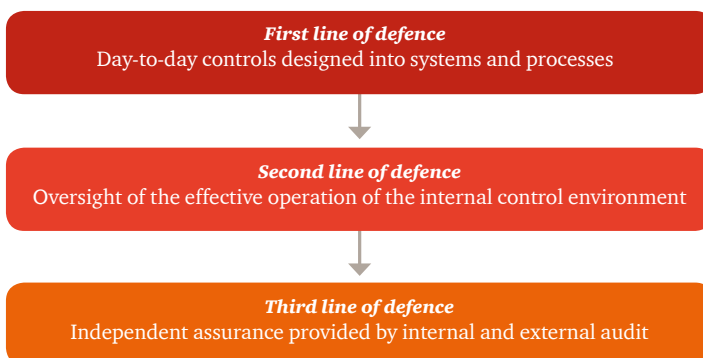
Sources: RPS Annual Reports 2010-2015, FT article

## 3) In-house portfolio management

To cope with the low-return environment that has followed the global financial crisis, RPS has decided to do much more of its investments in-house going forward. It has resulted in the scheme reducing its exposure to hedge funds, pulling out more than half of its 80 Hedge Fund investments so far. This strategy has been implemented after the board expressed doubts on the fees the fund was paying to external managers. Thus, RPS has taken big strides towards embracing innovative risk premia strategies. This strategy does not come from nowhere, as RPS had already been investing in low-volatility equities, but it has been fully implemented after the scheme carried out research that led to better understanding of the underlying drivers of risk and return in different asset classes. The strategy aims at three main benefits: higher returns, greater control over the scheme investments and lower costs. It uses specific investment strategies that allocate using a rules-based methodology, focusing on five identified factors – value, momentum, low volatility, income and quality.

## 4) Risk framework

Risks are identified and regularly reviewed by management and directors in a formal process. Once they are identified, the risks are recorded in the risk register of the Trustee, and each operating company. Actions include implementing or adapting internal controls, risk transfer, risk sharing and contingency planning.



## 5) Responsible investing and ESG

The fund planned to integrate sustainable ownership factors more systematically into portfolio management in the future.

RPS is also an asset owner signatory to the following major responsible investor initiatives:

- UN Principles for Responsible Investment (UNPRI) ;
- Extractive Industries Transparency Initiative ;
- Carbon Disclosure Project (CDP); and
- Montreal Pledge.

Sources: RPS Annual Reports 2010-2015



# Thrift Savings Plan (TSP)



## Quick facts

The Thrift Savings Plan (TSP) is a defined contribution (DC) pension plan, a major component of the US Federal employees' retirement plans. Similarly to many private sector pension plans, it offers a selection of five core investment funds (the G, F, C, I and S funds) and six other investment funds (the L funds), investing only in the core investment funds. The 4.7 million participants allocate any portion of their contributions among any of these funds for additional retirement benefits.

## Evolution of total assets

Investments at fair value of all core funds totaled USD 458.3bn in 2015, growing at a CAGR of 11.0% since their fair value of USD 272.4bn in 2010.

## Evolution of asset allocation

The plan's assets, maintained in the Thrift Savings Fund (the fund), are invested through its five investment funds each targeting a specific type of either Fixed Income or Equity security. Assets have been evenly allocated between bonds and stocks since 2010. Two funds, G and F, are totally invested in bonds and represent a total portion of 52.8% of the 2015 portfolio, compared to 50.6% in 2010. The remaining portfolio is public Equity.

## Total return

In 2015, total return decreased from 5.6% in 2014 to 1.1%, mainly due to Equity. Return on Equity in 2015 fell from 9.3% in 2014 to a mere 0.2% in 2015. The poor performance of the US bond market was offset by the relatively constant rate of return on US Treasury securities specially issued to the TSP, representing over 89% of the Fixed Income portfolio.

## Geographic allocation

In 2015, 10% (10.9% in 2010) of TSP assets were invested in non domestic stocks, from over 20 developed countries exclusively through the I fund.

## Expenses

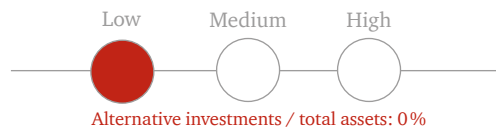
TSP enjoys low administrative costs and external investment management fees (included in other expenses).

Sources: TSP Annual reports 2010-2015, TSP.gov, FRTIB.gov, ICI.

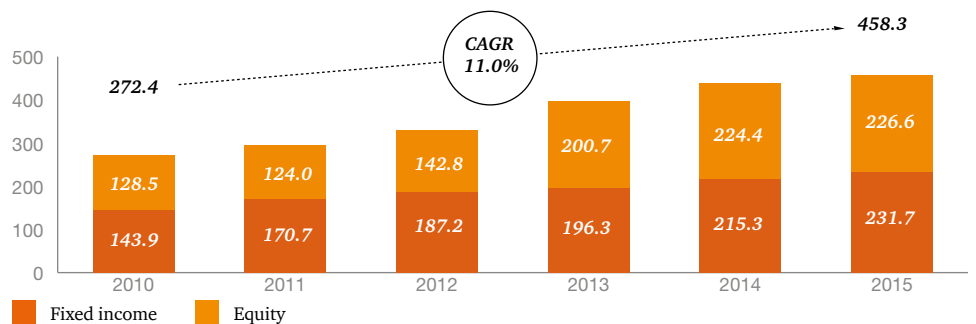
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1986	201-500	458.3	0%	0.007%	1.1%

\* Computed as weighted average rate of returns of the core funds

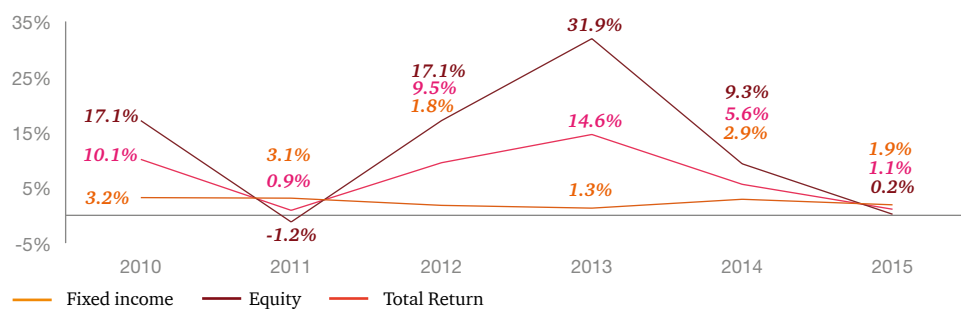
## Level of alternative exposure



## Evolution of total assets by asset class (in USDbn)

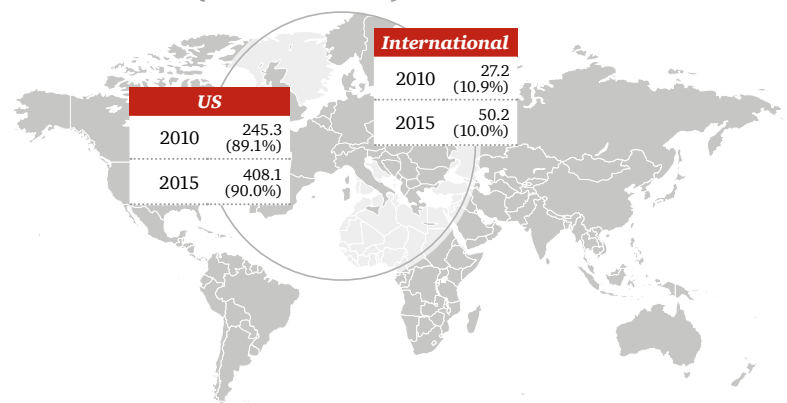


## Evolution of return by asset class \*



\* Weighted average of the core funds' returns net of administrative expense, trading costs and investment management fees.

## Geographic allocation (2010 vs. 2015)



## Expenses compared to Total assets in 2015 (in USD mn)

Fund Name	Administrative Expenses	Other Expenses*	Total Expenses	Total Assets
G	60.0 (0.029%)	N/A	60.0 (0.029%)	206,930
F	7.2 (0.029%)	4 (0.016%)	11.2 (0.045%)	24,789
C	41.3 (0.029%)	5.2 (0.004%)	46.5 (0.033%)	142,406
S	14.5 (0.029%)	19.6 (0.038%)	34.1 (0.045%)	50,162
I	9.9 (0.029%)	5.3 (0.015%)	15.2 (0.068%)	33,985

\* Fees paid to external manager. Sources: TSP Annual reports 2010 - 2015, TSP.gov

# Thrift Savings Plan (TSP)



## The TSP investment options

The TSP fund invests through 5 core investment funds, each investing in a specific type of securities, either Fixed Income or Equity, and four of these are index funds:

- The **G fund** invests in guaranteed customized US Treasury securities which earn interest based on other common US Treasury notes' yield in order to maintain a higher return than inflation.
- The **F fund** invests in the US bond market in order to match the performance of the Barclays Capital US Aggregate Bond Index.
- The **C fund** invests in stock of large and medium-sized US companies in order to match the performance of the Standard & Poor's (S&P) 500 Index.
- The **S fund** invests in stocks of small and medium-sized US companies (excluding those in the C fund) in order to match the performance of the Dow Jones US Completion Total Stock Market (TSM) Index.
- The **I fund** invests in stocks of companies in developed countries outside the US in order to match the performance of the MSCI EAFE (Europe, Australasia, Far East) Index.

In 2015, all five core investment funds earned returns exceeding their respective performance benchmarks.

TSP also offers professionally diversified portfolios, the L funds, tailored by Mercer Investment Consulting (Mercer) to match different time horizons for benefit withdrawals, using the G, F, C, S, and I funds. At the end of 2015, these funds' assets represented USD 80.2bn allocated between the five core funds.

## Outsourcing Focus

The Federal Retirement Thrift Investment Board (FRTIB) outsourced the management of the F, C, S, and I funds' assets to BlackRock, while maintaining in-house management of the G fund. This translates into more than half of its assets externally managed (54.2% in 2015 and 54.8% in 2010) and to external manager fees (Other Expenses) ranging from 0.004% for the C fund to 0.038% for the S fund, in comparison to the respective funds' assets.

Sources: TSP Annual reports 2010 – 2015, TSP.gov, FRTIB.gov

## Investment fund information for 2015

Fund Name	Asset Class	Assets (in USDbn)	Asset Manager	Other Expenses*
G	Fixed Income	206.9	FRTIB	N/A
F	Fixed Income	24.8	BlackRock	0.016%
C	Equity	142.4	BlackRock	0.004%
S	Equity	50.2	BlackRock	0.038%
I	Equity	34	BlackRock	0.015%

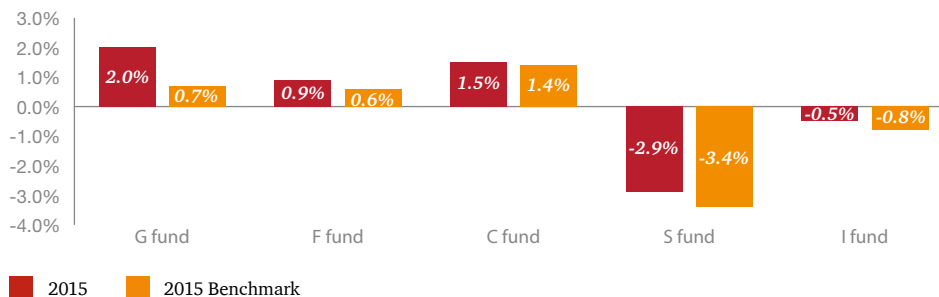
\* External management fees in addition to the 2.9 bps of Net Administrative Expenses ratio incurred by all funds, expressed in percentage of total fund's assets.

