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White Paper

Case Studies in Retirement System Reform

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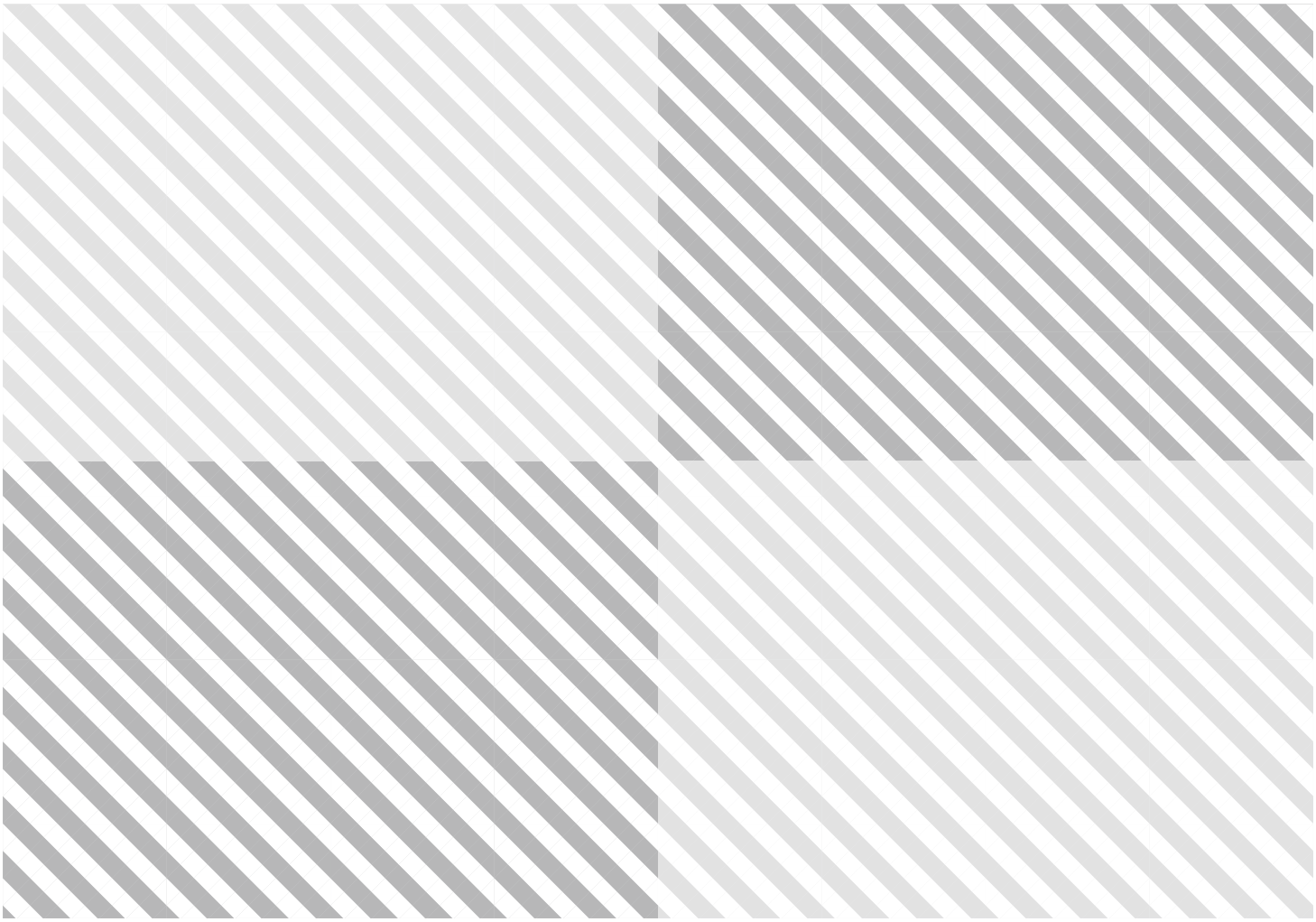

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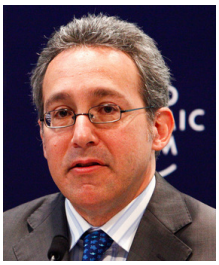


Richard Samans
Head of the Centre for the Global Agenda, Member of the Managing Board

The challenges of providing ageing societies with a financially secure retirement are well known. In most countries, standards of living and healthcare advancements are allowing people to live longer. While this should be celebrated, the implications for the financial systems, designed to meet retirement needs but already under severe strain in many nations, must be considered.

This handbook is part of the World Economic Forum Retirement Investment Systems Reform project, run in collaboration with Mercer. It has brought together pension experts to assess opportunities for reforms that can be adopted to improve the likelihood that retirement systems worldwide can adequately and sustainably support future generations.

The handbook presents examples of pension reforms and approaches enacted to address the challenges that retirement systems face. The intention is to highlight initiatives undertaken and lessons learned so that policy-makers and pension practitioners can consider how these approaches could be adapted to specific situations in other countries.

I would like to extend my sincere thanks to the authors for their detailed case studies. The care and consideration in every action taken are evident.

2. Introduction

Advances in healthcare, diet and nutrition have increased life expectancy around the world. According to the World Health Organization, global life expectancy rose by five years between 2000 and 2015, the fastest increase since the 1960s. While a boon overall, it has nevertheless placed tremendous strain on retirement systems developed decades ago that were based on now-outdated estimates of life expectancy and length of working life. As the International Organization for Public-Private Cooperation, the World Economic Forum, in collaboration with Mercer, has assembled experts from around the world across industry, academia and governments to study the reform of retirement investment systems.

Besides increasing life expectancies and lower birth rates, this project has identified additional factors that are increasing the strain on global retirement systems (Figure 2-1).

Lack of easy access to pensions

Many workers in developed and developing countries still lack easy access to pension plans and savings products. In many cases, options are available but acceptance is low. The lack of opportunity to begin saving, as well as inadequate encouragement to make saving a habit, is severely limiting many people's ability to accumulate savings.

The self-employed and workers in the informal sector are least likely to have access to a workplace savings plan. Those working at smaller companies, where employers may be overly burdened by regulation to provide a plan, are also at a disadvantage.

Long-term low-growth environment

Given past strong performance in equity and bond markets, expectations for long-term investment returns are significantly lower than historic averages. Equities are expected to perform ~5% below historic averages and bond returns are expected to be ~3% lower. Low interest rates have grown future liabilities and future investment returns are unlikely to make up the growing pension shortfall.

In combination, these factors put increased strain on pension funds and long-term investors committed to funding and meeting the benefits promised to current and future retirees. Individuals will also be impacted as they are likely to see smaller growth in their retirement balances than in the past.

Low levels of financial literacy

Levels of financial literacy are very low around the world, threatening those pension systems that are self-directed and rely mostly on private savings in addition to employer- or government-provided savings. Yet pension systems increasingly require individuals to make key decisions on how much to save, and when, requiring a level of financial literacy that many individuals do not possess. For example, the lack of awareness of how interest and returns will compound over time, how inflation will impact savings, and how holding a broad selection of assets can be beneficial and diversify risk means that many individuals are ill-equipped to manage their own pension savings. Some groups are particularly vulnerable, including women, the young and those who cannot afford or choose not to seek financial advice.

Inadequate savings rates

Saving 10-15% of an average annual salary is required to support a reasonable level of retirement income. However, individual savings rates in most countries are far lower. This is already presenting challenges where defined benefit (DB) structures, which use a formula that includes years employed and salary history to calculate fixed payouts, would traditionally have provided a guaranteed pension benefit. As workers look at their defined contribution (DC) retirement balances, which consist of contributions whose ultimate value depends on what employers set aside (thus, benefits are not guaranteed), they are realizing their savings will provide a much lower than expected retirement income.

This will continue to be a challenge unless the importance of higher savings rates is better understood and communicated. Given the current long-term low-growth environment, it is unrealisitc for workers to expect that saving around 5% of their pay cheque each year of their working life will provide a retirment income comparable to their level of income while working.

High degree of individual responsibility in managing pensions

DC systems have become increasingly popular over the last few decades and currently account for over 50% of global retirement assets. The plans' design makes individuals greatly responsible for managing their retirement savings; they must decide how much to save each year, choose the appropriate investments, estimate how long they are likely to live and when they should retire, and decide how to withdraw savings once they retire full time.

The information reported to individuals often does not facilitate their making informed decisions on meeting a target level of retirement income. For example, an account balance does not help individuals understand what they would likely receive as a monthly income, and the investment return achieved does not help determine whether to increase savings rates, stay employed longer, delay retirement or take on more investment risk.

Figure 2-1: Retirement Challenges

Increasing life expectancies and lower birth rates

Population over 65 will increase from 600 million today to 2.1 billion in 2050

8 workers per retiree today, compared to 4 per retiree in 2050

Low levels of financial literacy

Globally, the majority of citizens are not able to correctly answer simple financial literacy questions

Increasingly important given trend towards self-directed nature of pensions

Lack of easy access to pensions

Over 50% of workers globally are in the informal/unorganized sector

48% of retirement age population do not receive a pension

Inadequate savings rates

Contributions to DC plans typically significantly lower than 10%-15% target

Saving rates are not aligned with individuals' expectations for retirement income – puts at risk the credibility of the whole pension system

Long term low growth environment

Future investment returns expected to be ~5% (equities) and ~3% (bonds) below historic averages

Returns mis-aligned with benefit projections and individual expectations

High costs eroding investment growth

High degree of individual responsibility to manage pension

Defined contribution plans (individually managed) account for over 50% of pension assets

Individuals are required to be their own investment manager, actuary and insurer

Source: World Economic Forum, We'll Live to 100; How Can We Afford It? (forthcoming)

Overview of case studies

Through a series of workshops and interviews over the past year, the World Economic Forum Retirement Investment Systems Reform project has assembled a series of in-depth case studies that showcase how governments and organizations have addressed these challenges.

Section 3 covers government initiatives. Canada's Ministry of Finance shares reforms being made to the Canada Pension Plan in response to an ageing population and lower-than-anticipated savings rates. These reforms help to increase the contributions to a more sustainable rate, and also provide a higher replacement-rate payout for retirees. Denmark's pension scheme highlights the importance of continually reviewing and updating the system to meet demographic challenges. The country, which has consistently performed well in the Melbourne Mercer Global Pension Index, has aligned the national retirement age with anticipated life expectancies.

Two case studies come from Singapore, which has one of the world's oldest populations. One explains how CPF LIFE, the country's national annuity provider, supports a guaranteed lifetime income. The case study also discusses how this solution was designed and communicated to be well understood by retirees. The second case study focuses on an initiative designed to enable workers to stay in the workforce beyond the national retirement age. It was decided that supporting re-employment of older workers was a more effective strategy than increasing the retirement age and keeping individuals in the same job and on the same salary.

Another study covers the current national debate in the Netherlands and the challenges faced by the country's strongly collective retirement system. The collective approach makes it hard to incorporate flexibility for meeting individual preferences. Nevertheless, and importantly, individuals need to maintain confidence in the system and be reassured that their benefits will not be reduced.

Initiatives in Japan and the United Kingdom have focused on increasing the level of contributions into retirement plans. A Japanese initiative currently seeks to increase participation and savings rates in individual DC plans, which currently account for only a small portion of the market. The United Kingdom introduced regulation in 2012 to require all employers to enrol workers in a workplace savings account. Case studies from The Pensions Regulator and the National Employee Savings Trust show how they have implemented these changes and launched an investment fund to support previously underserved savers in the private market.

Additional case studies cover large national pension funds. The Canada Pension Plan Investment Board and Arbejdsmarkedets Tillægspension (ATP, or the Labour Market Supplementary Pension Scheme in Denmark) share their approaches to deciding on investment and risk allocation, which have been under increasing focus and scrutiny in the long-term low-growth market environment.

Finally, the case studies include corporate pension funds that have had to adapt their approach over time. Robert Bosch discusses how it has maintained its commitment to providing workplace pensions to associates around the world, despite regulatory and financial challenges. CERN Pension Fund shares its investment approach and how it mirrors the philosophy of its academic and research-based organization to effectively manage assets for current and retired employees.

To assist further in navigating the handbook, Figure 2-2 provides a summary illustrating the retirement challenges that each case study addresses.

This handbook of case studies is intended to guide those seeking to reform their retirement systems, whether at the organizational or national level. While it represents the culmination of the project's first phase, the handbook should serve as the springboard for the next phase. In the words of the project mission: "Progress happens by bringing together people from all walks of life who have the drive and the influence to make positive change."