Composite Fund Name	Fixed Income *	Retirement Time Horizon	Asset Manager	Other Expenses **
L 2050	15%	2045 or later	BlackRock	0.013%
L 2040	25%	2035-2044	BlackRock	0.012%
L 2030	35%	2025-2034	BlackRock	0.010%
L 2020	53%	2017-2024	BlackRock	0.007%
L Income	80%	Now or before 2017	BlackRock	0.003%

\* Allocation target as of January 2016

\*\* L Funds do not have any additional charges, these represent the underlying funds' other expenses calculated in proportion to the allocations.

## Rate of return of the core investment funds vs Benchmark, in 2015



## In-house vs. externally managed assets (in USDbn)



Sources: TSP Annual reports 2010 – 2015, TSP.gov, FRTIB.gov

# Thrift Savings Plan (TSP)



## 1) Investment strategy

### Corporate Governance

The pension plan is administered by the FRTIB, an independent Government agency, in the interest of the participants and their beneficiaries. This agency is governed by an Executive Director, also serving as CEO of TSP, as well as five Board Members, all external, the Chairman included.

### Investment approach

The FRTIB has massively invested in short-term nonmarketable US Treasury securities (USD 207bn; 45.8% of its assets in 2015) aiming to achieve a higher return than inflation, thanks to interest received, without exposing the fund to risk of default.

As the expected return is insufficient to cover all the future pension liabilities of the plan and the costs incurred, the F, C, S and I funds have highly diversified portfolios which replicate indices as determined by the FRTIB, by directly holding either all shares composing the target index or a representative sample. These funds invest mainly in Equity (USD 226.6bn; 47.2%) but also in marketable bonds (USD 24.8bn; 7%) which offer more volatile and thus potentially higher investment returns.

Finally, the L funds are portfolios that use the fund's existing investment funds and determine an appropriate allocation based on the time horizon when the participant intends to withdraw the funds. The five L Funds were designed for the TSP by Mercer based on assumptions that are reviewed at least annually by the TSP.

## 2) Outsourcing of portfolio management

All the externally managed portfolios (F, C, S and I funds) are invested in separate accounts by BlackRock, and are passively managed to track the appropriate indices. The outsourcing of passive portfolio management minimizes the external management fees while maximizing diversification since indices are composed of hundreds of securities but only within specific sections of stock / bond market, i.e. government securities, bonds, and domestic and foreign stock.

To ensure further diversification at minimal cost, TSP has also asked Mercer, a third party, to setup asset allocations for the six L composite funds which combine the five externally managed portfolios. Based on assumptions regarding future investment returns, inflation, economic growth and interest rates, Mercer determined quarterly target allocations. Depending on when the investor expects to retire, the portion invested in the G fund decreases the further you are from the withdrawal date. These funds are also managed by BlackRock with no additional charges except the ones incurred by the funds they are invested in.

Additionally, TSP also outsources some administrative functions to other federal agencies, such as services provided to participants (the participants' employers) as well as certain functions of the G fund, such as accounting to the US Treasury. However, according to a study by the Investment Company Institute (ICI), no costs are charged to the fund.

Finally, as the largest DC plan in the world in terms of assets and with participants from a single employer, TSP benefits immensely from economies of scale. Plans with larger accounts can negotiate lower external asset management fees, as management costs do not necessarily rise proportionately with account balances.

Basically, limited and easily outsourceable investment options, defrayal of some plan costs to other agencies and scale economies offer considerably lower than the average investment management and administrative costs.

Sources: TSP Annual reports 2010-2015, TSP.gov, FRTIB.gov, ICI.

## 3) In-house portfolio management

The G fund is the only fund managed in-house as it is composed of a single security, and does not require active portfolio management. However, some major functions have been outsourced to the US Treasury such as:

- Accounting for the fund;
- Interest rate computation for the government bonds specially issued for TSP (the weighted average market yield on outstanding marketable US Treasury securities with 4 or more years to maturity, approximately 125, based on the outstanding amount);
- Cutting checks; and
- Executing electronic fund transfers.

The outsourced functions' costs are borne by the US Treasury and are not accounted for in the plan expenses.

## 4) Risk framework

The FRTIB limits the risk exposure of the fund by defining clear investment policies to be applied by the external manager, BlackRock.

The board then meets to review a monthly (or quarterly) investment performance report from its Chief Investment Officer, comparing BlackRock's performance to their underlying indices, both for the month (or the quarter) and the year-to-date. The assessment considers the figures in the report as well as the explanations provided when necessary (e.g. when tracking errors above a certain threshold occur) in order to adjust investment policies on a timely basis.

## 5) Responsible investing and ESG

Responsible investing is also an outsourced function at TSP. The fund's voting rights have been transferred to BlackRock, through proxies, after review of the latter's established guidelines.

However, TSP uses Institutional Shareholder Services Inc. (ISS), a leading provider of corporate governance and responsible investment, to perform an audit of BlackRock's proxy voting activity on its behalf.

During the monthly board meetings, the CIO reports this audit's conclusions to the members of the board to ensure that no exceptions were found to BlackRock's proxy voting established guidelines.

Sources: TSP Annual reports 2010-2015, TSP.gov, FRTIB.gov, ICI.

# California Public Employees Retirement System (CalPERS)



## Quick facts

The California Public Employees' Retirement System (CalPERS) is the largest public pension fund in the US. The fund was established in 1931 and provides retirement benefit services to more than 1.8 million members and 3,007 school and public employers, and health benefit services to 1.4 million members and 1,153 school and public employers.

## Evolution of total assets

The market value of the CalPERS Investment Portfolio was approximately USD 302.3 bn as of 2015. CalPERS' portfolio is diversified in different asset classes. The management of CalPERS is focusing on long-term goals. This has enabled CalPERS' total assets to grow at a CAGR of 9.6% over the last five years.

## Evolution of asset allocation

The portfolio of CalPERS is highly diversified, holding investments in different asset classes. About 50% of portfolio's assets are held in Equity, the fund's major position.

The investments in Alternatives, such as Private Equity, Real Estate and Infrastructure comprised 19.8% of the portfolio in 2015. The fund's divestment of Alternative assets is related to a reduction of investments in real assets.

## Total return

The total return on CalPERS' investments amounted to 2.4% in 2015. The highest return in this period was reached by Alternatives. The returns from Equity decreased from 24.8% to 1% compared to prior year due to slow global economic growth.

## Currency exposure\*

CalPERS' investment policies allow for active and passive investments in international securities. This is a strategic step to minimize the risk associated with foreign currency exchange rates.

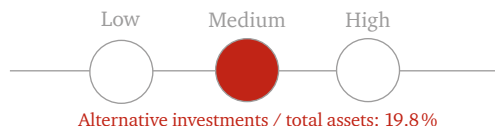
Within the last five years, the fund's portion of common currencies was stable, and the proportion to total assets remained approximately the same.

\*Taken as a proxy of foreign investments  
Sources: CalPERS Annual Financial Reports 2010-2015; Website

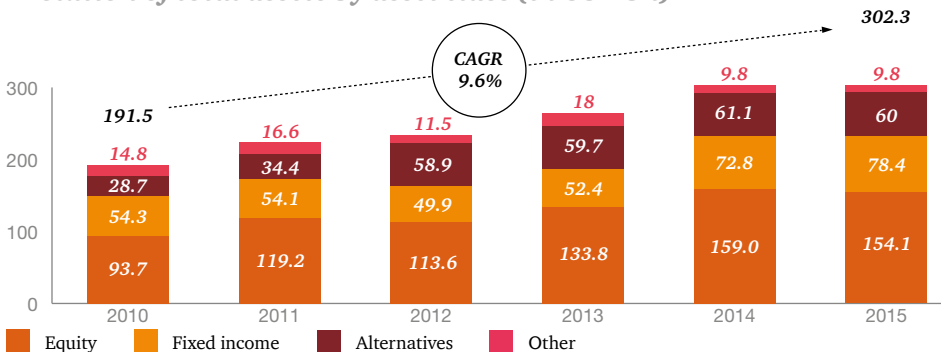
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1931	2,626	302.3	19.8%	0.5%	2.4%

\* Based on national currency

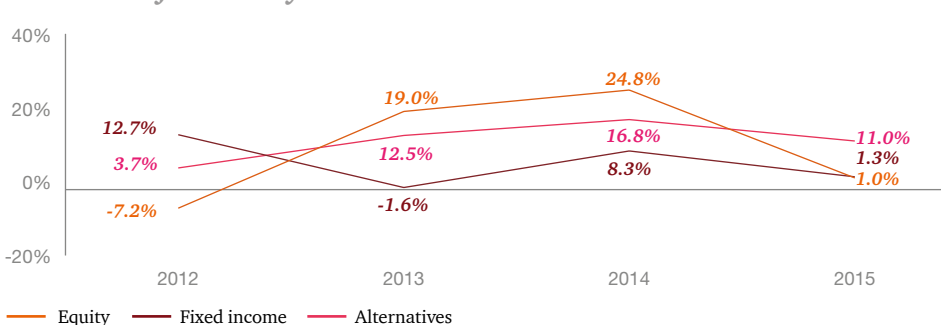
## Level of alternative exposure



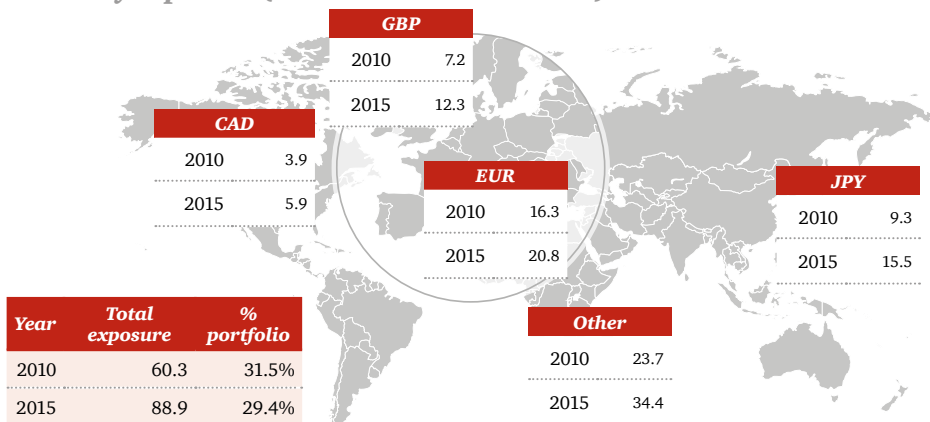
## Evolution of total assets by asset class (in USD bn)



## Evolution of return by asset class



## Currency exposure (2010 vs. 2015 in USD bn)



## Personnel costs (USD thousands)

Year	Salaries & Wages	Employee Benefits	Total Remuneration	Remuneration / Total expenses
2010	136,223	48,279	184,502	45.9%
2015	166,250	75,289	241,539	33.8%

Sources: CalPERS Annual Financial Reports 2010-2015; Website

# California Public Employees Retirement System (CalPERS)



## Alternative Focus

About 20% of CalPERS' Portfolio is represented by Alternative investments.

Within alternatives, the fund invests in Private Equity (46%) and Real Assets (54%) which are further split into Real Estate, Infrastructure and Forestland.

### Real Assets

The major part of Real Assets is represented by Real Estate USD 26.9bn (86%). Investments in Infrastructure and Forestland represent 7% each. The fund's Real Estate program consists of three portfolios: base, domestic and international tactical. The fund's target is to generate long-term income return that is less sensitive to inflation risk, e.g. stable infrastructure targets and defensive investments within the energy, power, water, and transportation sectors.

The program plays a strategic role within the Total Fund by providing steady returns and cash yields, defensive growth, inflation protection, and diversification benefits.

Forestland investments are long-term investments, generally made through externally-managed private investment vehicles. Underlying return drivers include biological growth, timber prices, land values, and management strategies. Primary portfolio benefits from forestland investments include inflation protection and diversification.

### Private Equity

The strategic objective of the Private Equity program is to maximize risk-adjusted rates of return and enhance the Equity return of the CalPERS' portfolio. The program takes three investment approaches:

1. Direct and co-investments with existing CalPERS general partners;
2. Direct secondary investments; and
3. Fund of funds (for specific mandates only).

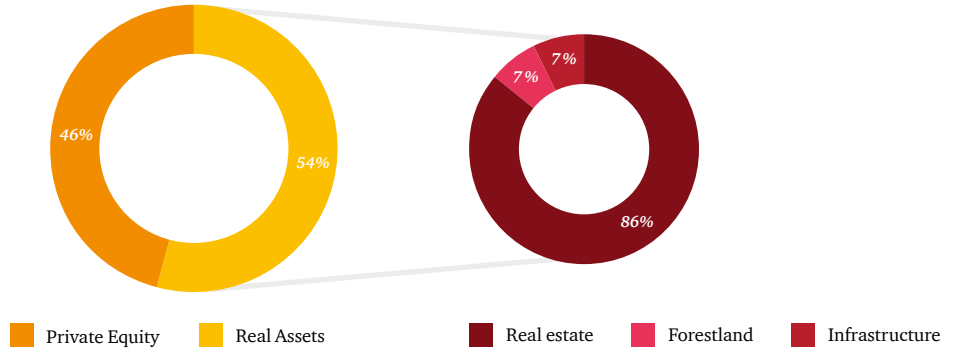
## Outsourcing Focus

Costs for external fund managers amounted to USD 1.35bn or 0.45% of total assets in 2015. Within the last five years, the total amount of external fees increased, but the proportion to total assets remained stable.

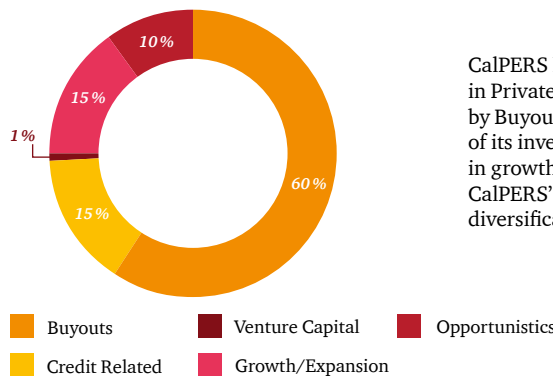
Alternatives are primarily externally managed and represent 81% of total external management costs. About 60% of these costs are related to investments in Real Assets. A minor portion of Global Equity and Fixed Income is outsourced. These two positions represent 77% of the portfolio, but only 17% of the external costs.

Sources: CalPERS Annual Financial Reports 2010-2015; Website

## Asset Allocation within Alternative Investments



## Targets of CalPERS for Private Equity

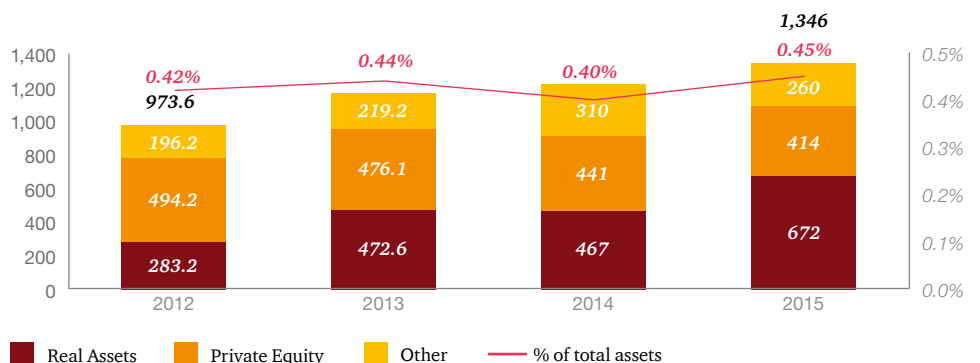


CalPERS has a clear defined strategy for investing in Private Equity. The major position is taken by Buyouts. CalPERS wants to hold about 60% of its investments in buyouts, 15% in credit, 15% in growth/expansion and 1% in venture capital. CalPERS' objective is to reach a high level of diversification.

## Return on Alternatives in 2015 (in %)



## Outsourcing Investments Costs



Sources: CalPERS Annual Financial Reports 2010-2015; Website





# California Public Employees Retirement System (CalPERS)

## 1) Investment strategy

### Corporate Governance

The Board of Administration adopted an investment strategy to provide a basis for strategic management of the investment portfolio. CalPERS recognizes that over 90% of the variation in investment returns of a large, well diversified pool of assets can typically be attributed to asset allocation decisions.

CalPERS investment beliefs are the base of the funds' strategy. These beliefs are mainly concentrated on risk, asset allocation, costs and the fund managers.

To improve the performance of the fund, CalPERS uses benchmarks. The Total Fund Policy Benchmark is the average return of the asset class benchmark indices weighted by asset class benchmark allocations. The Total Fund Policy Benchmark Return is the return attributable to the target asset class allocations. Fund managers employ active strategies in an effort to achieve a Total Fund portfolio return that exceeds the Total Fund Policy benchmark return.

CalPERS' Strategy Policy defines the fund's primary goals:

- Provide a low correlation to Equities in CalPERS Investment Portfolio;
- Generate stable cash yields primarily for CalPERS; and
- Provide a hedge against inflation.

The long-term purpose of CalPERS is to integrate ESG principles into the fund's portfolio. Furthermore, the fund has made international diversification, specifically in Real Assets, as its primary purpose.

## 2) Outsourcing of portfolio management

About 30% of CalPERS' portfolio is externally managed. The target of the Board Administration is to reduce the portion of outsourced investments. This fact is linked to the higher costs for external managers than for internal ones. The Investment Committee of the fund has established strict criteria for selecting external managers:

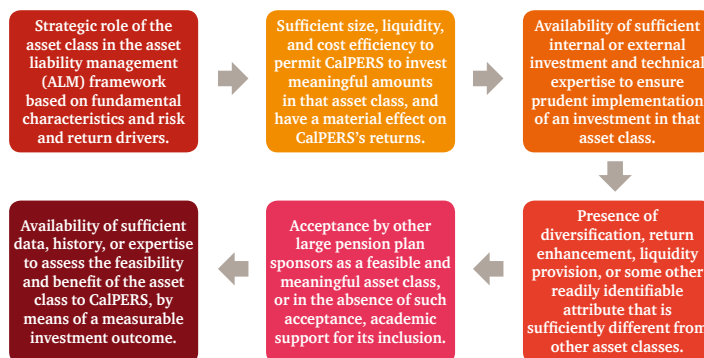
- Managers must demonstrate knowledge of the related asset class;
- Managers must be registered with the SEC or an equivalent regulatory body;
- Managers must be compliant with the regulations of California and CalPERS policies.

Furthermore, external managers have to operate under Investment Manager Guidelines, which describe the performance strategies of different asset classes, benchmark and portfolio characteristics.

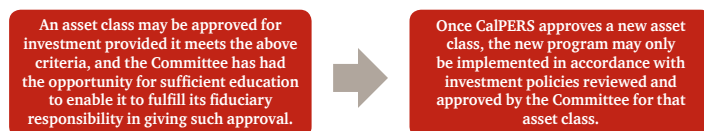
To balance risk, return and costs, CalPERS is motivated to reduce the outsourced portion of its portfolio. The fund's objectives are to shift assets where possible from external to internal management. Generally, CalPERS wants to choose the most cost effective approach. The result of this step should provide CalPERS with transparent total costs of the fund's portfolio. Sources: CalPERS Annual Financial Reports 2010-2015; Website

## 3) In-house portfolio management

In order to develop an asset allocation that maximizes long-term sustainable profits, CalPERS links the process of asset allocation to strong and clearly defined conditions for the portfolio managers:



Only if all these conditions are met, further steps follow:



## 4) Risk framework

CalPERS developed its Risk Framework based on its experience. The major points of the framework are:

- Adoption of investment policies for total fund strategic allocation;
- Individual asset classes and portfolios with appropriate benchmarks; and
- Reasonable risk limits for the implementation of the program.

CalPERS has established an enterprise risk management division (ERMD) to identify current and emerging risks which may impact its strategic goals and objectives. The major function of ERMD is to provide the managers with the view on risks described above. Furthermore, CalPERS involves an internal audit team to develop its risk assessment program. The fund also stresses that risk assessment is an on-going process which should provide the management permanently with updated information.

## 5) Responsible investing and ESG

In 2005, CalPERS joined Ceres, a nonprofit organization that leads a national coalition of investors (Investor Network on Climate Risk), environmental organizations, and other public interest groups that work with companies to address sustainability challenges such as global climate change and water scarcity. In 2014, the fund signed the Global Investor Statement on Climate Change. This statement committed CalPERS to increasing low-carbon and climate-resilient investments.



# California State Teachers' Retirement System (CalSTRS)



## Quick facts

The California State Teachers' Retirement System provides retirement benefits to California's public school teachers. The fund was established by law in 1913 and is now the largest educator-only pension fund in the world, and the second largest pension fund in the US.

## Evolution of total assets

The market value of the CalSTRS Investment Portfolio was approximately USD 191.4 bn as of 2015. Diversification and a sound investment strategy focusing on sustainable long-term growth enabled CalSTRS' total assets to grow at a CAGR of 8.1% between 2010 and 2015.

## Evolution of asset allocation

The CalSTRS portfolio is highly diversified, holding investments ranging from Equity (57%) and Fixed Income (16%) to Alternatives (24%) such as Private Equity, Real Estate, and Absolute Return, in 2015.

The most significant changes in asset allocation between 2010 and 2015 have been in Equity (from 51% to 57%) and Fixed Income (from 22% to 16%). These changes are due to low and decreasing returns of Fixed Income and high liquidity of Equity.

## Total return

CalSTRS' total return stands at 4.8% in 2015. As the fund invests in various asset classes, it does not compare its total return with a specific benchmark, but compares it to its own actuarially assumed net return (AANR). In 2015, this AANR is 7.5%. This underperformance vs the AANR is due to risk mitigation efforts led by management, coupled with slow US and global growth, and increased global market volatility.

## Currency exposure\*

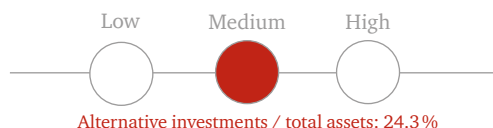
CalSTRS established a strategic allocation to non-dollar public and private equity assets. To manage the risk associated with these foreign currencies, the fund has put in place a Currency Management Program which hedges this currency risk. In 2015, total currency exposure was equal to USD 38.9 bn.