Figure 2-2: Retirement Handbook Case Study Summary

			Challenge					
	Initiative	**Summary**	Increasing life expectancies and lower birth rates	Low levels of financial literacy	Lack of easy access to pensions	Inadequate savings rates	Low-growth investment environment	High degree of individual responsibility to manage savings
A.	**Canada: CPP enhancement**	To address challenges faced by Canadians as they save for retirement, finance ministers agreed to expand Canada's main public pension plan.	X			X		X
B.	**Denmark: Pension approach**	While it is well established and well regarded, the Danish pension system is continuously reviewed to ensure it delivers for future generations.	X			X		
C.	**Japan: DC reforms**	With a rapidly ageing population and a declining replacement rate, Japan is currently implementing DC reforms.	X	X	X	X		
D.	**Singapore: National annuity provider**	CPF Life was introduced in 2009 as a national annuity scheme, to provide citizens with defined contribution savings with a retirement income for life	X	X			X	X
E.	**Singapore: Helping older workers remain in the workforce**	Singapore promotes workplace longevity for older works by protecting and enhancing employment opportunities, and improving the quality of employment	X					
F.	**The Netherlands: Pension system and the current debate**	The Netherlands' pension system is well established, but current challenges have started a debate about the future	X			X	X	X
G.	**UK: Roll-out of auto-enrolment**	Automatic enrolment of all workers into workplace saving schemes has increased the number of savers by 7 million so far.	X	X	X	X		
H.	**UK: Establishing NEST**	As part of an initiative to increase the number of individuals saving in occupational pensions, NEST was established to look after the savings of those who were otherwise underserved by the private market.		X	X	X	X	
I.	**CPPIB: Fulfilling investment mandate without taking undue risk**	In 2015, CPPIB put in place a new investment framework focusing on total fund return, taking advantage of its long-term time horizon and relative freedom from investment policy limits.					X	X
J.	**ATP: Rethinking asset allocation**	ATP has used a risk-based asset allocation framework for many years, but is currently upgrading this approach to incorporate more granular methods of decomposing risk					X	
K.	**Robert Bosch: Occupational pension approach**	Bosch maintains its commitment to occupational pensions as a core benefit to employees and broader society.		X	X	X		X
L.	**CERN: Occupational pension approach**	CERN Pension Fund has adopted an investment strategy that will serve the member base and its size most effectively					X	

3. Government Initiatives

A. Canada: Canada Pension Plan enhancement

Summary: Finance ministers agreed to expand Canada's main public pension plan to address challenges faced by Canadians as they save for retirement.

Challenges:

Increasing life expectancies and lower birth rates	X
Low levels of financial literacy	
Lack of easy access to pensions	
Inadequate savings rates	X
Low-growth investment environment	X
High degree of individual responsibility to manage savings	X

Authors: Michael Garrard, Chief, Income Security, Finance Canada; Fraser Cowan, Economist, Income Security, Finance Canada

For the past 50 years, the Canada Pension Plan (CPP), the country's largest contributory public pension, has provided a foundation on which Canadians can build their retirement. During that time, Canadian governments have worked together to ensure the Plan has remained sustainable and responsive to economic, demographic and social change.

Canada's federal and provincial finance ministers agreed in June 2016 to enhance the CPP in response to growing concerns that young Canadians face different, and potentially more difficult, challenges in saving for retirement. The agreement established the CPP Enhancement, which will supplement the existing, or base, CPP. Once mature, the CPP Enhancement will increase the individual CPP retirement benefit by up to 50%. While the base CPP is partially funded, relying to a large extent on contributions from the active workforce to pay benefits to retirees, the CPP Enhancement will be fully funded, relying heavily on invested assets. This approach minimizes intergenerational transfers and tightens the link between how much workers contribute and how much they receive in retirement.

Canada's system for retirement income

Canada's system provides a mix of public pensions and voluntary savings opportunities to help its citizens save for retirement. The retirement income system is based on three pillars:

1. The Old Age Security programme (OAS) provides a basic level of retirement income for Canadian seniors, along with additional, income-tested support for low-income seniors. OAS is funded from general tax revenue.
2. The CPP and the Quebec Pension Plan (QPP) provide a basic level of earnings replacement in retirement, based on contributions made during working years.
3. Tax-assisted savings opportunities provided through workplace pension plans, pooled pension plans offered by financial institutions and individual savings vehicles permit Canadians to supplement public pensions for achieving retirement income goals.

Canadians also draw on other financial and non-financial assets for retirement income, including financial assets held outside tax-assisted registered plans, housing equity and small business equity.

The base Canada Pension Plan

The CPP serves to replace a basic level of earnings for retired workers throughout Canada (excluding the province of Quebec). The QPP provides similar benefits for workers in Quebec, the country's second-largest province. The base CPP retirement benefit replaces 25% of career average earnings up to the maximum level of covered earnings, which approximates average Canadian earnings (about CAD 55,000 [Canadian dollars] in 2017). Earnings over an entire career, with certain exclusions, are taken into account when calculating benefits. A full CPP retirement benefit is available at age 65; however, it can be taken up on an actuarially adjusted basis with a permanent reduction as early as age 60, or with a permanent increase as late as age 70. Benefits are also provided for workers who become disabled and for spouses of contributors who pass away.

The base CPP is funded by contributions equalling 9.9% of earnings (split evenly between employers and employees, with the self-employed paying both shares) as well as by investment earnings. Investment income currently represents about 25% of total CPP revenues; this share is projected to eventually increase to about 30-35%.

The CPP is a shared responsibility across levels of government, with the Canadian federal government and the 10 provincial governments serving as joint stewards. Major changes to the federal legislation governing the CPP require the formal consent of the Parliament of Canada and at least seven of the 10 provinces representing two-thirds of the provincial population. Federal and provincial finance ministers review the CPP every three years. As part of this triennial review, the Chief Actuary of Canada prepares a report on the CPP's financial state. In the latest report, the Chief Actuary assessed that the base CPP is sustainable at its current benefit and contribution levels across the 75-year projected horizon.

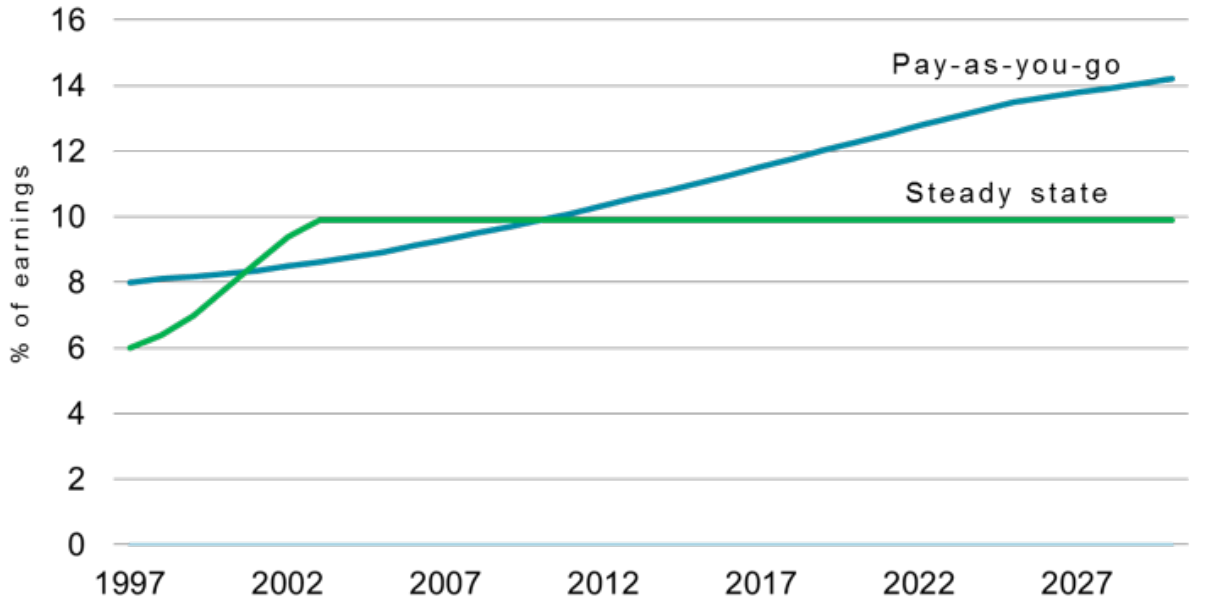
Sustainability challenges and CPP reform

The base CPP was established in 1966 as a pay-as-you-go pension plan with a small contingency reserve. To help ensure that Canadians who lived through the Great Depression and the Second World War received an adequate public pension, a maximum benefit could be earned after just 10 years of contributions (though the contributory period was slowly increased for subsequent cohorts to reflect a full working career). At the Plan's inception, the contribution rate was set at a modest 3.6% of contributory earnings; moreover, CPP architects expected that workers and their employers would never have to pay more than 5.5% of earnings.

However, by the mid-1980s, Canada's declining birth rate and increasing life expectancy required an increase in the contribution rate. The post-war baby boom had not been sustained, resulting in slower than expected growth in the number of contributors. With a smaller base, all Canadian workers would need to contribute a higher share of their earnings to ensure the Plan could afford to pay pensions that workers expected in retirement.

By 1995, the Chief Actuary of Canada estimated that the contribution rate would have to increase to over 14% by 2030. This sparked a public debate on the long-term contribution rate and future fairness. To improve equity across generations, and to preserve the CPP for future generations, the federal and provincial governments set out to reform the Plan. The fairest way to equalize the costs of paying for the base CPP was through three approaches: raising contribution rates quickly to a level that could be maintained over the long term, reducing the growth rate in benefits and changing the financing approach. In 1997, the federal and provincial governments agreed to accelerate the already scheduled contribution rate increase. The rate was set to reach 9.9% by 2003 and remain at that level indefinitely (Figure A-1). Under "steady-state funding", or the hybrid of funded and pay-as-you-go models, a surplus would be built up while demographic conditions remained relatively favourable. The surplus, as well as associated investment returns, would then be drawn upon as the baby-boom generation retired.

Figure A-1: CPP Contribution Rate (as % of Earnings) under the Pay-As-You Go and Steady-State Financing Models, 1997-2027



Source: Office of the Chief Actuary; Canada Pension Plan 16th Actuarial Report
Note: Certain data points are interpolated

The steady-state funding model eased some of the contribution burden that otherwise would have been passed on to future generations of workers. Now that the 9.9% steady-state contribution rate has been reached, all Canadian workers pay the same rate and have access to the same benefits. Intergenerational transfers are still embedded in the base CPP, however, as benefits earned prior to the enacted reforms need to be honoured.

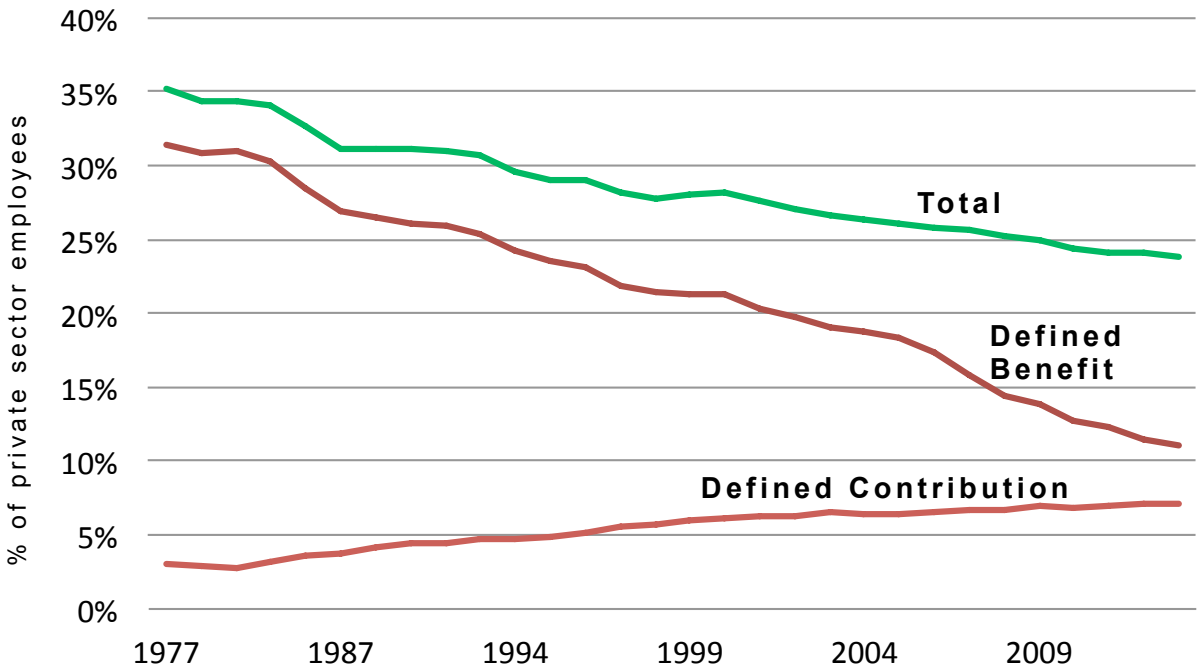
As part of the reform package, federal and provincial governments also created the CPP Investment Board (CPPIB) to manage Plan assets. The Board operates at arm's length from governments, with the objective of maximizing returns without undue risk of loss. Recognized internationally as an example of sound pension plan management, it delivered an annual average nominal rate of return of 6.8% on CPP assets over the past 10 years.

Current challenges facing Canada's retirement income system

Although the system's three pillars have served most Canadians well, Canada's Department of Finance has estimated that 24% of families nearing retirement age are at risk of not having adequate income in retirement to maintain their standard of living. Middle-class families without workplace pension plans to supplement public pension income and other forms of retirement savings are at greatest risk. The department estimates that 33% of families nearing retirement age who have no workplace pension plan assets may be at risk of undersaving for retirement.

In addition, younger Canadians face different challenges than the generation reaching retirement age, which may make it more difficult for them to save sufficiently. Workplace pension plan coverage, particularly defined benefit (DB), is declining, meaning future generations of Canadians will be more exposed to market and longevity risk. The share of private-sector employees covered by a workplace pension declined from 31% in 1991 to 24% in 2013, while the share of private-sector employees covered by DB plans fell from 26% in 1991 to 11% in 2013 (Figure A-2).

Figure A-2: Share of Canadian Private-Sector Employees Covered by a Workplace Pension Plan, 1977-2009



Source: Government of Canada, Department of Finance, "Backgrounder: Canada Pension Plan (CPP) Enhancement", http://www.fin.gc.ca/n16/data/16-113_3-eng.asp

Younger Canadians also face a different investment outlook. If the prolonged period of low interest rates continues, future generations could face lower returns on their retirement savings. Further, unlike many Canadians currently reaching retirement age, younger Canadians may not benefit from the same level of housing equity appreciation as the baby-boom generation. Younger generations are also more exposed to market risks (interest and asset price movements), as they have both higher debts and assets than previous generations.

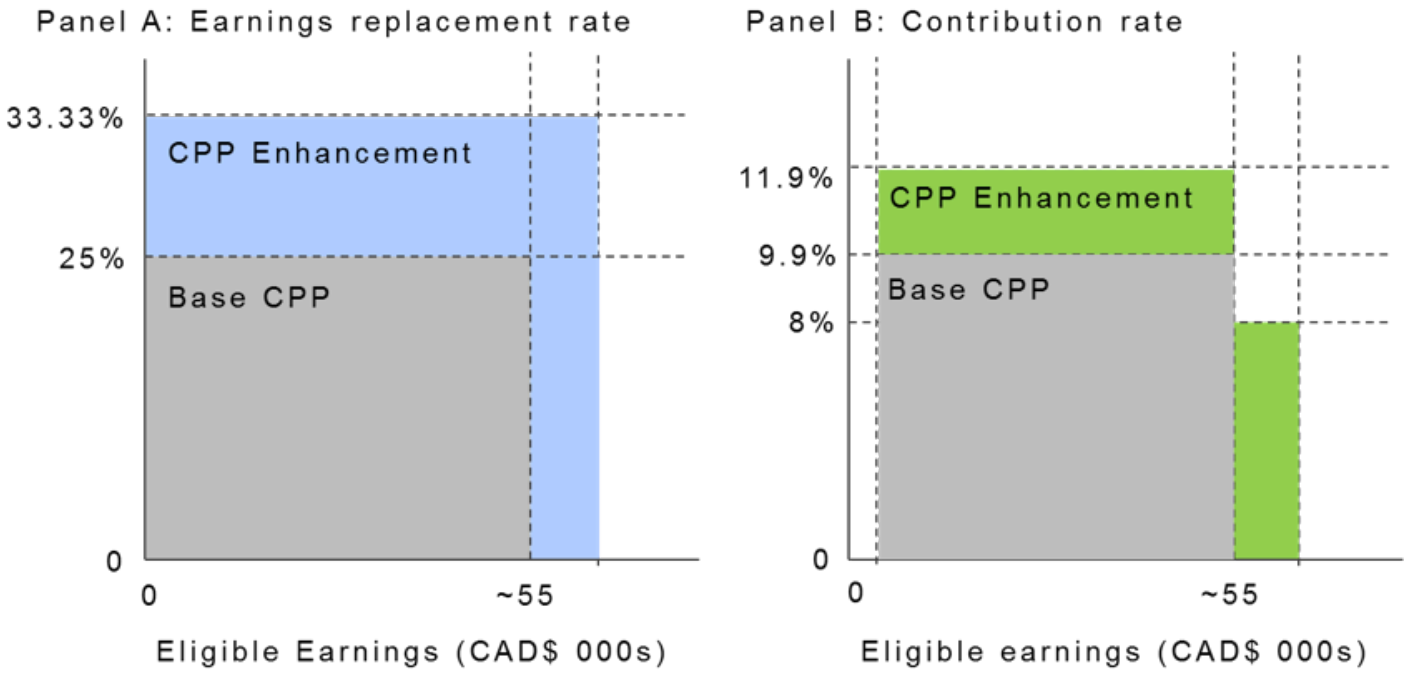
Canada's response: CPP enhancement

Recognizing the challenges faced by young Canadians, Canada's federal and provincial finance ministers once again launched discussions on a major CPP reform in December 2015. Ministers had the overall objective of improving retirement security and providing Canadians with greater access to a reliable source of retirement savings. After a period of intensive discussion and deliberation, Canada's finance ministers reached an agreement on 20 June 2016. The deal increases the maximum level of earnings replacement provided by the CPP from 25% of eligible earnings to 33.33%, and extends the range of eligible earnings by 14% (Figure A-3, Panel A). These changes will increase the maximum CPP retirement pension over time by about 50%. Benefits will also be increased for workers who become disabled and for the spouses of contributors who pass away.

To pay for the additional benefits, the contribution rate will be increased by two percentage points (from 9.9% to 11.9%) across the base CPP earnings range, and eight percentage points across the extended portion of the CPP Enhancement earnings range (Figure A-3, Panel B). Canada's Chief Actuary has confirmed this is sufficient to ensure the sustainability of the CPP Enhancement for at least the next 75 years.

The Department of Finance Canada estimates that the CPP Enhancement will reduce the share of families at risk of undersaving from 24% to 18% (Figure A-4), with the

Figure A-3: Main Design Parameters of the CPP Enhancement



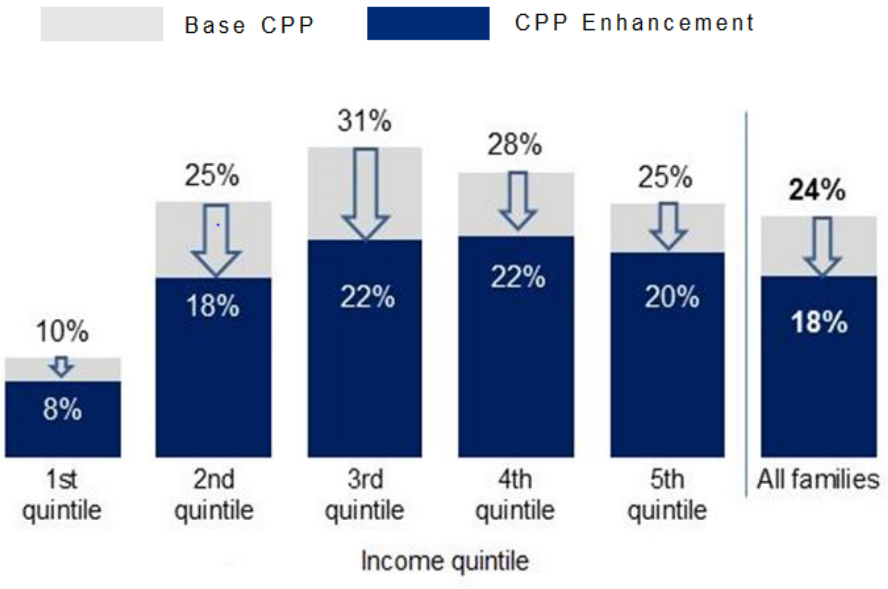
Note: The 2016 Base CPP pensionable earnings range (earnings on which benefits are earned) is from C$0 to ~CAD$ 55,000. The CPP Enhancement's earnings range, once fully implemented, will extend an additional 14%. The contributory earnings ranges mirror the pensionable earnings ranges, except contributions are not paid on the first CAD$ 3,500 of earnings

Source: Government of Canada, Department of Finance, "Backgrounder: Canada Pension Plan (CPP) Enhancement", http://www.fin.gc.ca/n16/data/16-113_3-eng.asp

most pronounced impact among middle-income families and families without workplace pension plan coverage. While some families will still be at risk of not saving enough for retirement even with a CPP enhancement, the degree of undersaving will be considerably reduced.

In addition to increasing retirement savings generally, the CPP Enhancement is well suited to address the challenges facing young Canadians. The Enhancement helps to fill the gap left by declining workplace pension coverage, and promotes labour mobility by being portable across jobs and provinces.

Figure A-4: Estimated Effect of the CPP Enhancement on the Share of Canadian Families Approaching Retirement and at Risk of Not Replacing 60% of Pre-Retirement Income



Source: Finance Canada, Survey of Financial Security 2012 and Department of Finance Canada calculations

The DB, payable for life, protects against market and longevity risk, while the indexation of benefits protects against inflation risk. Finally, the CPPIB can achieve strong rates of return by capitalizing on long investment horizons, access to investment opportunities generally unavailable to individual investors, a long period of positive cash flow, and economies of scale.

The agreement reached by Canadian finance ministers also addresses the main concerns raised by the public and pension experts during discussions on CPP reform. For example, to ease the adjustment to higher contribution rates, the CPP Enhancement will be introduced over a seven-year gradual phase-in, starting in 2019. The Working Income Tax Benefit, an existing income-tested benefit for working Canadians, will also be increased to help offset incremental employee CPP contributions of eligible low-income workers. In addition, a tax deduction, rather than a tax credit, will be provided on employee contributions to the CPP Enhancement. This mirrors the treatment of certain other tax-assisted retirement savings vehicles, thereby avoiding an increase in the after-tax cost of saving for Canadians who substitute contributions to such vehicles with additional contributions to the CPP Enhancement.

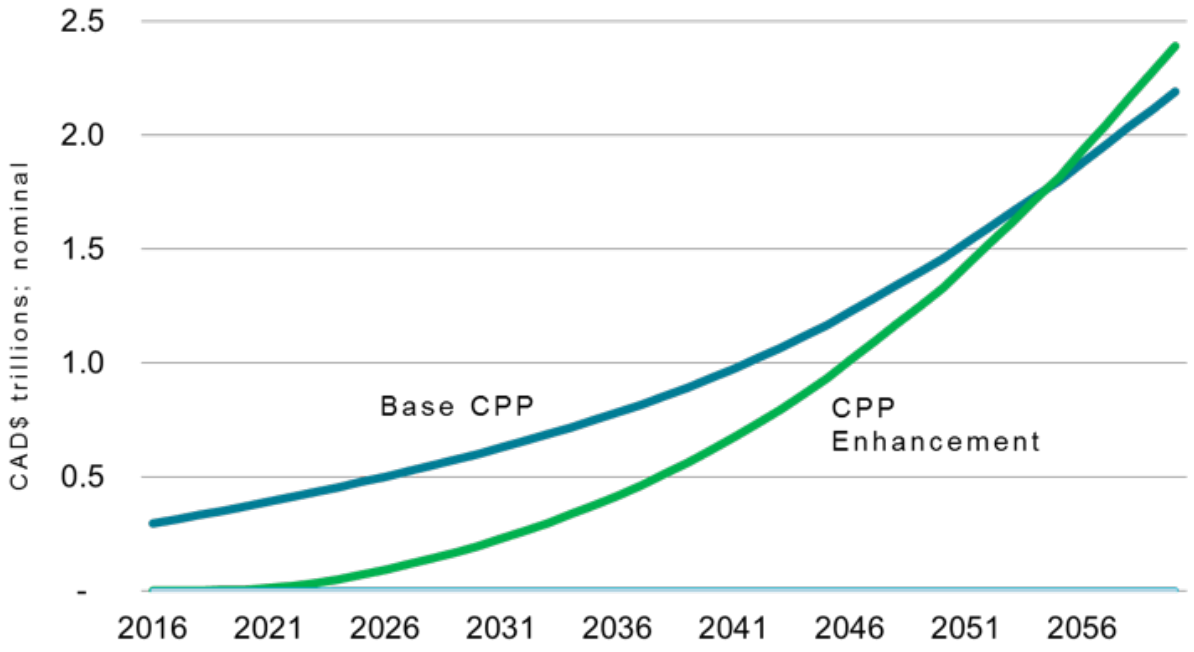
While the Enhancement is designed to provide a significant increase in pension income, it will not replace the other pillars of Canada's retirement income system. Canadians, particularly those with higher incomes, will still need to save privately through tax-assisted vehicles to meet their retirement goals, thereby preserving a balance between public and private responsibility for retirement savings.

New financing model

While the base CPP and the CPP Enhancement will be integrated from the perspective of contributors and beneficiaries, the Enhancement will have a distinct financing model and separate accounts. It will be fully funded, in that each generation's contributions and associated investment earnings should be sufficient to pay for its benefits. Full funding avoids replicating the intergenerational transfers embedded in the base CPP.

Under this model, Plan members will need to contribute over the full 40-year period to receive full benefits, though partial benefits will be available sooner based on the number of contributing years. As a result, young Canadians, who face the most uncertain savings prospects, will earn the largest benefit. The Enhancement will rely more heavily on investment returns than on contributions to pay for benefits; in 40 years, investment income is projected to represent about 70% of total Plan revenues. Thus, while it will be more resilient to demographic pressures, it will be more exposed to market volatility. Assets associated with the CPP Enhancement are projected also to build up quickly, surpassing the base CPP assets by 2055 (Figure A-5).

Figure A-5: Projected Assets of the Base CPP and CPP Enhancement, 2016-2056



Source: Office of the Chief Actuary; 28th Report on the CPP
Note: Certain data points are interpolated

Conclusion

Young Canadians face different challenges than previous generations, making it more difficult for them to save sufficiently for retirement. Workplace pension plan coverage is declining, meaning future generations could be more exposed to market and longevity risks. Young Canadians also face a different investment outlook, with prolonged periods of low interest rates potentially leading to lower returns on their retirement savings.

Recognizing these challenges, Canada's federal and provincial finance ministers agreed to expand the CPP, with the overall objective of providing Canadians with greater access to a reliable source of retirement income. The agreement creates the CPP Enhancement, a sustainable, equitable and fully funded public pension plan. This policy response will help Canadians, especially young ones, achieve a comfortable and secure retirement.

Endnote

[1] Families are considered to be at risk of undersaving for retirement if their projected after-tax income at retirement does not replace 60% of their pre-retirement after-tax family income.

B. Denmark: Pension approach

Summary: While it is well established and well regarded, the Danish pension system is continuously reviewed to ensure it delivers for future generations.