\*Taken as a proxy of foreign investments  
Sources: CalSTRS Annual reports 2010-2015

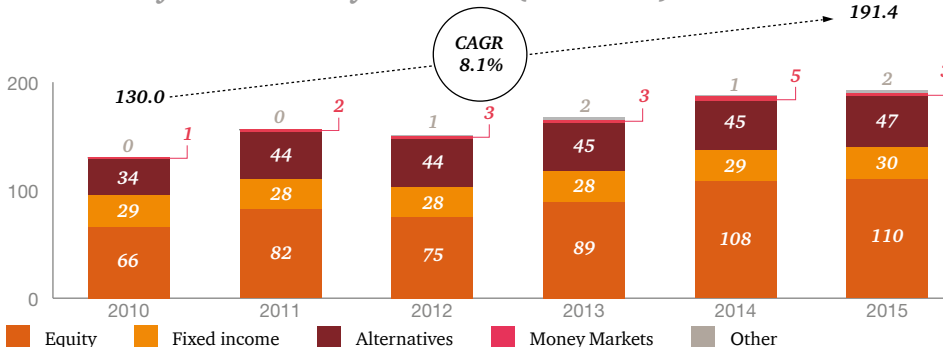
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1913	1,001-5,000	191.4	24.3%	0.1%	4.8%

\* Based on local currency

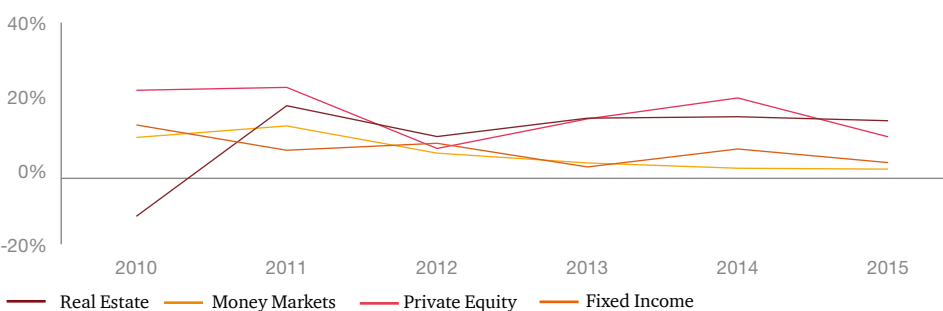
## Level of alternative exposure



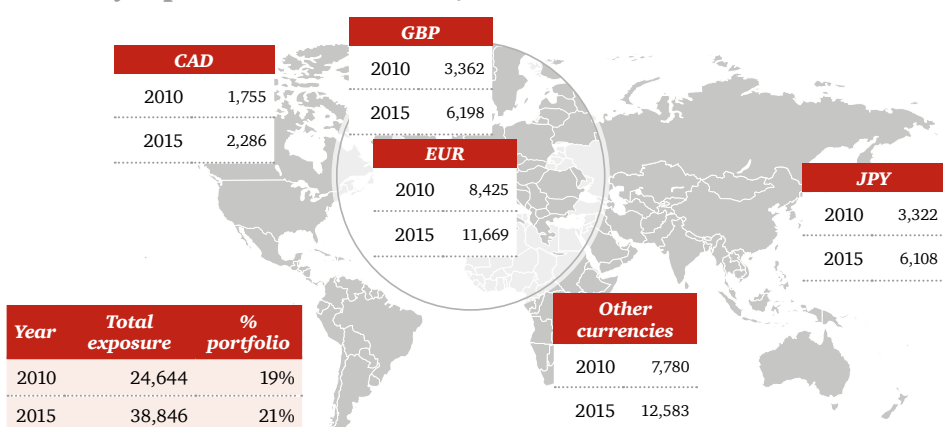
## Evolution of total assets by asset class (in USD bn)



## Evolution of return by asset class



## Currency exposure (2010 vs. 2015, in USD mn)



## Remuneration schemes in 2015 (USD thousands)

Year	Salaries	Staff benefits	Accrued pensions & OPEB* Expense	Total staff costs	Total staff costs / Total expenses
2010	45,815	17,253	9,406	72,474	19%
2015	58,233	13,300	18,615	90,148	23%

\*Other Post-Employment Benefits  
Sources: CalSTRS Annual reports 2010-2015, website, and LinkedIn page

# California State Teachers' Retirement System (CalSTRS)



## Alternative Focus

CalSTRS invests heavily in alternative assets, which represent 24.3% of its portfolio. Within alternatives, the fund invests in Real Estate (52%), Private Equity (42%) and Absolute return (6%).

### Real Estate

The Real Estate portfolio stands at a market value of USD 24.3bn or 12.7% of the total fund, as of 2015. This portfolio holds Real Estate investments in Limited Partnership funds (40.4%), Joint Ventures (34%), Separate Accounts (23.2%) and other investments (2.4%). In recent years, CalSTRS focused on increasing investments in Joint Ventures and Separate Accounts in order to increase internal management control and lower fees. Real Estate is the asset class which showed the strongest return in 2015, with 13.4%. This strong performance is attributed to strategic investment opportunities with top tier partners and high returns on distressed investments.

### Private Equity

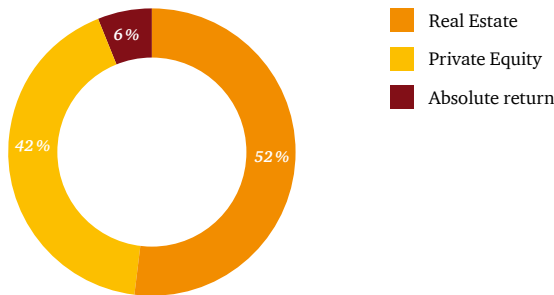
The Private Equity portfolio stands at a market value of USD 19.3bn or 10.1% of the total fund, as of 2015. This portfolio consists of investments in Limited Partnerships (93%) and Co-Investments (7%). The heavy concentration on Limited Partnership investments in the pre-financial crisis years (2006-2008) paid out in recent years, as this asset class showed strong returns of 9.1% in 2015.

## Outsourcing Focus

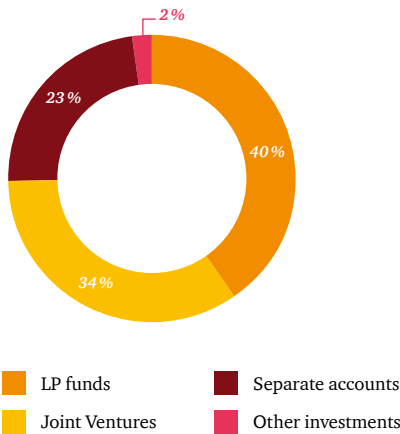
Other than using LP funds and JVs within the Alternatives portfolio, CalSTRS externalises 61% of its Equity investments and 17% of its Fixed Income investments. In 2015, the fund paid a total of USD 155.7mn in fees to external asset managers.

Sources: CalSTRS Annual reports 2010-2015, and website

## Asset Allocation within Alternative investments



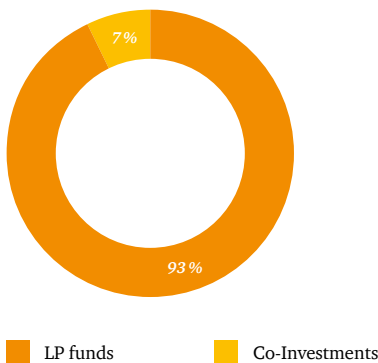
## Real Estate Portfolio



## Real Estate LP portfolio

LPs	Mkt value of investments (USD M)	% of RE portfolio
Fairfield CHF LLC Core	963	4%
Centercal LLC Core	614	3%
JPMCB Strategic Property Fund	458	2%
Pancal Portfolio LLC	422	2%
Fortress Investment Fund V	383	2%
Other	21,263	88%

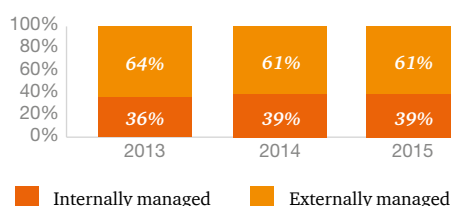
## Private Equity Portfolio



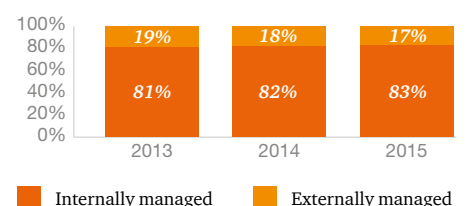
## Private Equity LP portfolio

LPs	Capital committed (USD M)	% of PE commitments
Blackstone Capital Partners V, L.P.	1,738	4%
TPG Partners V, L.P.	1,000	2%
First Reserve Fund XI, L.P.	800	2%
First Reserve Fund XII, L.P.	800	2%
Providence Equity Partners VI, L.P.	700	2%
Other	39,404	89%

## Outsourcing of Equity



## Outsourcing of Fixed Income



Sources: CalSTRS Annual reports 2010-2015, and website

# California State Teachers' Retirement System (CalSTRS)



## 1) Investment strategy

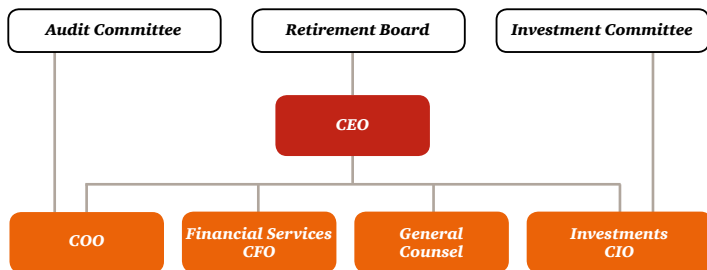
### Corporate Governance

The Teachers' Retirement Board focuses on maintaining a strong, stable fund in order to pay benefits to CalSTRS members.

CalSTRS believes that corporate directors work on behalf of shareholders and that the fund's ability to change its representatives in the boardroom is fundamental to shareholder democracy. CalSTRS actively votes its proxies to support board members and resolutions which align with its interests and philosophy.

Executive compensation is a centrepiece of CalSTRS' efforts to remain vigorously engaged in corporate governance issues. The fund believes that a thorough review of pay practices is an important fiduciary duty for both board directors of corporations and institutional investors. The fund's stance on executive compensation is that it should promote and create long-term value and remain flexible enough to address changing market conditions.

### Organization Chart



## 2) Outsourcing of portfolio management

A portion of CalSTRS' assets are managed externally, which allows the fund to invest in a broader range of products.

Within Equity, the fund outsources 61% of its investments to external managers. It enables the fund to use both active and passive strategies, and to benefit from external expertise in non-US & emerging markets equities.

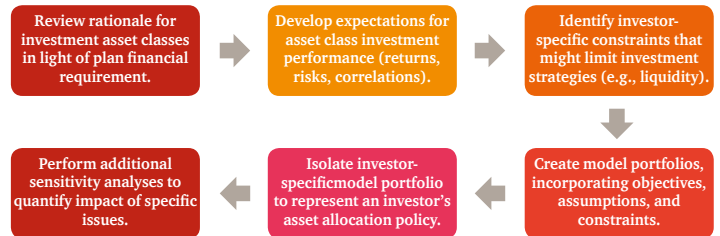
CalSTRS externalises 17% of its Fixed Income investments. This enables the fund to purchase bonds rated below investment grade. External asset managers' knowledge is particularly valuable in high-yield debt.

CalSTRS outsources most of its investments in Alternatives, which comprises asset classes where most investments are made through Limited Partnerships (LPs). In Real Estate, staff targets an increase in Joint Ventures (currently 34%) and Separate accounts (currently 23%) in order to increase internal management control and lower fees.

Sources: CalSTRS Investment Policy and Management Plan

## 3) In-house portfolio management

In order to develop an asset allocation that maximizes long-term sustainable profits, CalSTRS established the following Asset Allocation Policy:



## 4) Risk framework

CalSTRS conducts an asset/liability study on a three year cycle or more frequently if there is a significant change in the liabilities or assets. During this asset allocation study, a comprehensive review of financial condition of the plan is imperative. This comes down to an analysis of the actuarial requirements of the plan. These include the future liabilities and expected cash flow of contributions less benefit payments.

CalSTRS hires external consultants to develop the three components it takes into account to model investments returns because the funds recognizes the added value of consultant's expertise in financial modeling. These three components are: Asset class expected returns, Asset class risks, Correlations among asset classes. These components are then used to develop efficient frontiers quantitatively.