Challenges:

Increasing life expectancies and lower birth rates	X
Low levels of financial literacy	
Lack of easy access to pensions	
Inadequate savings rates	X
Low-growth investment environment	
High degree of individual responsibility to manage savings	

Authors: Michael Preisel, Head, Quantitative Research, ATP; Caroline Krabbe Melchior, Communications Consultant, ATP

Denmark was one of the first countries to implement a multi-pillar pension system consisting of a residence-based state pension and private defined contribution (DC) occupational pensions. Its three-pillar pension system (Figure B-1) is often cited as one of the best, achieving high scores on key measures of alleviating poverty, sharing risk, replacing income and ensuring long-term financial sustainability.

Pillar One

Providing universal coverage, Pillar One consists of two tiers. The predominant one is the folkepension, a residence-based, pay-as-you-go state pension composed of three elements: a basic pension, a means-tested pension supplement that tapers off with other retirement income, and ældrecheck or additional supplements, such as the pensioner's cheque.

The second tier is the statutory Labour Market Supplementary Pension Scheme (ATP), which is financed through fixed-sum contributions paid by both employers (two-thirds) and employees (one-third). The state pension supplemented with ATP ensures that all pensioners, regardless of their attachment to the labour market, will have an adequate basic income.

For 50% of Danish pensioners, Pillar One coverage is the only source of income during retirement.

Pillar Two

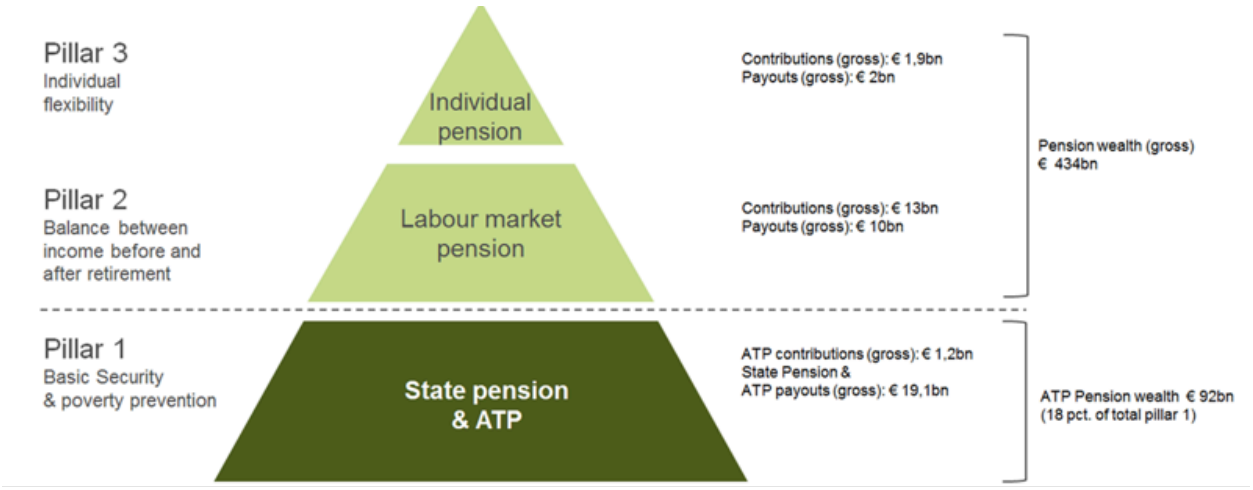
Pillar Two consists of privately funded DC occupational pension schemes. These are based on collective agreements stipulated by social partners (i.e. employer and employee representatives). The agreements provide supplementary pensions to about 85% of Danish wage earners, and participation is compulsory for anyone working in a job covered by a particular collective agreement.

Contributions to occupational pensions range between 12% and 18% of gross wages, and are tax deductible up to a fixed threshold amount. The objective of Pillar Two is to provide a net income replacement rate of 70%.

Pillar Three

Pillar Three consists of voluntary, tax-deductible individual pension savings that go beyond the occupational pension schemes. This pillar provides savings products for individuals who want flexibility or who are not covered by Pillar Two occupational schemes, allowing them to save for retirement on their own.

Figure B-1: The Danish Pension System*



Source: ATP and Statistics Denmark

* 2015 contributions and payout numbers and 2014 pension wealth numbers

The Danish pension system has matured since this structure was first implemented in the 1990s. The private labour market pension coverage (Pillar Two pensions) has expanded significantly, facilitated by the gradual roll-out of a number of new multi-employer pension schemes, which are compulsory, contributory, collective and fully funded insurance-based DC schemes.

The new schemes reached the target contribution level of 12% in 2009, and will be fully mature around 2080 for both contributors and retirees. In 2060, the first cohorts (with 12% contributions) enrolled in the compulsory Pillar Two will retire, and by 2080, all retirees will have contributed the maximum amount throughout their working life. Currently, the total wealth in the Danish pension system is 200% of national gross domestic product.

Background to ATP

ATP Lifelong Pension (whole-life annuity), a national scheme based on Danish law and fully integrated in the Danish multi-pillar pension system, aims to deliver predictable retirement income. Consequently, that income – ATP's ultimate function – is reflected in its product's design and its investment strategy.

Combining guarantees and a lifelong pension with increasing longevity is a challenge. The one-size-fits-all pension has turned into a large-scale, cost-effective product thanks to its simplicity, the mandatory set-up with fixed automatic contributions and no flexibility concerning investment profile, and automatic, stable payouts.

The ATP pension principle is to replace monthly income with a predictable supplement. While purpose and design are closely connected, one product cannot target all aspects in the multi-pillar pension system. Its key features, therefore, are reflected in ATP's fundamental purpose of providing a supplementary and predictable retirement income.

Key features of ATP Lifelong Pension

Simple

A simple product implies few or no choices. The focus is on the size of future income and not on how future income is produced. Simplicity is fundamental to keeping costs low: the simpler the product, the larger the potential for economies of scale.

Predictable

A pension is a regular income to replace monthly earnings after retirement. To determine when to retire, it is helpful to know future income and to have secure, predictable monthly payments.

Automatic

The pension system is based either on a mandatory contribution or automatic enrolment. The pension will provide future income funded from current income. To ensure a sufficient pension at retirement, a fixed fraction of income is set aside during a person's entire working life. If a sufficient level is not reached, the government steps in. Achieving a large scale and volume is important to providing a cost-effective pension.

Protection against inflation shocks

Inflation shocks during or close to retirement pose a substantial risk to monthly earnings replaced by pensions. The ATP pension is nominal; thus, to mitigate the risks associated with the transition from one inflation regime to another, ATP has a portfolio of long-dated options to hedge this risk. Under normal market conditions, this portfolio has negative carry due to the loss of the options' time value. However, with a sudden shift in inflation, it will produce an extraordinary return to compensate members for the loss in purchasing power.

The ATP investment approach

ATP was established in 1964 as a simple pension scheme planned for large-scale operation to provide a certain level of welfare for Danish senior citizens. Consequently, all ATP members earn the right to a guaranteed pension for life by making monthly contributions; a clear connection exists between the contributions paid and the individual's right to payouts.

As noted, the product is simple – a whole-life annuity guaranteed immediately when contributions are made. Contributions are split into two parts: 80% are guaranteed immediately at a rate of return corresponding to the actual interest rate on long-term government bonds, and the remaining 20% go into free reserves or a risk buffer for diversified investment in global financial markets. The interest rate risk of annuities is hedged immediately; and, as the exact, prevailing market rates are guaranteed, the hedge is guaranteed to succeed. The investment portfolio's long-term objective is a nominal return of 7% of free funds (after tax), as free funds serve to buffer risk for investments.

Investment returns are therefore added to (or subtracted from) free funds. If and when free reserves become sufficiently large, pensions are indexed by moving funds from the free reserve to individual pensions. Indexation has the long-term target of maintaining pensions' purchasing power. The free reserves serve as a general buffer against risk within and between generations, covering financial as well as biometric risks. In recent years, free reserves have mainly been used to cover increases in longevity.

Lessons learned

Focusing on pension design in a broader context raises several issues. First, a policy design must match the capacity to execute, and take into account the existing pension system's externality and the likelihood of carrying it out. Second, a single best pension design does not exist, as design depends on the prevailing systems and social structures; in other words, the best solution in one country may not have the same effect elsewhere. Third, one pension scheme or pension product is not able to target all pension challenges. Importantly, a system's design should be based on a defined and limited set of problems.

Currently, ATP Lifelong Pension includes 5 million members. Moreover, as an integrated part of the Danish pension system, it has provided a basic lifelong annuity pension to most of the Danish population for more than five decades. Valuable lessons include:

- An adequate pension requires sufficient individual savings, but those savings can be difficult to accumulate without a compulsory element.
- Greater longevity, combined with little or no pension savings, is not sustainable.
- The multi-pillar pension system allows for achieving multiple goals, such as adequacy, sustainability, high savings rates, risk sharing and flexibility. One pension product cannot accomplish all the goals.
- Pension design takes time. Small steps are needed to bring members on board and build up trust.
- Pension systems must adapt to changing demographics in Western countries and increasing longevity. While these have positive effects, they also pose new challenges. Denmark has taken one step by aligning retirement age with expected longevity.

C. Japan: Defined contribution reforms

Summary: With a rapidly ageing population and a declining replacement rate, Japan is currently implementing DC reforms.

Challenges:

Increasing life expectancies and lower birth rates	X
Low levels of financial literacy	X
Lack of easy access to pensions	X
Inadequate savings rates	X
Low-growth investment environment	
High degree of individual responsibility to manage savings	

Author: Akiko Nomura, Managing Director, Nomura Institute of Capital Markets Research

Market background

Japan's population is ageing rapidly; 27% was 65 years of age or older in 2016, with a projected increase to 39% by 2050. Public pension benefits have a low replacement rate, at 35% of the average salary, and corporate pension coverage remains at 34%.

Japan's defined contribution system

The country has two types of defined contribution (DC) systems: corporate and individual. Both are completely voluntary.

Corporate

The employer contributes to an employee's individual account, and the employee can also contribute. The employee is instructed on investing and can choose from different investment products, typically mutual funds, deposits and insurance products. When an employee changes jobs, the account assets are portable. Withdrawals can begin when an employee reaches 60 years of age (early withdrawals can only be made in limited cases).

Individual

Individual plans have the same basic features as corporate plans, except that individuals open their own DC account at a financial institution and make their own contributions.

Introduction

The Japanese pension system is comprised of the public pension system and private pension plans. The public system is mandatory and universal, while private plans are voluntary. The public system uses pay-as-you-go funding and, because Japan is ageing rapidly, faces serious challenges to meet future needs. The country has thus taken measures to enhance the coverage of private pension plans and to have more people prepare for their own retirement.

Currently, only 34% of Japanese private workers are covered by any type of corporate pension plan. Because employers in Japan, as in many developed countries, are finding it increasingly difficult to offer defined benefit (DB) plans, it was decided to strengthen both corporate DC and individual DC plans. The reforms are focused on incentivizing employers to offer DC pension plans and expanding the eligibility of individual DC plans, which were previously restricted to the self-employed and workers without access to an employer plan.

Participants in Japanese DC plans make investment decisions for their individual account assets. Thus, it is critical to ensure they make appropriate choices based on a long-term savings horizon. However, participants have lived through difficult domestic stock market conditions over the past 25 years, and are unfamiliar with investment products, such as mutual funds. While employers are required to offer investment education to DC participants, education alone is not enough to help them make appropriate decisions. Some put their contributions in deposits simply because they are unfamiliar with mutual funds, and others postpone investment decisions and temporarily put their contributions in deposits, but never review their selection. In fact, participants in their thirties put 49% of their assets in deposits and insurance products. This allocation differs from typical pension asset allocation and may be too conservative to earn a meaningful return over the participants' working years.

At the end of March 2016, 35.6% of corporate DC assets (JPY 9.5 trillion ¥) were in deposit accounts, and 18.8% in insurance products, both with very low yields. The remaining share of assets was in mutual funds.

Background on changes to the DC law

A combination of factors led to the revision of the country's DC law:

1. **Automatic reduction of the public pension benefit**
   An additional control was introduced in 2004 to help manage public pension benefits. Benefits are typically increased based on changes to wage and consumer indexes, but are now also adjusted (i.e. reduced) by an "adjustment rate" based on national demographics. To date, the adjustment was only implemented in fiscal year 2015 (it will not be used when wage and consumer price index increases are too small or changes are negative). However, it is expected to remain in place until the 2040s and, over time, is expected to reduce public pension benefits in real terms. Individuals, on the other hand, will have to top up their public pension benefit on their own. Therefore, it was important to increase the individual DC system's coverage to give everyone the opportunity to save for retirement.

2. **Pension reform in other developed markets**
   Other developed countries have apparently been strengthening private pension (especially DC) plans. All developed countries face similar issues of ageing populations and difficulties in ensuring public pension systems are sustainable.

3. **Low corporate pension plan coverage**
   Dwindling participation in corporate pension plans provided a strong incentive for policy-makers to take action. Participation in the Employees Pension Fund, one of two major DB plans, is declining, which will lead to further erosion of private pension offerings by companies. Even large companies have increasing difficulty offering DB plans. And for smaller companies, offering full-version DC plans may be difficult. Thus, the revised DC law also includes introducing "simple DC plans" for smaller to medium-sized firms. In addition, the eligibility of individual DC plans was expanded so that, regardless of the plan offered by employers, everyone will have the chance to join DC plans.

4. **Support for better management of financial assets**
   The current administration's focus on growth strategies has included better managing financial assets in Japan and supporting the DC pension reforms. The Nippon Individual Savings Account (NISA), introduced in 2014, has since been enhanced; improving DC investment management has an additional side effect of supplying and providing money for long-term growth. Together with NISA, DC reforms are envisioned as measures for supporting the shift of the individual's mindset from "savings" to "investments".

DC system reforms

Enacted in May 2016, the bill to reform DC plans contained provisions to expand the eligibility of individual DC plans as of January 2017 and to improve DC investment management.

Until 2016, only the self-employed and private employees without a workplace pension plan were eligible for the individual DC. Partly due to this limited eligibility and the system's complexity, individual DC accounts represent a very small proportion (5%) of the total number of DC accounts, with only 286,000 individual DC accounts as of September 2016 compared to 5.8 million corporate DC accounts. The restrictions were lifted in January 2017, and almost all workers will be able to open an individual DC account. Public and private employees with workplace pension plans can join, as can part-time workers and non-working spouses through contributions from their earnings or savings (although their contributions are not tax deductible, as they pay no income taxes).

A default investment arrangement is also being introduced to support individuals' selection of the appropriate DC investments. Participants will have the power to make investment decisions because they bear the risk of investing. To assist them with their decisions, however, more guidance and a default portfolio compiled by investment professionals will be made available.

The DC law has additional provisions for the default investment arrangement so that plan sponsors can more easily designate mutual funds with price fluctuation as default funds. As of this writing, the Ministry of Health, Labour and Welfare has yet to propose rules and regulations for the default investment arrangement, with discussions continuing about the type of investment products that will qualify. However, the current trend of reforms suggests that funds, such as balanced funds or target date funds, will qualify. Provisions of the revised DC law includes terms that reflect these products, such as "long-term perspective", "price fluctuation" and "securing profits". The provisions for the default investment arrangement are expected to be effective by June 2018.

Key challenges

Japan lacks a national pension policy that stipulates the role of the public pension system and private pension plans. This makes it difficult to implement reforms and resolve issues, such as the optimal level of individual contributions to DC plans.

Pension systems are complex, and Japan’s is no different. DC plans are not simple and can lead to suboptimal results; these include lower levels of participation, as individuals find it hard to understand and navigate the process of setting up an individual DC account, and the higher costs of administering DC plans – costs that will be borne by the individual. Given Japan's huge national budget deficit, all policy measures with tax benefits face severe scrutiny. Expanding the eligibility of individual DC plans involves tax expenditure; Japanese DC contributions are tax deductible, and investment proceeds are not taxed until benefits are withdrawn.

The impact to date

Individual DC plans, nicknamed "iDeCo," are attracting more attention from potential new participants. But while a number of private-sector financial institutions are targeting different groups for new individual DC accounts, rolling out reforms is still in the early stages, and how the market develops is still unclear. The coming years will be critical and will determine the success not only of the DC set-up, but also of the entire Japanese pension system.

Lessons learned

Simple is better: participants would more easily understand having one contribution limit for all. Moreover, simplifying elements would reduce the likelihood of their being overwhelmed or deterred from joining. Currently, the contribution limits are complicated, and are set according to a person's public pension status and the type of workplace pension participated in.

Future enhancements

Several reforms to the DC system should be considered:

- **Raise contribution limits**
  The limit is currently JPY 660,000 per year for corporate DC (employees with only DC plans) and JPY 816,000 for individual DC (those self-employed). The lowest limit is JPY 144,000 (public and private employees with DB plans).

- **Ease early withdrawal restrictions**
  Withdrawing from DC plan savings before age 60 is nearly impossible. The restrictions are so severe that they can dissuade people from joining individual DC plans, and should thus be eased.

- **Expand eligibility to older workers**
  People in their sixties should be allowed to join and contribute to DC plans. Setting the age limit for DC participation at 60 makes no sense as the public pension benefit age will soon be 65. However, the benefit withdrawal age should remain at 60. While the Japanese economy will benefit from more people in their sixties remaining in the workforce, their health and other lifestyle conditions will become more diverse. Flexibility will be required to meet their needs.

Endnotes

[1] OECD, “Pensions at a Glance 2015: Japan”, 1 December 2015, https://www.oecd.org/japan/PAG2015_Japan.pdf
[2] OECD, “Pension Country Profile: Japan” in *OECD Private Pensions Outlook 2008*, http://www.oecd.org/finance/private-pensions/42566272.pdf

D. Singapore: National annuity provider

Singapore has one of the world's highest life expectancies. Half of Singaporeans aged 65 today are expected to live beyond 85. Moreover, the resident old-age support ratio fell to 5.4 in 2016[1], and will fall significantly over the next two decades.

Many countries have ageing populations that challenge their retirement financing systems. Financial sustainability has become a key concern for traditional defined benefit (DB) schemes, given the growing issues of maintaining promised levels of benefits despite demographic pressures. Singapore does not face similar concerns on sustainability as the key pillar in its social security system, the Central Provident Fund (CPF), is a defined contribution (DC) scheme based primarily on individual savings.

However, Singapore faces two challenges in common with most advanced countries as life expectancies rise.

First, Singapore has to find ways to give older workers opportunities to stay employed, so as to lengthen the period during which they can build up their retirement savings, in keeping with longer lifespans. The following case study explores this issue and the country's approach to it.

The second challenge is to provide solutions that enable their retirement savings to yield an income for as long as they live. DC schemes typically focus on helping individuals accumulate savings, and are not designed to assist them with converting savings into a stream of lifelong income. In Singapore, the private market has developed life annuity products that aim to do this; the take-up of private annuities, however, has been very low. Hence, in 2009, the country introduced CPF Lifelong Income for the Elderly (CPF LIFE), a national annuity scheme to pool longevity risks and provide Singaporeans with lifelong retirement income.

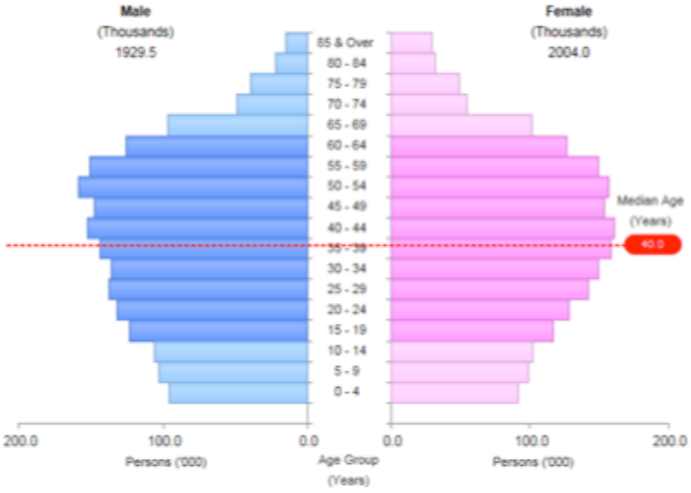
Summary: CPF LIFE was introduced in Singapore in 2009 as a national annuity scheme to provide citizens with defined contribution savings and retirement income for life.

Challenges:

Increasing life expectancies and lower birth rates	X
Low levels of financial literacy	X
Lack of easy access to pensions	
Inadequate savings rates	
Low-growth investment environment	X
High degree of individual responsibility to manage savings	X

Author: Central Provident Fund Board (CPFB) Singapore

Figure D-1: Age Pyramid of Singapore's Resident Population, 2016



Number of Singapore residents in the older age groups expected to increase over the years

Source: Department of Statistics Singapore, Age Pyramid of Resident Population 2016, http://www.singstat.gov.sg/statistics/visualising-data/charts/age-pyramid-of-resident-population

CPF LIFE: Overview

CPF LIFE was introduced in 2009, based on the recommendations of the National Longevity Insurance Committee (NLIC) after it had consulted industry professionals, academics and the public. Members join the CPF LIFE scheme, which is administered by the CPF Board, by using retirement savings in their CPF accounts to buy a CPF LIFE annuity plan. They can start receiving payouts from their payout eligibility age (65, from 2018); payouts are monthly and for their remaining lifetime. Members born in 1958 or later will be automatically enrolled in CPF LIFE if they have at least SGD 60,000 (Singapore dollars) or $42,500[2] in CPF savings at age 65. Members who are not automatically enrolled can also opt to join CPF LIFE[3].

Key insights: scheme design

As a national annuity scheme, CPF LIFE was designed to be affordable, fair, sustainable and flexible.

1) Affordable

Providers of private annuities typically factor in distribution costs and adverse selection when pricing premiums. As a national scheme, CPF LIFE avoids these elements by reaping economies of scale and automatically enrolling its members to maximize the benefits of risk-pooling. Premiums are also kept low by having the CPF Board, a statutory body, administer CPF LIFE. Further, no minimum premium is required to join CPF LIFE (Figure D-2), and members with lower CPF savings can still opt to participate in CPF LIFE.

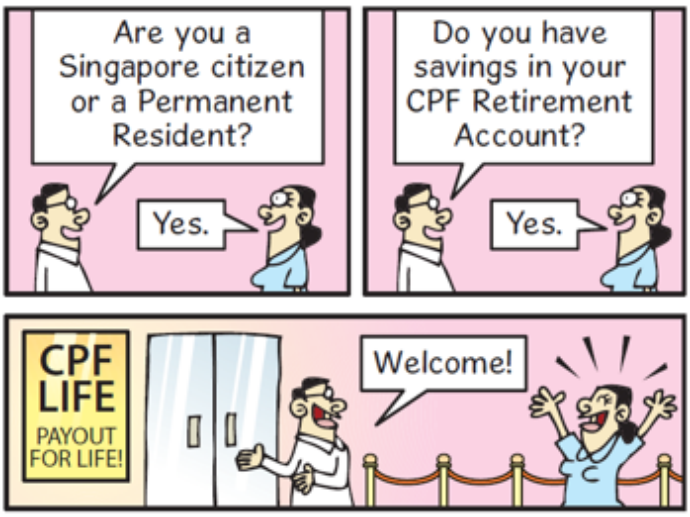
2) Fair and sustainable

To ensure that CPF LIFE provides individuals with fair and sustainable payouts, premiums and payouts are computed in consultation with independent professional actuaries. The payouts take into account an individual's life expectancy based on age and gender, and mortality assumptions are reviewed regularly to account for changes in life expectancy. The scheme is also designed such that the premium, less the sum of payouts that have been made, would be paid as a bequest to the CPF LIFE member's beneficiaries upon that member's death. Thus, members and/or their beneficiaries will always get back at least the amount of the premium paid, either in the form of payouts and/or bequests.

For CPF LIFE to remain sustainable over time, payouts can be adjusted over an individual's lifetime, if the actual mortality experience and/or investment return on the CPF LIFE fund deviates from the initial assumptions. Nonetheless, the scheme is designed to provide stable payouts, achieved by investing CPF LIFE monies in special long-term bonds issued and guaranteed by the Singaporean government, which has a triple-A credit rating. These bonds pay fixed long-term coupon rates pegged to long-term government bond yields, and currently offer risk-free annual returns of up to 6%.

However, in many DC schemes, lower-income households often face the challenge of inadequate retirement savings and, hence, incomes. The CPF scheme has two important features that seek to offset this problem. First, to help such households save enough to take advantage of the benefits of the CPF LIFE scheme, the government injects means-tested grants into their CPF savings accounts. The grants are funded through the government budget. These grants take the form of an earned income tax credit which partly flows into the eligible member's retirement savings, top-ups to the individuals' medical savings account, as well as generous subsidies for home ownership. The latter enables home ownership rates of 80% for the bottom quintile of households and, critically, allows them to enjoy home equity appreciation over the long term. To illustrate, a lower-middle income elderly household[4] today would have about SGD 300,000 ($212,600) in home equity, and could choose to unlock part of this equity to help purchase CPF LIFE. This injection of fiscal progressivity into the CPF scheme is uncommon among DC schemes. A second element of progressivity lies in the interest rates the CPF pays its members. The CPF system is different from most DC pension schemes in that members' CPF savings are guaranteed by the government (see box on CPF risk-free interest rates). However, they earn attractive, risk-free interest. In this regard, the interest rates for members with lower balances have been enhanced in recent years. Hence, the first SGD 30,000 ($21,300) of a member's CPF LIFE monies earn 6% interest per year, while the next SGD $30,000 earns 5% interest annually. The remaining CPF LIFE monies earn 4% interest per year, which is currently the floor rate for CPF retirement savings. With this interest rate structure, CPF LIFE is able to provide an effective annuity rate[5] of 7.1% based on a SGD 100,000 ($70,900) premium. This compares favourably with life annuities in most markets[6].

Figure D-2: A Minimum Premium Is Not Required



How CPF is able to provide risk-free interest rates of up to 6% per year

The CPF Board invests CPF members' monies, including CPF LIFE monies, in Special Singapore Government Securities (SSGS), which are guaranteed. Proceeds from SSGS issuance are pooled and invested with the rest of the Singapore Government's funds. Singapore's strong government balance sheet, with a substantial buffer of net assets, enables it to withstand market cycles and meet its guaranteed liabilities, including its SSGS commitments. This means that CPF members bear no investment risk in their CPF balances, regardless of financial market conditions. Interest rates on SSGS match those on CPF savings, with CPF members receiving the annual interest rates promised of up to 6% per annum.

The CPF scheme's design helps to ensure a reasonable level of income in retirement for the median member. This is especially so in view of Singapore's high home-ownership rates. Assuming partial monetization of home equity in retirement[7], the median member entering the workforce today should be able to achieve an income replacement rate of about 70% in real terms through CPF savings.