### Total Return and Risk Estimates\*

Asset Class	Expected Annual Return	Expected Risk**
Cash	2.0%	2.0%
Fixed Income	3.3%	6%
Inflation Sensitive	6.8%	11.3%
Global Equities	9.3%	19.1%
Private Equity	12.3%	25%
Real Estate	8.2%	14%
Risk Mitigating Strategies	5.9%	11.3%

\*Assumed inflation level: 3% per year ; adopted in June 2015 \*\*Annualised Standard Deviation

## 5) Responsible investing and ESG

CalSTRS has developed a list of 21 risk factors that it assesses when facing any investment decision:

- Monetary transparency
- Data dissemination
- Accounting
- Payment System: Central Bank
- Securities regulation
- Audition
- Fiscal transparency
- Corporate Governance
- Banking supervision
- Payment system: principles
- Insolvency framework
- Money laundering
- Insurance supervision
- Respect for human rights
- Respect for Civil Liberties
- Respect for Political Rights
- Discrimination
- Worker Rights
- Environmental
- War, conflicts, acts of terrorism
- Human health

# Teacher Retirement System of Texas (TRS)



## Quick facts

The Teacher Retirement System of Texas (TRS) provides retirement and related benefits for those employed by the public schools, colleges and universities supported by the State of Texas. The retirement system was established by law in 1937, and the pension trust fund is the 6th largest retirement fund in the US which includes health insurance programs. TRS is divided into Fiduciary Funds (pension trust fund, TRS-Care and Agency Fund) and into Proprietary Funds (TRS-ActiveCare and Administrative Program). Only the pension trust fund makes investments.

## Evolution of total assets

The total investment assets of the TRS Pension trust fund amounted to USD 127bn. The diversification and the various strategies enabled TRS' assets to grow at a CAGR of 6.0% between 2010 and 2015.

## Evolution of asset allocation

The asset allocation from the pension trust fund remained relatively stable over the last five years. The fund is highly diversified, holding investments from Equity (37.2%) and Fixed Income (17.0%) to Alternatives (38.0%) The most significant change between 2010 and 2015 have been in Alternative investments (from 22.1% to 38.0%). These changes are due to more investments in Private Equity and Real Assets over the last five years.

## Total return

The total return on the pension trust fund investments amounted to -0.3% in 2015, down from 16.9% in the previous year. This significant decrease from 2014 was due to the total investment value decreasing by USD 4.3bn.

However, returns still led the fund's benchmark by 0.5%.

## Currency exposure\*

TRS holds investments in multiple foreign currencies, such as GBP, EUR, JPY, and HKD.

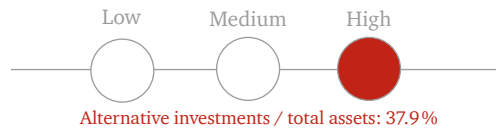
The risk of foreign currency is managed by applying currency hedge ratios to foreign exposures and potentially engaging in currency overlay strategies.

\*Taken as a proxy of foreign investments  
Sources: TRS Texas Annual reports 2010 - 2015

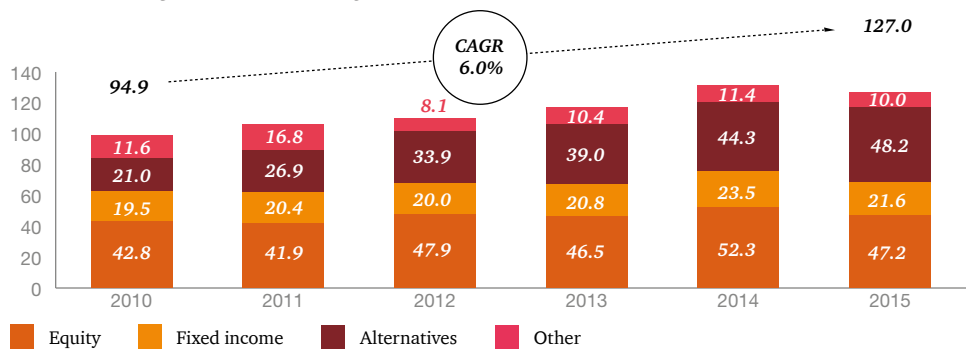
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1937	500-600	127.0	37.9%	0.1%	-0.3%

\*Based on national currency

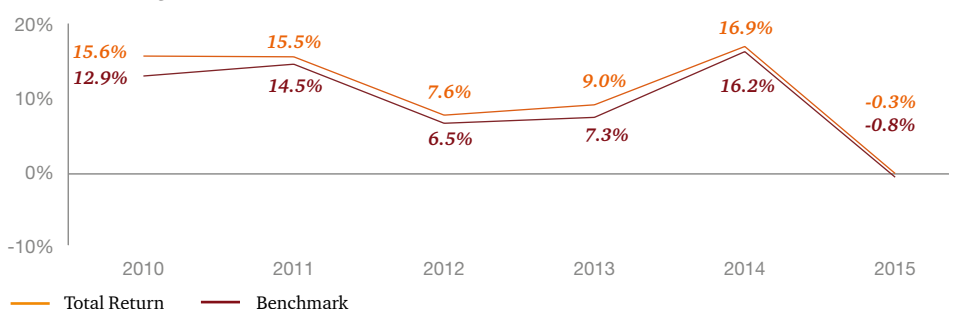
## Level of alternative exposure



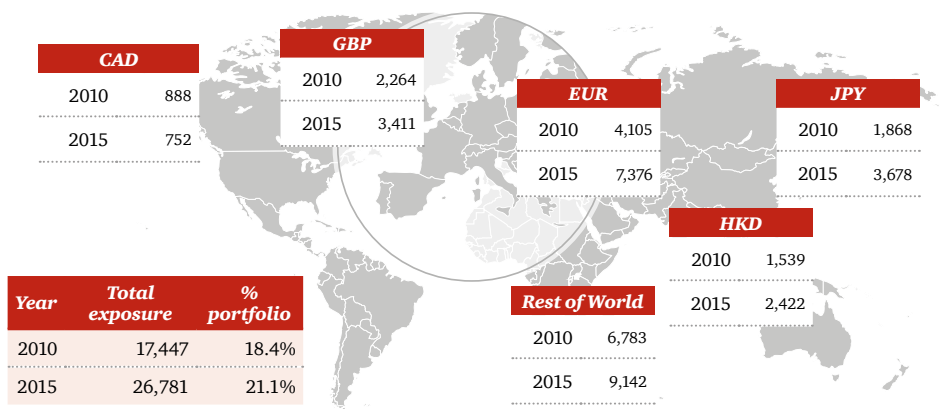
## Evolution of total assets by asset class (in USD bn)



## Evolution of total return



## Currency exposure (2010 vs. 2015, in USD mn)



## Administrative Expenses (USD thousands)

Year	Salaries & Wages	Professional Fees & Services	Other	Total Administrative Expenses	Total expenses/ Total Assets
2010	42,636	7,089	15,609	65,336	0.1%
2015	63,381	1,634	15,999	81,014	0.1%

Sources: TRS Texas Annual reports 2010-2015, website

# Teacher Retirement System of Texas (TRS)



## Alternative Focus

TRS invests heavily in alternative assets. Within alternatives, the fund invests in Private Equity (34.1%), Real Assets (33.2%), Hedge Funds (24.1%), Energy & Natural Resources (4.7%), Risk Parity (3.6%) and Absolute Return (0.4%).

Investments are in the form of Limited Partnerships (LP) and other non-publicly traded equities. These LPs include interests in Private Equity, Real Assets, Hedge Funds and other Absolute Return partnership arrangements. These investments are generally illiquid and the fund's ability to gain insight into the underlying portfolios of some of the LPs may be limited.

### Private Equity

The objective of the Private Equity and Real Assets investments is to provide diversification and enhanced returns to the total fund.

### Real Assets

Real Assets focus on private or public Real Estate equity, private or public Real Estate debt, infrastructure, timber, agriculture Real Estate, oil & gas, real asset mezzanine debt or equity, mortgage-related investments, entity-level investments, REITs, MLPs, non-fixed assets and other opportunistic investments in Real Assets. Funding of committed capital in either the Private Equity or the real asset portfolio will occur over an extended time period and may take several years before the total allocation to each asset class is fully invested.

### Hedge Funds

Hedge Funds include private investment funds or a commingled vehicle that itself invests in Hedge Funds. The TRS investment policy establishes criteria to analyze and determine whether a private investment fund should be classified as a Hedge Fund. The permissible Hedge Fund allocation is a maximum of 10% of the market value of the total fund on the date of each Hedge Fund investment.

### Energy & Natural Resources

Energy and Natural Resources investments include private and public energy, or natural resource related securities either directly or through funds.

## Outsourcing Focus

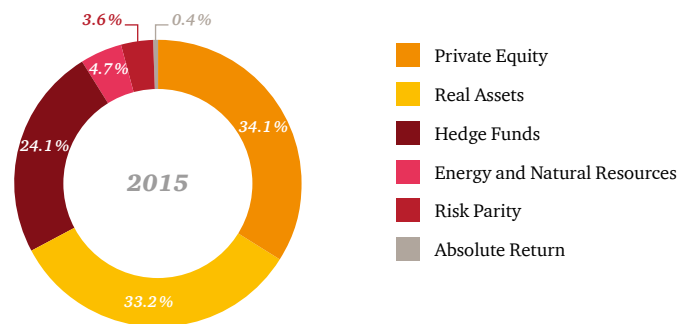
The investment division engages the expertise and experience of external managers to provide superior risk-adjusted returns.

Three types of external managers are used: Investment Managers, Hedge Fund Managers, Absolute Return Managers.

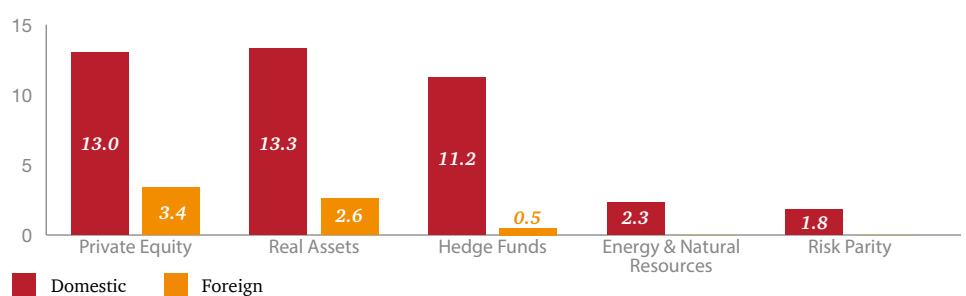
In 2011, TRS authorized the use of derivatives in its investment portfolio, and began using external managers to invest up to 30% of assets until 2019.

Sources: TRS Texas annual report 2010-2015

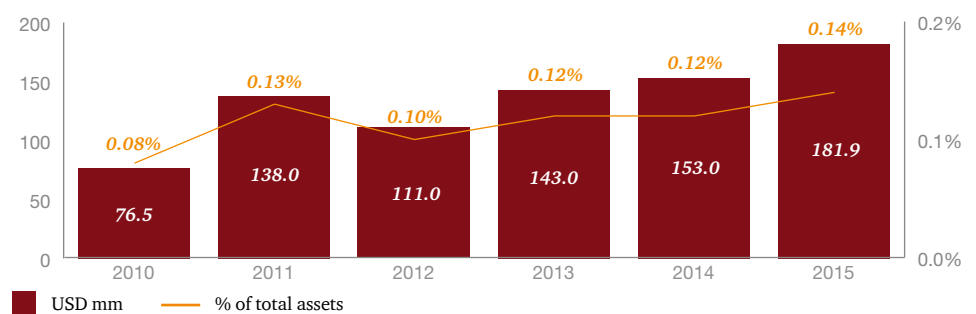
## Asset Allocation within Alternative investments



## Split of domestic vs. foreign alternative investments in 2015 (USD bn)



## Evolution of external manager fees



## Evolution of the number of external managers





# Teacher Retirement System of Texas (TRS)



## 1) Investment strategy

### Corporate Governance

The TRS is governed by a Board of Trustees, specifically nine trustees who are appointed to staggered terms of six years. Management and operations duties are performed independently by Trustees who are responsible for administration of the system according to the state constitution and laws. The Board of Trustees establishes the long-term asset allocation policy, approves long-term return targets, risk parameters and the budget. The Board also establishes investment objectives, obtains expert advice and assistance, and oversees the employment of a qualified and competent investment staff and legal staff. The Board has a Policy Committee, an Investment Management Committee (IMD) and a Risk Management Committee.

### Investment target

The purpose of the investments is to provide a formal plan for investing pension trust fund and health insurance program assets to achieve defined investment objectives consistent with the TRS mission statement adopted by the Board. The TRS administers a pension trust fund and other health insurance programs in two funds:

Fiduciary Funds	Proprietary Funds
<p>report assets held in a trustee or agency capacity on behalf of others</p>	<p>account for business-type activities or those which a fee is charged to external users for food or services</p>
<ul style="list-style-type: none"> <li>• <b>Pension Trust Fund</b> is a defined benefit retirement plan</li> <li>• <b>TRS-Care</b> consists of conservative short-term securities</li> <li>• <b>Agency Fund</b> is used to account for garnishments of salaries and wages for child support payments from TRS employees</li> </ul>	<ul style="list-style-type: none"> <li>• <b>TRS-ActiveCare</b> (a major fund) consists of conservative short-term securities</li> <li>• <b>Administrative Program</b></li> </ul>

## 2) Outsourcing of portfolio management

TRS invests in commingled funds. The commingled fund is a pool of assets from multiple investors which are under the direction of an external fund manager.

TRS outsources its investments in Alternatives which are made through Limited Partnerships (LPs).

Investment performance is calculated using a time-weighted rate of returns. Returns are calculated by State Bank and Trust Company. TRS also has a contract with State Street Bank and Trust Company to administer its securities lending program for domestic and international equity and fixed income securities.

TRS' Public Strategic Partnership Network outsources four external managers (JP Morgan, Neuberger Berman, Morgan Stanley and Black Rock) in public markets. SPN collaborates to produce several research projects used to benefit the Trust and to provide valuable insights into asset allocation and the establishment of long-term partnerships with Apollo and KRR to manage assets in Private Equity, Real Assets and credit markets.

The advantages are high-transparency, low-fee, alpha producing investment arrangements with selected investment partners, customized and risk-controlled global mandates, benchmark weights and tactical ranges based on TRS's public markets asset allocation policy.

Sources: TRS Texas annual report 2010-2015

## 3) In-house portfolio management

TRS follows a diversified investment approach that focuses on the three common economic scenarios. In 2015, TRS allocated 61.3% to Global Equity markets which perform well under favorable Gross Domestic Product (GDP) growth and moderate inflation, 18.7% to Real Return which should perform well under GDP growth and high inflation, 17.8% to a Stable Value portfolio which should perform well and minimize downside risk in stagnant GDP growth and low inflation, and 2.2% Risk Parity strategy, which has a balanced exposure to all three economic scenarios.

Categories of permissible investments include equities, debt securities, cash equivalents, alternative investments, derivative instruments authorized by law, mutual funds, closed-end funds, exchange-traded funds, and commingled funds. Investment categories are based on the risk profiles exhibited by those investments.

TRS formed a "private limited company" in London in November 2015. The subsidiary was created for the purpose of opening a London investment office to increase the size and number of investment opportunities for the TRS portfolio, especially in Private Equity funds and co-investments.

## 4) Risk framework

The Investment Division will monitor and manage risk of the Total Fund Portfolio including market risk, foreign exchange risk, credit risk, liquidity risk, leverage risk and other managed risk such as operations risk, settlement risk and legal risk.

The IMD has a dedicated risk management function. The risk group monitors the risk of the fund versus its risk objectives, performs an independent risk certification for every new manager commitment, and monitors the performance of each manager and portfolio monthly with a risk signals review. The risk group continued to refine its suite of tools and reports, including expanding existing risk signals to incorporate additional performance data, trust holding data, macro indicators and risk indicators.

## 5) Responsible investing and ESG

TRS does not disclose responsible investment principles or practices.



# Employees Retirement System of Texas (ERS)



## Quick facts

The Employees Retirement System of Texas (ERS) is a service-oriented trust agency established in 1947 by the constitution and laws of the State of Texas. The fund provides retirement, health insurance, deferred compensation and flexible benefits for state employees, retirees and their dependents.

## Evolution of total assets

The market value of the ERS Investment Portfolio was approximately USD 25.1bn in 2015. ERS' investments are highly diversified, which enabled them to grow at a CAGR of 3.3% between 2012 and 2015.

## Evolution of asset allocation

The fund's portfolio is highly diversified, holding investments including Equity (46.6%), Alternatives (27.6%), Fixed Income (23.7%) and Others (2.1%). Alternative Investments increased from 11.2% in 2012 to 27.6% of the total investments in 2015. This was due to a significant increase of investments in Hedge Funds (more than 75% within 4 years), and the start of allocations to Infrastructure in 2013.

## Total return

The total return on ERS' investments amounted to 0.5% in 2015, which was significantly lower than the previous year's return of 14.7%. The portfolio's total return did not meet the actuarially assumed long-term rate of return of 8.0% due to adverse market conditions at the end of the fiscal year. The returns decreased because of the volatile financial markets in 2015, i.e. the Greek crisis impacting Europe and the commodity volatility due to decreased oil, copper and gold prices.

## Currency exposure\*

The total currency exposure was equal to USD 5.8bn in 2015 which represented 23.0% of the fund's portfolio.

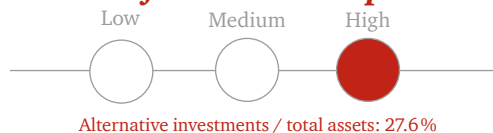
The aim for ERS is to minimize political, regulatory, economic and tax risks. Exposures to EUR and JPY have increased (7.4% and 3.1% in 2015 compared to 6.5% and 2.8% in 2012, respectively).

ERS does not have a specific policy for managing foreign currency risk.

\*Taken as a proxy of foreign investments  
Sources: ERS Annual Reports 2012-2015; and website

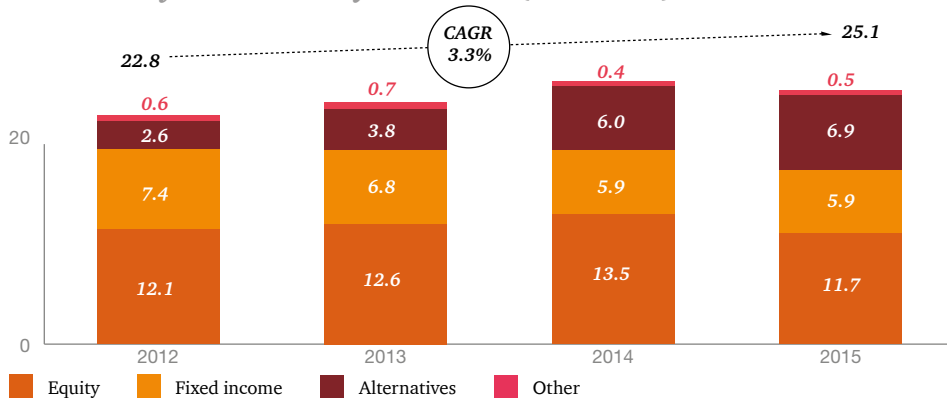
Inception date	Employees (2015)	Total Assets (USD bn, 2015)	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1947	201-500	25.1	27.6%	0.4%	0.5%

## Level of alternative exposure

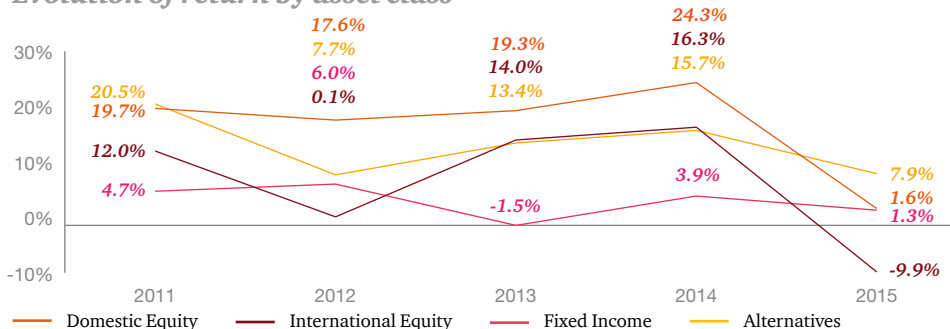


\* Based on national currency

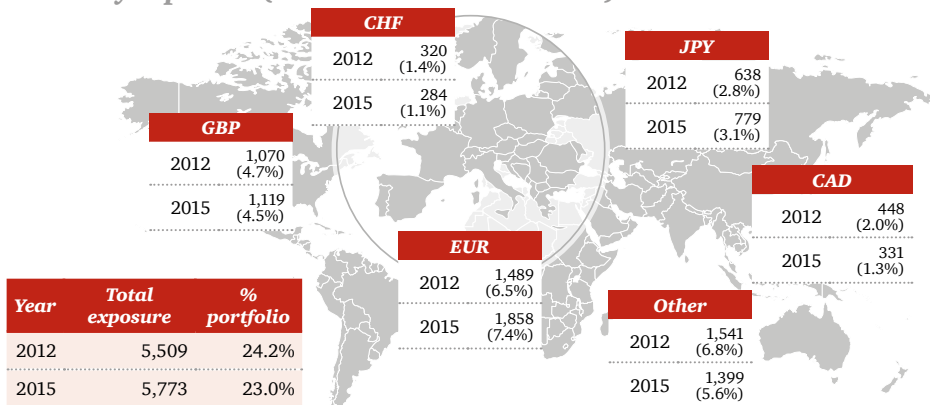
## Evolution of total assets by asset class (in USD bn)



## Evolution of return by asset class



## Currency exposure (2012 vs. 2015 in USD mn)



## Evolution of Administrative expenses (USD thousands)

Year	Salaries	Professional Fees	Other	Total Administrative Expenses	Total expenses / Total Assets
2012	14,732	3,031	7,770	25,535	0.1%
2013	15,296	3,661	7,832	26,790	0.1%
2014	17,150	3,989	14,612	35,752	0.1%
2015	18,841	5,621	11,793	36,255	0.1%

Sources: ERS Annual Reports 2012-2015; and website

# Employees Retirement System of Texas (ERS)



## Alternative Focus

In 2015, ERS invested 27.6% of its portfolio in alternative assets. Within Alternatives, the fund invests in Private Equity (39.9%), Real Estate (33.9% - 23.5% private and 10.4% public), Hedge Funds (18.4%), Directional Growth (4.3% - Directional Growth comprises two individual Hedge Fund allocations), and Infrastructure (3.6%).

For alternative investments, ERS has established a Valuation Committee that periodically reviews and approves the fair value of these investments.

The commitments in Alternatives are purely in funds and co-investments.

### Private Equity

The Private Equity investments involve the purchase of illiquid Equity and debt securities of companies, and are made primarily through blind pool limited liability vehicles such as limited partnerships.