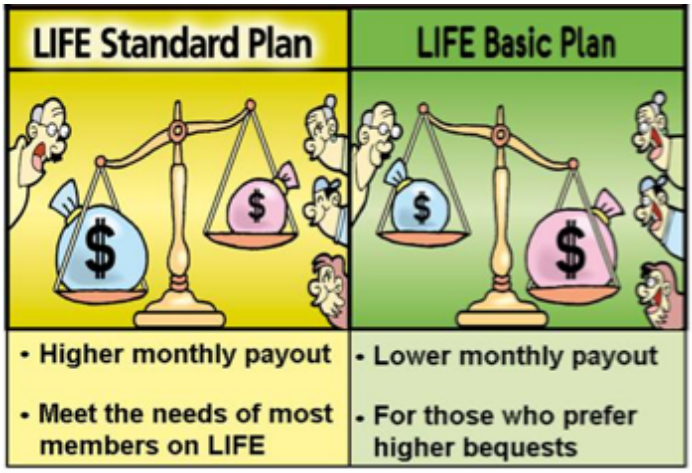
3) Flexible

CPF LIFE currently offers individuals various choices for tailoring the annuity to best meet their needs. First, members can choose the desired amount of CPF LIFE payout they wish to receive in retirement to meet their retirement needs. The premium they need to pay will correspond to the desired payout. By default, all the savings in the member's CPF Retirement Account will be used to buy the CPF LIFE annuity. Members desiring higher payouts can make top-ups to their Retirement Account of up to the Enhanced Retirement Sum (SGD 249,000 [$176,500] in 2017) to pay for a higher CPF LIFE premium. Members owning property and requiring lower payouts may choose to commit a lower premium of at least the Basic Retirement Sum (SGD 83,000 [$58,800] in 2017); this will generate a sufficient payout for meeting basic retirement needs. In addition, members can opt to commit only 80% of their retirement savings to CPF LIFE to meet shorter-term cash flow needs, and keep the remaining 20% in their CPF account, to be withdrawn as a lump sum at any time after age 65.

Second, members have some flexibility over the age at which they want to commence payouts. They can start at any time from their payout eligibility age (age 65 from 2018) to age 70. Starting later allows members to enjoy permanently higher payouts of up to 7% higher for every year deferred. This is actuarially fair and an incentive for members to defer payouts until they need them, especially for those still employed. As 40% of Singaporean residents aged 65-70 continue to receive work income[8], the option to defer payouts is also useful for members who may not need their payouts at the payout eligibility age.

Third, members can strike a balance between their own needs and those of their loved ones. Married members can opt to transfer some of their CPF savings above a specified threshold of the Basic Retirement Sum[9] to their lower-balance/non-working spouse, so that each spouse can have his/her own CPF LIFE plan. Members can also choose between two CPF LIFE plans (Figure D-3): the Standard Plan offers the member higher monthly payouts per premium dollar, while the Basic Plan has lower payouts but allows a member to leave a larger bequest to his loved ones.

Figure D-3: The Two CPF LIFE Plans



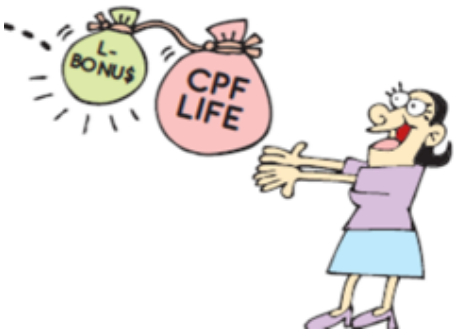
Key insights on implementation

CPF LIFE was implemented in phases, drawing upon behavioral insights to improve scheme design and public engagement efforts.

Phasing in CPF LIFE

In 2007, the government publicized its intention to launch CPF LIFE a few years before implementation. Enacted in phases, it started in 2009 on an opt-in basis for older members before becoming mandatory for younger members in 2013. This gave members, including younger ones automatically enrolled in CPF LIFE, more time to understand and accept the scheme. It also gave the government time to address public concerns and gaps in information by consulting with the public and educating them. To further encourage enrolment in CPF LIFE during and after the opt-in phase, eligible members also received a financial incentive of up to SGD 4,000 ($2,800) known as the LIFE-Bonus or L-Bonus (Figure D-4). This incentive enabled those with lower CPF balances to receive higher monthly payouts.

Figure D-4: LIFE-Bonus (L-Bonus) to Encourage Enrolment in CPF LIFE



Leveraging behavioural insights[10]

Policy-makers also leveraged behavioural concepts to implement CPF LIFE, such as **aversion to loss, salient and simple choices and the use of defaults**. These concepts were adopted after extensive public consultations prior to and during the opt-in phase.

Aversion to loss

People are generally averse to loss – in other words, "losses loom larger than gains". Public consultations revealed that many CPF members were concerned about losing their premiums to the annuity pool in the event of an early demise, and so placed greater weight on retaining their capital or premium over the possibility of outliving their savings. As such, CPF LIFE was designed to have a refundable feature, where each member will receive at least their premium either in the form of payouts and/or bequest.

Salient and simple choices

Another behavioural insight is that focusing on key information important to the individual can influence perception and simplify decision-making. This was applied to the choices of annuity plans available under CPF LIFE. A menu of 12 different annuity plans was initially proposed to provide greater flexibility and choice[11]. While the plans provided choices, it was deemed too difficult for members to decide on an appropriate plan. Hence, CPF LIFE offered only four annuity plans at its launch in 2009 (Figure D-5).

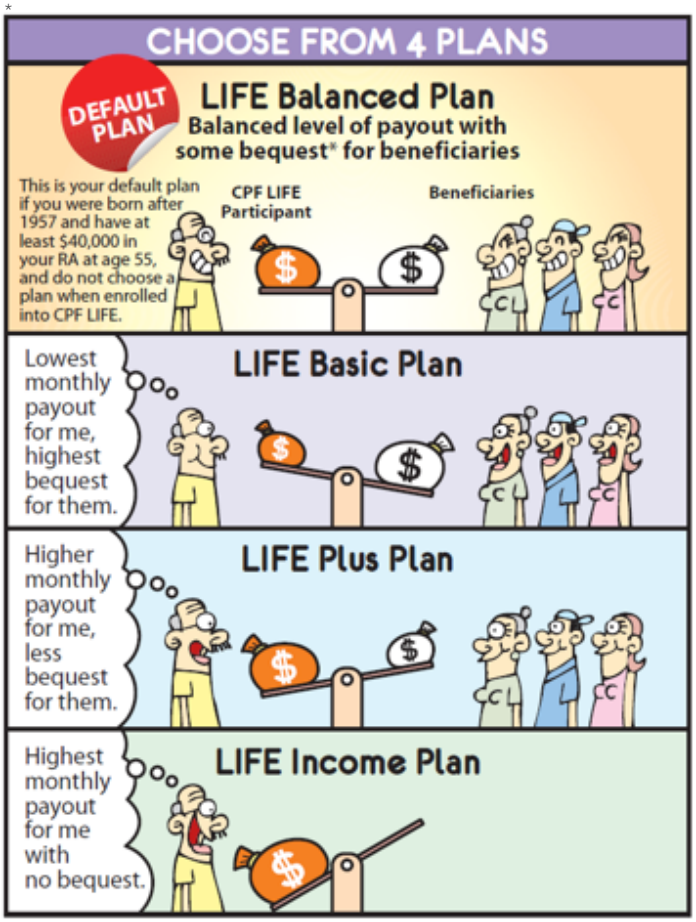
Nevertheless, public feedback during the opt-in phase indicated that members found it hard to understand and choose from the four plans, as payouts were only marginally different between them. Thus, CPF LIFE was further streamlined into the Standard[12] and Basic Plans in 2013. These two offered a single trade-off between payout levels and bequest amounts, emphasizing the two most salient decision points for members. This greatly simplified decision-making and enabled members to make better, more informed choices.

Use of defaults

Lastly, setting a default choice is known to be an effective tool in nudging people's behavior, particularly with inertia or uncertainty in complex decision-making. During the opt-in phase, the Balanced Plan was set as the default, as it provided members with a balance between monthly payouts and a bequest for their beneficiaries.

In 2013, the new Standard Plan which offered higher payouts but lower bequests, became the default plan. The government's experience from the opt-in phase informed this decision, showing that CPF members generally preferred higher payouts. As such, having the Standard Plan as the default would better fit most members' retirement needs and, at the same time, nudge members towards a choice of plan that would better ensure their retirement adequacy.

Figure D-5: The Four CPF LIFE Plans, 2009



* Bequest is the money that the beneficiaries of the CPF LIFE participant will receive upon the participant's death.

Public messages and communications

Efforts were made to ensure that CPF LIFE was framed, or presented to the public, in a simple and easily understood way that resonated with the average member. Technical terms were replaced by easier concepts accessible to the man on the street. For example, the more technical term of "longevity insurance" was dropped following public feedback that "insurance" had a negative connotation associated with unfortunate events. Instead, the term 'lifelong income' was adopted and the scheme was named CPF Lifelong Income For the Elderly (CPF LIFE, for short). In addition, CPF LIFE plan presentations showed the trade-offs between payouts and bequests, rather than the amounts to annuitize under each plan and when the annuity payouts would start. Members could thereby make more meaningful choices based on what was more relevant to them.

Mass public engagement sought to raise awareness of CPF LIFE and help members better understand the scheme. This included outreach, education programmes, media advertisements, news reports, roadshows and talks. Cartoons in public spaces (Figures D-2 to D-5) made CPF LIFE more relatable to members by illustrating the concept of lifelong payouts and the differences between the plans.

What is next?

A national annuity scheme has largely mitigated the longevity risks posed by Singapore's ageing society. As policy-makers gain more experience running such a scheme, CPF LIFE will be further refined to cater to Singaporeans' retirement needs and concerns. For example, CPF LIFE will introduce the Escalating Plan to enhance how it addresses concerns over the rising cost of living. The Plan offers payouts that increase at a fixed annual rate of 2% in return for a lower initial payout (the current CPF LIFE plans provide level payouts).

Beyond the CPF system, the government introduced the Silver Support Scheme in 2016 to supplement the retirement incomes of the bottom 20-30% of elderly Singaporeans who had low incomes over their lifetime and little or no family support in retirement. This initiative provides eligible elderly citizens with an automatic quarterly cash supplement of up to SGD 750 ($530), and complements other social assistance schemes for the elderly.

The government has signalled its commitment to continue refining the CPF system, and enhancing the social safety nets for elderly Singaporeans. Our blended approach of active government support together with individual and family responsibility will continue to underpin Singapore's social security system as it evolves to meet the changing needs and expectations of Singaporeans.

Endnotes

[1] According to the Department of Statistics of Singapore, residents aged 20-64 per resident aged 65 years and older.
[2] The Singapore dollar to US dollar conversion is based on an exchange rate of SGD 1 to $0.70882 (13 March 2017). The conversion rate applies to all US dollar figures in the handbook.
[3] Members opting to join CPF LIFE may do so before they turn 80 years old. Members not joining CPF LIFE will draw monthly payouts from their CPF savings in retirement; these payouts are expected to last about 20 years, before their savings are exhausted.
[4] Residing in an owned, three-room public housing flat.
[5] Calculated based on the ratio of annual payout to premium paid, for a male member born in 1962 (i.e. age 55 in 2017) who receives payouts at age 65.
[6] CPF LIFE's annuity rate of 7.1% compares favourably with similar annuities offered in other countries (e.g. United Kingdom) that have annuity rates of about 5%.
[7] 90% of resident households in Singapore own the homes they occupy. If imputed rent on owner-occupied homes is taken into account, the income replacement rate of the median CPF member would be well above 70% in nominal terms, or about 70% in real terms. If households so choose, they could monetize the value of their homes, for example by moving to smaller homes, subletting rooms or participating in the government's housing monetization schemes.
[8] Source: Ministry of Manpower's Labour Force Survey, 2014
[9] Since 2016, CPF members may transfer their CPF savings above the Basic Retirement Sum (SGD 83,000 [$58,800] in 2017) to the spouse's account.
[10] This behavioural insights section takes reference from the chapter entitled "A Behavioural View on Designing Singapore's National Annuity Scheme", in Behavioural Economics and Policy Design: Examples from Singapore (edited by Donald Low and published by the World Scientific Publishing Co., 2012).
[11] The National Longevity Insurance Committee, formed to recommend the design of a national annuity scheme, proposed the 12 plans after consulting with the public and industry experts.
[12] The Standard Plan is a combination of the features of the two most popular plans, the Plus and Balanced Plans. The Income Plan, which was the least popular, was removed.

E. Singapore: Helping older workers remain in the workforce

Summary: Singapore promotes workplace longevity for older workers by protecting and enhancing employment opportunities, and improving the quality of employment.

Challenge:

Increasing life expectancies and lower birth rates	X
Low levels of financial literacy	
Lack of easy access to pensions	
Inadequate savings rates	
Low-growth investment environment	
High degree of individual responsibility to manage savings	

Author: Lim Tze Jiat, Director, Workplace Policy and Strategy Division, Ministry of Manpower, Singapore

Singapore has one of the world's fastest-ageing populations (as outlined in the case study "Singapore: National Annuity Provider"). Many Singaporeans are choosing to work longer, improve their financial security, remain physically and socially active, and continue making contributions to their organizations. The country's economy is also benefiting from the experience and skills of older workers.

Two strategies are helping older workers remain in the workforce: 1) protect and enhance employment opportunities, and 2) improve the quality of employment.