### Real Estate

The Real Estate investments are through limited partnerships that specialize in Real Estate. The partnerships participate in both: closed-ended and open-ended commingled funds. Each commingled fund is audited annually and the underlying investments may be periodically appraised by an independent third party.

The public Real Estates are listed securities (REITs and REOCs) traded in public exchanges.

### Infrastructure

Investments in Infrastructure are in large-scale public systems, services and facilities that are necessary for economic activity. These types of relatively illiquid investments are often made in essential services with high barriers to entry and predictable cash flows.

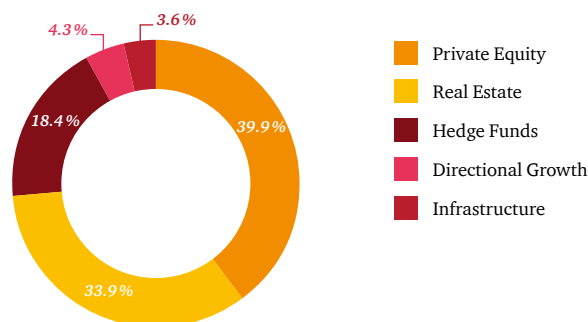
## Outsourcing Focus

In 2015, the management fees for external managers of Alternative Investments amounted to USD 77.4mn which represented 0.3% of ERS' portfolio.

Management fees have increased in recent years due to more investments in alternative assets (such as Real Estate, Private Equity and Hedge Funds).

Sources: ERS Annual Reports 2012-2015; and website

## Asset Allocation within Alternative investments



## Commitments of Alternative Investments (2012 vs. 2015)

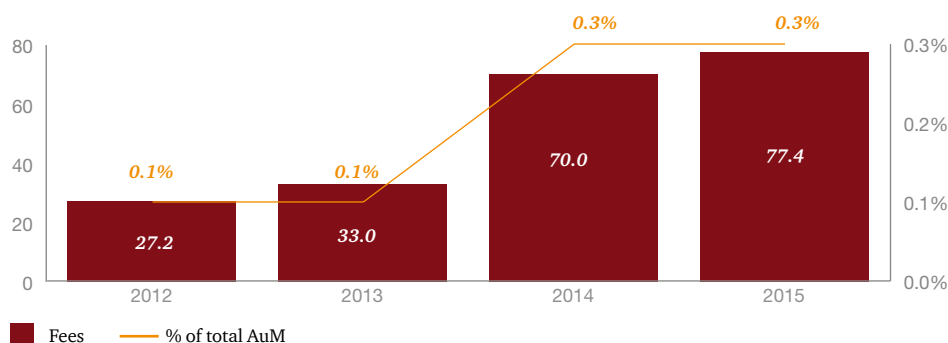
### 2012

Asset Class	Currency	Number of Funds	Investments USD mn
Private Equity	USD	34	788.3
	EUR	7	242.3
	GBP	1	53.1
Private Real Estate	USD	13	635.7
	EUR	2	33.2
Hedge Funds	USD	5	640.5

### 2015

Asset Class	Currency	Number of Funds	Investments USD mn
Private Equity	USD	72	2,318.6
	EUR	11	337.4
	GBP	2	104.0
Private Real Estate	USD	34	1,430.0
	EUR	4	168.4
	GBP	1	25.6
Infrastructure	USD	7	247.7
Hedge Funds	USD	24	1,795.4

## Evolution of Management Fees for Alternative Investments (in EUR mn)



Sources: ERS Annual Reports 2012-2015; and website

# Employees Retirement System of Texas (ERS)

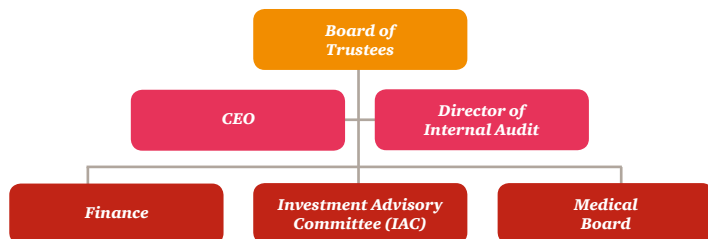


## 1) Investment strategy

### Corporate Governance

The pension trust fund is governed by a Board of Trustees. The Board consists of six members and oversees investments of the retirement trust fund and the administration of state employee and retiree health insurance benefits. The Board is responsible for the general administration and operations of the fund.

### Organization Chart



### Investment target

ERS is a long-term investor that balances risks to achieve positive investment returns at a reasonable cost and within the guidelines of the Investment Policy established by the Board of Trustees, with the ultimate goal of providing lifetime retirement benefits. ERS asset allocation is highly diversified and designed to withstand market fluctuations. The aim is to optimize the investment return while minimizing risk.

## 2) Outsourcing of portfolio management

ERS wants to keep costs low and, therefore, manages about two-thirds of its investment portfolio in-house.

ERS hires external investment managers to serve as advisors to the fund without granting full investment discretion through its ERS External Advisor Program. Investment staff may be supported by a select pool of managers on an as-needed-basis.

External investment managers are approved by an internal Investment Committee (including an Executive Director, CIO, and IAC members). Selected managers work with ERS' investment staff collaboratively to share value-added services and research that complements and enhances ERS' staff skill sets, infrastructure and best practices. The fund continues to recognize the importance of optimizing the mix of internally managed and externally advised portfolios.

Each of the externally advised strategies carries a different risk profile and level of active risk which is typically twice or more the level of active risk carried by internal strategies. By mixing the internal and external portfolios in the appropriate manner, the total asset class and the domestic and international composites can achieve their targeted risk and return levels.

Sources: ERS Annual Reports 2012-2015; and website

## 3) In-house portfolio management

During recent years, the Board has increased the internal management of assets, resulting in a reduction of external advisory fees by USD 3mn. In-house management of many investments costs about one-third of what external management would. The ERS investment staff is responsible for the portfolio management, company and investments analysis and research, review and the monitoring of external investment managers and their recommendations. To assist the staff with investment recommendations and decisions, the Trustees have employed nationally recognized investment managers and have appointed an Investment Advisory Committee composed of prominent members of the financial and business community of Texas. The IAC assists the Board of Trustees in carrying out its fiduciary duties with regard to the investments of the fund assets and related duties.

## 4) Risk framework

ERS may utilize internal as well as third-party risk measurement services for monitoring and management. Risk management is integrated in every step of ERS' investment process:

### Strategic Objective

- Risk monitoring and risk management within the investments division is to identify the risks that could make the biggest difference to the fund's performance and then to measure, monitor and manage those identified risks.

### Definition of Risk

- Risk is defined in terms of the probability of not meeting the primary investment goal.

### Risk Committee

- The Risk Committee considers relevant information and recommends actions that will either minimize negative outcomes or enhance positive outcomes.
- Assures risk constraints which are established by the Board of Trustees.

### Tactical Asset Allocation (TAA)

- The TAA process systematically evaluates the relative attractiveness of different asset classes, strategies and specific exposures to produce recommendations for short-term changes to these exposures.

### Reporting

- The risk profile and any risk management positions are reported monthly to the Board of Trustees.

## 5) Responsible investing and ESG

ERS does not support terrorist activities or similar hostile threats that could be detrimental to ERS' investment program. If an industry's or company's behavior may be deemed unacceptable or as negatively impacting society at large due to its products and locations in which it conducts its business and its environmental or social practices, the Board of Trustees prohibits new investments in such a company's securities.

# Missouri State Employees' Retirement System (MOSERS)



## Quick facts

The Missouri State Employees Retirement System (MOSERS) was established in 1957 by the law of the state of Missouri in the US under the management of its board of trustees. It is a corporate body as well as an instrument of the state of Missouri. The purpose of the fund is to provide retirement benefits to most state employees. MOSERS encompasses two plans – Missouri State Employees' Plan (MSEP) and the Judicial Plan.

## Evolution of total assets

The market value of MOSERS' investments in 2015 amounted to USD 10.3bn. Focusing on long-term growth, MOSERS reached a 10.7% CAGR of its investments over the last five years.

## Evolution of asset allocation

MOSERS' investment portfolio is highly diversified, consisting mainly of Alternatives, which accounted for USD 4.7bn in 2015. The fund saw a jump in alternatives from 24.1% (2013) to 46% (2015) due to financial reporting\*. In 2015, MOSERS also invested Equity (25%) and Fixed Income (29%).

## Total return

MOSERS generated a total return of -2.6% during the financial year 2015. However, the fund's five-year return amounted to 9.6%. MOSERS attributed the big decrease in the return rate compared to 2014 to a particularly difficult global economic situation.

## Currency exposure\*\*

MOSERS' currency risk exposure is primarily concentrated within its international equity investment holdings.

MOSERS allows external managers to decide what action to take regarding foreign currency risk.

Between 2010 and 2015, the most common currencies were JPY, EUR, GBP, and HKD.

## Personnel costs

In 2015, personnel costs made up a large part of total expenses (76%). Compared to 2010, they increased by 6 percentage points.

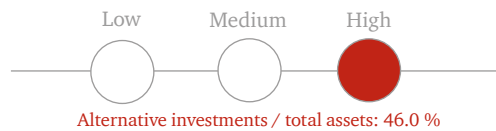
\*Note: Before 2015, there is no exact split in investment assets, therefore, alternative assets might be understated  
\*\*Taken as a proxy of foreign investments

Sources: MOSERS Annual Reports, and website

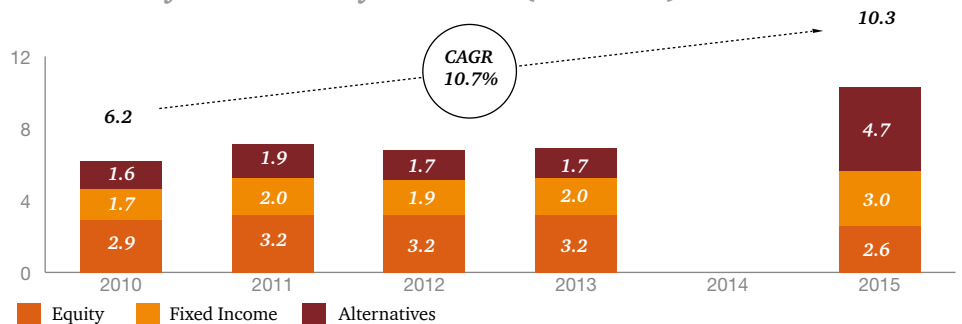
Inception date	Employees (2015)	Total Assets (USD bn.) 2015	% Alternative investments	External managers fees/ total assets	Total return* (2015)
1957	N/A	10.3	46.0%	1.2%	-2.6%

\* Based on local currency

## Level of alternative exposure

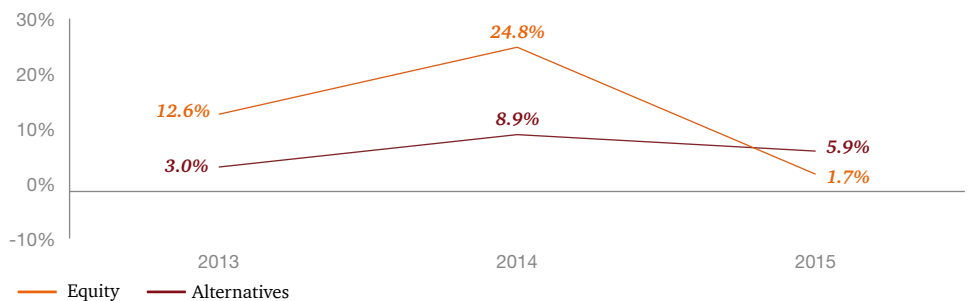


## Evolution of total assets by asset class (in USD bn)



Note: No information for 2014 given on asset allocation

## Evolution of return by asset class



## Currency exposure (2010 vs. 2015 in USD mn)

Currency	Year	Total exposure	% portfolio	
GBP	2010	102.8		
	2015	126.9		
EUR	2010	263.1		
	2015	256.0		
JPY	2010	339.5		
	2015	256.1		
RoW	2010	283.3		
	2015	421.4		
HKD	2010	48.4		
	2015	126.9		
		2010	1,037.2	16.73%
		2015	1,187.4	11.57%

## Personnel costs in 2015 (USD thousands)

Year	Salaries & Wages	Employee Benefits	Total remuneration	Remuneration / Total Investments
2010	5,571	1,942	7,513	0.12%
2015	6,939	2,587	9,526	0.09%

Sources: MOSERS Annual Reports, and website

# Missouri State Employees' Retirement System (MOSERS)



## Alternative Focus

MOSERS invests about USD 4.7bn or 46% of its assets in Alternatives. The Alternatives portfolio includes Illiquid Investments, Alternative Betas and Commodities.

### Illiquid Investments & Alternative Betas

This portfolio invests in asset categories such as Private Equity, Private Debt, Real Estate, Timber, Energy, Infrastructure and Royalties.

The portfolio is divided into two segments – Inflation and Growth. The illiquid investments portfolio is structured to distribute its investment risks across a broad group of assets in order to perform well in a variety of economic environments. The implementation of the illiquid investment strategy is accomplished by holding a number of investments that are managed by 32 separate investment management firms.

Many of MOSERS' alternative investments are organized in the form of limited partnerships. In this case, the manager is a general partner, and the limited partners are the investors.

## Outsourcing focus

86% of total expenses are represented by the costs for external managers. The selection of the external managers is the responsibility of the CIO. About 43% of external management fees are related to Illiquid Investments and 57% are paid for other asset classes.

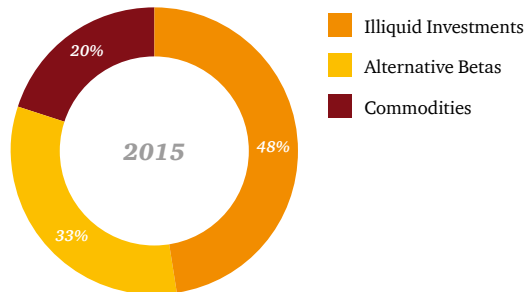
MOSERS also involves external Consultants and Advisors. They are involved in different operations of the fund's business. They are responsible for consulting the internal managers about investments. On the other side, they help the CIO to make decisions about the investments. Two components are highlighted where the external consultants are involved:

1. Strategic sub asset class allocation decisions; and
2. Implementation decisions.

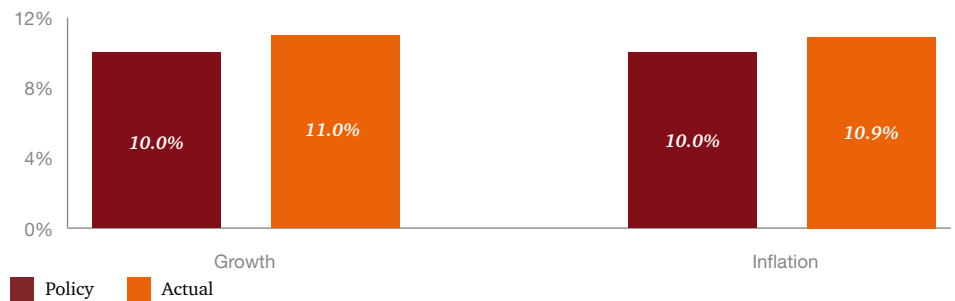
All the processes where external consultants are involved in have to be controlled by the Board of Trustees on an ongoing basis.

Sources: MOSERS Annual Reports, and website

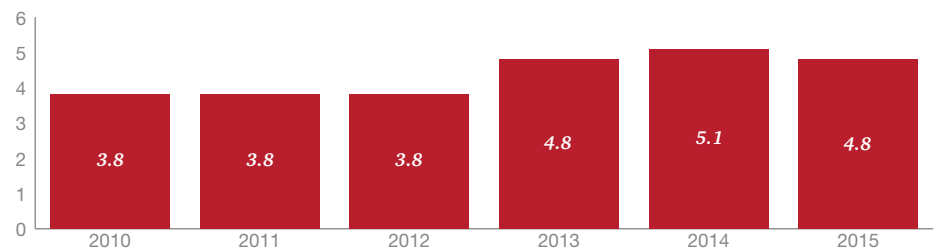
## Asset Allocation within Alternatives investments



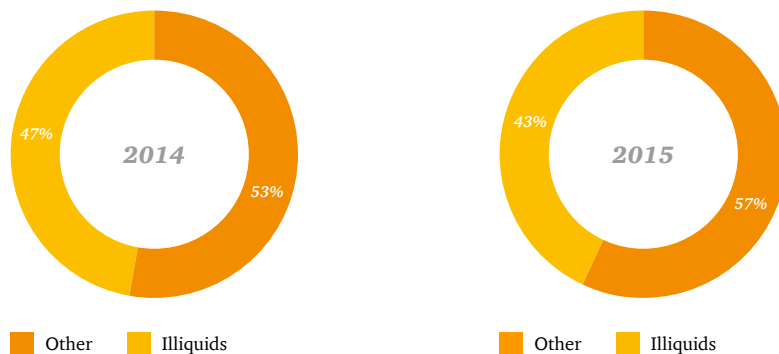
## Illiquids Allocation (% of total fund)



## Evolution of Investments through Limited Partnerships (in USD bn)



## External Management fees



Sources: MOSERS Annual Reports, and website





# Missouri State Employees' Retirement System (MOSERS)

## 1) Investment strategy

MOSERS' office is divided into six administrative sections that perform specific functions for the system - Senior Leaders, Benefit Administration & Education, Financial & Facilities Oversight, Information Technology & Systems Development, Performance Excellence & Public Relations and Investments. The primary functions of the Investment department include managing assets internally, selecting external managers, researching and implementing portfolio allocation shifts, rebalancing, and informing (and advising) the board and executive director about financial, economic, and political developments.

MOSERS' Investment Portfolio is based on its investment program, which both internal and external managers are expected to adhere to. In 2012, the asset allocation strategy moved away from expected returns to a strategy based on risk and economic balance. MOSERS' investment program includes the following principles:

- Primarily focus of managers should be on allocation and balancing of risk;
- Diversification requires a strong understanding of the asset's economy;
- Examination of each investment should be based on market and value added return;
- The investment portfolio should be constructed in order to react flexibly to various events in the global economy.

The Total Fund Policy benchmark return is the return attributable to the target asset class allocations.

Since 2012, MOSERS has used the beta balanced portfolio valuation. According to this method, management also considers factors such as risk, growth and inflation related to the asset class. Therefore, the major goals of MOSERS' investment strategy are the following:

- Development of a Real Return Objective (RRO) to keep contribution rates at a reasonable level over long periods of time absent changes in actuarial assumptions;
- Establish a risk balanced allocation policy that is expected to meet the RRO, while minimizing the impact of the fund's volatility on the contribution rate;
- Maximize the return per unit of cost of the investment program through the efficient use of internal and external resources.

## 2) Outsourcing of portfolio management

In 2015, MOSERS relied heavily on the performance of external Equity managers. The global connections and know-how which external managers of different asset classes brought to the fund resulted in its ability to further diversify its portfolio.

The selection of external managers is linked to defined requirements and responsibilities. The choices made by the CIO must be approved by an external consultant, and their compliance must be confirmed by the executive director. Moreover, the CIO's choices will be assessed based on the manager's performance compared to a related benchmark.

Sources: MOSERS website, Annual Reports

## 3) In-house portfolio management

MOSERS has developed a strong Roles and Responsibility plan for its investment process:



## 4) Risk framework

MOSERS' Investment Program concentrates heavily on the risk of each asset class. Not supporting the liabilities of assets over the long time period is defined as a major risk for the fund. In order to control this risk, and numerous other risks, the board has taken the following steps, on an ongoing basis, to help protect the fund:

- Yearly valuations ensure compliance with the funding objectives of the plan. Additionally, external audits are performed every five years to control the calculation methods and the assumptions made;
- Asset/liability studies are conducted at least once every five years to ensure that the current portfolio design is structured to meet the system's liabilities. During these studies, investment expectations are also reexamined in more detail;
- A governance policy, which incorporates investment limitations, ensures that board policies are clearly identified. Within these documents, desired outcomes are identified, individual responsibilities are outlined in relation to particular areas of the portfolio's management, and details are provided for measuring outcomes. Reporting requirements are clearly addressed to ensure appropriate checks and balances are in place. In addition, annual performance audits are conducted to ensure the proper performance measurement tools and methodologies are being utilized.

## 5) Responsible investing and ESG

MOSERS does not have any specific strategy for responsible investing. The Investment Program of the fund is more return focused. According to MOSERS' Manager of Investment Compliance, the fund would not make an ESG investment if there was any concession to the return.







---

## Contacts

*Should you want to discuss any of the issues raised in this report in more detail, please speak with your usual PwC contacts or any of the contributors listed below.*

### ***Carlos Noriega***

President  
AMAFORE  
cnoriega@amafore.org

### ***Octavio Ballinas***

Director  
AMAFORE  
oballinas@amafore.org

### ***Dariush Yazdani***

Partner  
PwC (Luxembourg)  
dariush.yazdani@lu.pwc.com

### ***Hemant Bhide***

Partner  
PwC (US)  
hemant.bhide@pwc.com

### ***Kyle L. Calcagno***

Director  
PwC (US)  
kyle.l.calcagno@pwc.com

### ***Rajendra Kothari***

Partner  
PwC (Canada)  
rajendra.k.kothari@ca.pwc.com

### ***Barbara L. Elliott***

Partner  
PwC (Canada)  
barbara.l.elliott@ca.pwc.com

### ***Craig Cummins***

Partner  
PwC (Australia)  
craig.cummins@au.pwc.com

### ***David Coogan***

Partner  
PwC (Australia)  
david.coogan@au.pwc.com

### ***Patrick Heisen***

Partner  
PwC (Netherlands)  
patrick.heisen@nl.pwc.com

## ***PwC Market Research Centre***

*The PwC Market Research Centre is a multi-purpose entity composed of analysts, experts and economists who assist clients in their decision making by providing sectoral studies, projections, macroeconomic forecasts and survey analysis with a focus on the FS industry. Our customers include companies in the financial sector, trade and industry, international institutions and government bodies.*

*We are a one-stop shop for all your market research needs.*



PwC Luxembourg ([www.pwc.lu](http://www.pwc.lu)) is the largest professional services firm in Luxembourg with 2,700 people employed from 58 different countries. PwC Luxembourg provides audit, tax and advisory services including management consulting, transaction, financing and regulatory advice. The firm provides advice to a wide variety of clients from local and middle market entrepreneurs to large multinational companies operating from Luxembourg and the Greater Region. The firm helps its clients create the value they are looking for by contributing to the smooth operation of the capital markets and providing advice through an industry-focused approach.

The PwC global network is the largest provider of professional services in the audit, tax and management consultancy sectors. We're a network of independent firms based in 157 countries and employing over 223,000 people. Talk to us about your concerns and find out more by visiting us at [www.pwc.com](http://www.pwc.com) and [www.pwc.lu](http://www.pwc.lu).

© 2016 PricewaterhouseCoopers, Société coopérative. All rights reserved.

In this document, "PwC" or "PwC Luxembourg" refers to PricewaterhouseCoopers, Société coopérative which is a member firm of PricewaterhouseCoopers International Limited, each member firm of which is a separate legal entity. PwC IL cannot be held liable in any way for the acts or omissions of its member firms.