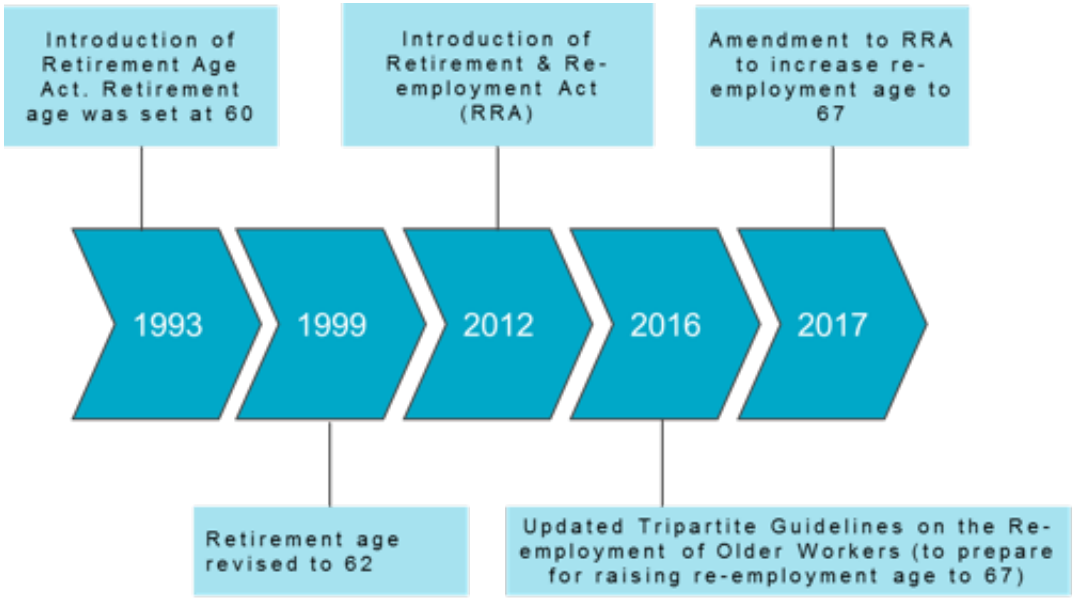
1. Protect and enhance employment opportunities

Singapore uses two approaches for this: government legislation and employment support.

Government legislation

The country has had a legislated minimum retirement age of 62 since 1999 (Figure E-1). However, the Retirement & Re-employment Act of 2012 introduced the concept of re-employing older workers beyond this minimum retirement age. The Act requires employers to offer re-employment opportunities to eligible employees aged 62 to 65 (the upper age will increase to 67 as of July 2017). Those eligible include Singaporean citizens or permanent residents assessed by their employers as having satisfactory performance and being medically fit.

Figure E-1: Timeline of Retirement and Re-Employment Legislation in Singapore



Source: National Trades Union Congress (2016), "Understanding Re-employment" guidebook, Singapore

The strong, tripartite consensus was that introducing re-employment was the more effective policy versus increasing the minimum retirement age. The latter approach was seen as entrenching seniority-based remuneration and, in the long term, could affect older workers' employability. In short, Singapore decided to move from a retirement age model, where expectations were for the "same job" on the "same terms", to a re-employment age model where it was possible to offer a "different job" on "different terms".

Indeed, the concept of re-employment gives both employers and older workers the flexibility to adjust employment terms. It allows employers to continue to leverage the experience and skills of older workers without putting undue pressure on staffing costs or restricting the opportunities available to younger workers. Further, older workers able and willing to work longer can opt for less physically demanding jobs. Singapore's re-employment model thus provides older workers with the opportunity to work longer so they can continue to earn a regular income and keeps companies competitive by providing flexibility in terms of re-employing older workers.

Employers unable to offer re-employment are required to provide a one-off Employment Assistance Payment to tide employees over their period of retraining or searching for a job.

Employment support

Singapore also provides Special Employment Credit (SEC) support to encourage employers to voluntarily re-employ older workers. Under the SEC, employers are given wage offsets of up to 8% to hire older workers aged 55 and older earning up to SGD 4,000 monthly. The government tiers wage offsets by age to provide stronger support for employers hiring Singaporeans in the older age bands where employment rates are lower. To further encourage employers to voluntarily re-employ these workers, an additional wage offset of 3% for hiring older workers beyond the re-employment age was introduced in 2015. About 340,000 older workers are covered by the wage offsets each year.

2. Improve the quality of employment

Singapore's approach to improving the quality of employment for older workers focuses on incentives, building capability, and public education.

Employer incentives

The government provides incentives for employers to redesign jobs and adopt age-friendly workplace practices. Under the WorkPro initiative, each employer is eligible for up to SGD 320,000 in grants to implement age management practices and redesign jobs to benefit older workers.

Employer capability building

The government helps to build capabilities in age management among employers and human resource (HR) practitioners. Through the Age Management @ Workplace initiative, employers, HR practitioners and managers can become better informed about good age-management practices. Topics include fair and holistic performance management practices; understanding products, systems and software available in elderly-friendly workplaces; and redesigning tasks to suit older workers. In addition, the Job Redesign Toolkit helps employers, especially smaller ones without the necessary expertise, to adopt a systematic approach towards job redesign (Figure E-2). The aim is to find cost-effective solutions that address the key needs of older workers.

Figure E-2: Job Redesign Toolkit Launched in August 2016

Source: WorkPro, Job Redesign Toolkit, available at https://www.ulive.sg/index.php?option=com_content&view=article&id=903

Public education

The tripartite partners, through the Tripartite Alliance for Fair & Progressive Employment Practices (TAFEP), undertake public education initiatives to positively shape the perceptions of employers, employees and the public, and to enhance workplace practices to improve the employability and productivity of older workers (Figure E-3).

Another initiative is the Fair@Work Promise, which employers are encouraged to sign up to and thereby publicly signal their commitment to be fair and inclusive.

Figure E-3: Advertisements from the Public Campaigns

Source: Tripartite Committee on the Employability of Older Workers

Results

The efforts of the government and tripartite partners have significantly impacted the participation of older workers in the workplace. Even as unemployment remained low, Singapore's employment rate for residents aged 55-64 increased from 53.7% in 2006 to 67.3% in 2015 (the OECD 2015 average was 58.1%), while the employment rate for residents aged 65 and older increased from 13.8% to 25.5% in the same period (the OECD 2015 average was 13.8%). The gradual introduction of re-employment has helped employers and workers adjust to the new approach. Employers have taken to re-employment well; in fact, in 2015, over 98% of older employees wishing to continue working at the age of 62 were offered re-employment.

Human capital remains Singapore's most precious resource. Its government will continue to work closely with the tripartite partners to overcome the demographic challenges, while bearing in mind employers' concerns on cost and competitiveness. Workplace longevity strategies will continue to evolve to protect and enhance employment opportunities; they will seek to make the workplace more age friendly for older workers, and to help Singaporeans work for as long as they are willing and able to do so.

Endnotes

[1] The tripartite partners refer to the government, the unions and workers, and employers. Singapore adopts a tripartite model in which the partners collaborate closely. Tripartism is a key economic advantage for the country, and has helped boost its economic competitiveness, promoted harmonious labour-management relations and contributed to Singapore's overall progress.

[2] A one-off payment equivalent to three months' salary (subject to a minimum of SGD 4,500 and a maximum of SGD 10,000).

[3] Employers receive SEC at the following rates: (i) up to 3% for employees aged 55-59; (ii) up to 5% for employees aged 60-64; and (iii) up to 8% for employees aged 65 and older.

[4] See https://www.ulive.sg/index.php?option=com_content&view=article&id=903 for more details on the job design grant under WorkPro and the Job Redesign Toolkit.

[5] See the TAFEP website, http://www.tafep.sg.

F. The Netherlands: Pension system and the current debate

Summary: The Netherlands' pension system is well established, but current challenges have started a debate on the future.

Challenges:

Increasing life expectancies and lower birth rates	X
Low levels of financial literacy	
Lack of easy access to pensions	
Inadequate savings rates	X
Low-growth investment environment	X
High degree of individual responsibility to manage savings	X

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The Dutch pension system has three pillars which together comprise the pension residents receive once they retire:

– First pillar – the state or AOW pension. A flat-rate public scheme, it insures all residents.
– Second pillar – collective occupational pension funds. Although employers have no statutory obligation to offer a pension scheme to their employees, industrial-relations agreements mean that over 90% of employees are covered.
– Third pillar – the pension system. This consists of individual pension products or supplements, mostly used by the self-employed and employees in industries with no collective pension funds.

First pillar: AOW

The basic old-age pension in the Netherlands is payable from age 65½ and will gradually increase to age 67 in 2021. Thereafter, the age will be adjusted to life expectancy. For a single person, the gross pension benefit in 2016 was €1,081 per month, and €745 per person per month for those married or living with a partner. The basic benefit accrues at 2% of the full value for each person residing or working in the country (in 50 years, between the ages of 15 and 65). The system is financed on a pay-as-you-go basis. The tax authorities raise contributions through income taxes equal to nearly 18% of income or up to €34,000 (median level). Employers and pensioners do not pay AOW contributions.

The level of the public old-age pension is linked to the minimum wage and the subsistence level, and as such serves to protect against poverty in old age. As a consequence, the poverty rate among the elderly in the Netherlands is currently the lowest of the OECD countries.

Second pillar: Occupational pensions

The second pillar's primary goal is to allow Dutch pensioners to maintain the standard of living of their working careers. The pillar currently consists of 350 occupational pension schemes; 68 are organized industry-wide, and others are single employer funds. Second-pillar pension funds are capital funded, are required to remain legally and financially independent, and must operate as non-profit organizations. In this way, pension entitlements are protected if and when the respective employer has financial problems. Vesting periods are very short, and pension rights are fully transferable when people change jobs.

Retirement age is flexible (between 60 and 70), with actuarial fair compensation in benefits for early or late retirement. Firms in most industry sectors usually must participate in second-pillar pension funds to provide solidarity, stability and a good pension scheme for all employees. In practice, the system results in a quasi-mandatory participation for employees; in other words, it comes with the job.

More than 90% of employees in occupational pensions are covered by a defined benefit (DB) scheme; this is called "defined benefit" even though, strictly speaking, the benefit level that social partners aim for is not always met. A defined contribution scheme covers the remaining employees. For almost all participants, the earnings measure is based on lifetime average earnings. Most schemes give 1.75% of those earnings for each year of service, implying a target 70-75% gross replacement rate after a 40-year career. The target replacement rate includes the first pillar benefit.

Second-pillar contribution rates usually range from 15% to 25% of the qualifying income above the AOW offset. Employers typically pay two-thirds of the pension contribution, with employees paying the rest. Participants in the same scheme pay at the same contribution rate. All contributions are tax exempt if and only if the annual accrual rate does not exceed 1.875% (contributions are to be cost-based), implying tax-advantaged savings up to a 75% replacement rate after 40 years of employment.

While pension funds are private organizations, managed by employers and employee organizations, their financial requirements are determined by a legal financial assessment framework. Prudent investments come with rules, and a pension fund must have minimum assets at its disposal so the scheme can meet its liabilities, now and in the far future. The average pension fund must keep such a financial buffer to maintain a coverage ratio (the ratio between its assets and its pension liabilities) of about 130%. This level is based on the norm allowing for the chance of underfunding every 40 years (a risk benchmark of 97.5%). When the coverage ratio is less than 105%, pension funds have to decrease the pension accrual and benefits. In 2016, the total accrued capital was €1,280 billion.

Third pillar: Private individual

Because of the size of the first and second pillar, third-pillar pension savings arrangements are not very extensive, except for some of the self-employed and those wishing to supplement their first-and second-pillar pension benefits. Fiscal treatment is possible if and only if participants prove that their current first- and second-pillar savings will result in a replacement rate below 75%. Private arrangements make up for about 5% of total pension entitlements.

Pension system challenges

The Dutch pension system is currently encountering a number of challenges. However, while some of the issues are hotly debated, they should also be seen in the context of the system's relative strength. The combination of both pay-as-you-go and capital funding makes the Dutch system resilient to demographic shocks and inflation. Moreover, the system benefits from generally strong popular support in the country.

The challenges faced may be helpful for those countries currently setting up collective pension schemes. Capital-funded pensions are by definition very long-term projects ("pensions are forever"), and certain choices made early during a system's design may limit future policy options. Developing economies face different problems than more settled ones, and economic crises come and go. But somehow, a pension system should be able to deal with all these different phases – the ups as well as the downs.

1. Ageing population
This challenge is common across all Western countries. While the proportion of people aged 65 and older in the Netherlands (18%) is lower than the averages for the EU (19%), Germany (21%) and Italy (22%), it is higher than that for Australia (14%), the United States (13%) and India (5%). The Dutch percentage is expected to increase to 26% by 2035. The ratio of working population to pensioners should remain stable, with the abolishment of early retirement schemes (in 2009) and the revision of the retirement age in 2013 and 2015, resulting in a link to life expectancy after 2021. Finally, the effective retirement age rose from 61 in 2006 to 64½ in 2016, and the National Bureau of Statistics forecasts a pension age of 71 by 2050.

Raising the retirement age also generates questions about employability. The major challenges of this longer working life will be how to keep elderly workers employed (their position in the labour market is currently very limited), and how to ensure elderly workers remain fit for work. At the same time, society is heavily discussing whether a further increase in retirement age is socially acceptable, especially for those who began working early in life or who hold demanding jobs.

2. Low interest rate environment
The most debated problem is low interest rates in the financial markets. Due to the currently low rates (used to discount all current and future liabilities), even the €1,280 billion of total accrued capital is not enough to cover all liabilities, leading to coverage rates below the prescribed 105% for many funds. Most pensions have been indexed annually to either wage growth in their relevant industries or to prices. The current financial situation means many funds have insufficient reserves, are cutting compensation for inflation or are even lowering nominal benefit levels.

Funds may not be in serious trouble, but people's expectations have been dashed. Older workers and retirees who paid contributions are disappointed and now see reductions in benefits. And, younger workers are concerned that benefits are already being reduced, and that funds will be empty once they reach retirement.

With so much capital in reserve, it is hard to explain that pension benefits cannot be compensated for inflation. The general replacement rate in the Netherlands, however, remains high at 80%. With no changes to interest rates foreseen, strong pressure exists to change funding regulations to recoup losses incurred by pensioners in recent years.

3. Intergenerational equivalence
The low-return environment has dashed expectations among pension scheme members of guaranteed benefits that safeguard their purchasing power. Moreover, pensioners feel they lack adequate protection against the risk of their benefits being reduced. At the same time, younger pension scheme members may not receive as favourable a pension as they had hoped, given current prudent investment policies.

Uniform accrual and contribution rates (in percentage of wages) also creates intergenerational challenges. From an actuarial point of view, this is unequal because contributions of younger participants can earn returns over a longer time horizon than those of older workers; thus, younger workers' accrual rates, it can be argued, should be higher than those of older workers. This methodology is particularly problematic for those leaving pension schemes in mid-career.

4. Balancing collectivization and individual choice
The system's strong collectivity can create challenges; it is hard to account for participants' individual circumstances and preferences, the ever widening career options workers face during their working years, and the more prevalent flexible labour relations. Different types of contracts could better reflect risk allocation – from employer to collective group of participants to individuals. The defined-benefit nature of pension contracts is compromised at times, but defining only contribution does not reflect the character of pension arrangements either. New types of contracts are needed to describe in a more transparent and explicit way which risks are borne by whom and to what degree.

In general, the system's lack of individual choice and freedom is seen as a problem. People are accustomed to having choices in life, but in pension arrangements few (and some believe, too few) options are available. The current system has difficulty allowing for varying pension contributions related to participants' life cycles and life events (e.g. caring for children or parents, purchasing a house).

5. Self-employed individuals
The number of self-employed in the Netherlands has increased by over 25% over the last decade. This category of workers is currently not insured in the second pillar (and often not well insured in the third), even though their position in the labour market resembles that of classic employees. Nudging or forcing the self-employed to make second-pillar savings may be needed to prevent future problems.

The current public debate

These challenges led the Dutch government to organize a broad public debate on the pension system's future. As a result, the government has recently announced that it will suggest ways to revise the system. Initial views are that the current system's collective approach and solidarity should remain, but that participants should get a much clearer and individualized picture of their future pension benefits. Further, more individual choices will be added regarding levels of pension build-up and the risk profiles chosen for investments. However, revising the system will not be easy; its sheer size, the long-term liabilities and the different stakeholder interests prevent quick fixes. Long transition periods will therefore be inevitable.

Endnotes

[1] AOW, or Algemene Ouderdomswet, is the Dutch General Old Age Pensions Act.
[2] An employee may retire before the first pillar's legal retirement age. The pension fund pays a higher benefit up to that age, and compensates for it with a lower supplementary benefit thereafter.
[3] Eurostat, "Population age structure by major age groups, 2005 and 2015 (% of the total population)", http://ec.europa.eu/eurostat/statistics-explained/index.php/File:Population_age_structure_by_major_age_groups,_2005_and_2015_(%25_of_the_total_population)_YB16.png

G. United Kingdom: Roll-out of automatic enrolment

Summary: Automatic enrolment of all workers into workplace saving schemes has increased the number of savers by 7 million so far.

Challenges:

Increasing life expectancies and lower birth rates	X
Low levels of financial literacy	X
Lack of easy access to pensions	X
Inadequate savings rates	X
Low-growth investment environment	
High degree of individual responsibility to manage savings	

Authors: Darren Ryder, Head, Strategy, Design and Delivery, The Pensions Regulator; Mel Charles, Head, Compliance, The Pensions Regulator

The UK government's policy response to the demographic challenge of an ageing population, common in many countries, is automatic enrolment (AE). The United Kingdom has seen a marked increase in healthy life expectancy and a significant decrease in the number of people saving for their later life. In addition, forecasts suggest a reduction in the ratio of people working to those in retirement.

It became apparent around the turn of the century that measures taken to encourage saving for one's pension, particularly among those with moderate to low earnings, had been largely ineffective, and had actually made the UK's pension system too complex.

Approach

The government set up the Pensions Commission in 2002 to examine why people were undersaving for their retirement, and what government could do to address this. The Commission, made up of representatives from employers, industry, the trade union movement and academia, published reports in 2004 and 2005, as well as a final statement in 2006. It concluded that the voluntary private pension system, combined with the state pension system, was not suitable for the future. It recommended that employees be automatically enrolled in occupational pension schemes and that the state have a role in developing a scheme to address supply-side issues in the pensions market.

The Commission also made recommendations about the state pension, stating that individuals could only make informed choices about their private pension savings if they understood the state's offers. A series of Pensions Acts articulated the government's plans for workplace pensions and defined three key elements:

– AE: the legal obligation for all UK employers to automatically enrol their employees in a qualifying pension scheme
– The National Employee Savings Trust (NEST): a new pension scheme, initially funded through a government loan, with a public-service obligation to accept any employer looking to use it to meet its duties
– Compliance and enforcement: a risk-based approach run by The Pensions Regulator (TPR), the UK regulator of work-based pension schemes, that ensures employers comply with their new legal duties

AE borrows heavily from behavioural economics, harnessing people's inertia to achieve high participation rates – namely, employees will end up participating if they make no decision to opt out. The whole journey is designed so that if individuals do nothing, they default into saving for their retirement throughout their working lives.

The essence of AE is:

– Employers have the legal duty to employ eligible workers into a qualifying workplace pension
– Both the employer and the individual must make contributions into the individual's pension (the individual also benefits from some government tax relief)
– The individual may cease saving at any point

The requirement for AE is for all employers, regardless of size, to provide access to a pension for all their eligible workers (i.e. those earning more than £10,000 a year who are over 22 years of age and under the state pension age). The government reviews earnings thresholds annually, and employers need to automatically enrol their workers into a pension scheme. Assuming the individual does not opt out, the employer and the individual increase contributions over time; currently, they are 2% of qualified earnings, but will rise to 5% in 2018 and 8% in 2019 (Figure G-2). Of the 8% contribution, 3% will come from the employer and 5% from the employee (the latter including 1% of tax relief). If employers do not run a pension scheme and want to establish one, they can use NEST, which has a public-service obligation and must take all employers. However, employers are not required to use this scheme, and have others available to them.

If they choose to, workers can opt out within a short window after enrolling, and their contributions will be refunded. After that window, they can cease membership, but their contributions will not be returned and will remain in their pension "pot". Employers may not induce their workers to opt out.

All employers must inform TPR within five months of their start date of duties that they have complied with the legislation.

Every three years, employers must re-enrol all their workers who opted out or who ceased membership in the intervening period. The AE regime introduced these requirements as legal duties of employers, who can be fined and subjected to criminal sanctions if they do not fulfil their duties.

Objectives

The reforms aim to get more people saving more for their retirement. The changes seek to minimize the burden on employers and industry while maintaining the key aim of ensuring individuals are able to save for their retirement.

AE was originally intended to deliver:
- 9-10 million more savers
- About £1.2 billion in additional individual contributions, making for total yearly contributions of £5.5 billion
- About £940 million in additional employer contributions, making for total yearly contributions of £4.2 billion
- Successful AE implementation, ensuring awareness and understanding among employers and their advisers

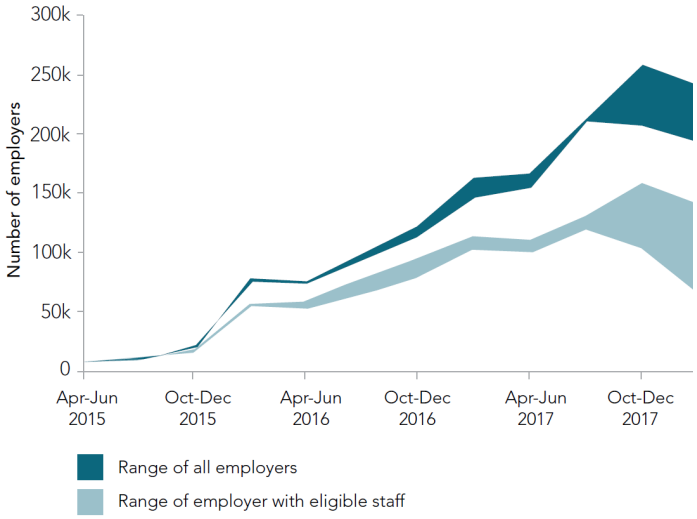
Challenges

1. Market demand
AE presented a number of capacity-related challenges, including the need for advice, payroll services and, most crucially, pension schemes. The need to introduce and explain a new legislative framework to pension professionals, as well as to adviser and intermediary communities, aggravated the situation. In addition, the programme was introduced during a period of reductions in employer pension provisions. Although significant elements of the pension market worked very well, suitable pension products were lacking for people with low to moderate incomes or who worked for small firms. In terms of support for employers, TPR recognized the importance of the supply market early on. It set up a specialist team that travelled around the United Kingdom to educate employers and their suppliers about the legislative regime, and to advise on and support product development. Further, it conducted training of technical staff and front-line support staff.

The key to success was getting the large players from the pensions and payroll industries to comply. Nevertheless, and although they are relatively concentrated, the industries boast a long list of small suppliers. Getting to this list has proven difficult. Similarly, many employers already have advisers either providing advice or conducting processes for them. Moreover, the payroll is often outsourced to an accountant, bookkeeper or bureau. Thus, when employers turned to their advisers for help with AE, those advisers needed to be ready and knowledgeable to support them.

2. Scale of the challenge
The project's sheer scale prevented it from implementing all the reforms simultaneously. In total, about 1.3-1.4 million UK employers have new legal duties resulting from AE, with the change directly affecting approximately 11 million workers who need a pension scheme or need to save more in one. The schemes may not have been able to deal with the administration, and TPR would have been unable to build sufficient capacity to deal with its role. Therefore, a staggered approach was adopted to roll out the reforms by size of employer, beginning with the largest, and according to when they needed to comply with AE duties (their "staging" dates) (Figure G-1).

Figure G-1: Quarterly Forecast of Small and Micro Employers due to Comply with Automatic Enrolment, April 2015-December 2017



Source: The Pensions Regulator, “Employer staging forecast”, August 2016

Starting with large employers was meant to set the tone for success; they were the most likely to comply because not doing so could negatively impact their reputations. In fact, most already offered a pension scheme. However, as larger employers are more complex, many of them would find it harder to implement the reforms, in spite of their typically having the resources to make them work.

Finally, bigger employers engage a disproportionately large number of the UK’s workers, meaning that millions would benefit early from AE. Some of the existing schemes were not available to all staff from the first day of employment. For instance, in the early months of the AE roll-out, just four employers accounted for over 100,000 workers who were put into pension schemes. A test-and-learn approach was adopted during implementation; this allowed communications and processes to be refined among employers of different sizes and according to their levels of awareness and expertise.

The other major decision during the roll-out was to phase in levels of contribution (Figure G-2). This meant increasing contributions gradually so as to minimally affect workers' take-home pay and to cushion employers' cost of paying for pensions.

Figure G-2: Phasing In Contribution Rates

	Minimum employer contribution (%)	Minimum employee contribution (%), including tax relief	Total contribution (%)
October 2012 to March 2018	1	1	**2**
April 2018 to March 2019	2	3	**5**
April 2019 onwards	**3**	**5**	**8**

Notes: All contribution rates are a percentage of qualifying earnings; 20% of employee contributions are subject to tax relief
Source: Data from The Pensions Regulator

3. Difficulty predicting employer response
The AE programme's greatest risk was the uncertainty of employers' behaviour. Large employers (those with more than 250 employees) were expected to abide overall by the new law; while perhaps requiring help, they would typically not wish to breach the law, face fines or risk reputational damage. The smallest employers were not understood as well and were harder to reach. They included non-traditional employers and those who employ domestic help in the home, or a personal care assistant, and were estimated to number 150,000-200,000, with about 100,000 employing a helper. They were expected to be less likely to respond to messages aimed at businesses.

The challenge for TPR was to communicate the message to all employers irrespective of their size, and to tailor that message so employers with 100,000 employees, as well as those with only one helper, knew what to do. The staging profile was an important lever for this segmented communication message, allowing TPR to focus first on messages for the largest employers and then on adapting them for the smallest. The regulator's strategy is to educate, enable and enforce, and its policy is to enforce compliance only when employers have not responded to its educative and enabling messages.

TPR conducted detailed qualitative and quantitative research to ensure its message suited its purpose. It examined both its offline and online content, and even the style and formatting of the envelopes used in the postal campaign. The key message for all employers was: "It's the law". TPR could have focused on the benefits of pensions or on developing a rewards package to recruit and retain staff; it decided, however, that a simple reminder of the law would resonate best. In fact, the regulator's manila envelopes ensure that all employers recognize their content as official communication and not as junk mail.
TPR has also designed a direct mail campaign that sends all employers five letters: the first is sent 12 months prior to the employer's staging date (the date when an employer's duties commence), and the fifth is sent four months after staging and one month before the deadline for declaring compliance. Each letter has a clear call to action for the employer.

4. Raising TPR's profile
Ensuring all employers were aware of TPR was another challenge. While HM Revenue and Customs (HMRC), the UK tax, payments and customs authority, was well known to employers, TPR was not. In addition, many large companies, particularly with DB schemes, had heard of the regulator, but most small companies had not. TPR's letters increased awareness, as did its campaigns through advisers and employer bodies. It also conducted advertising with the Department for Work and Pensions to promote workplace pensions and TPR, and ran radio campaigns with its brand as the strapline. These campaigns had real impact, raising people's awareness and understanding of the introduction of workplace pensions.

5. The legislative framework's complexities and its application across employers
To assess its workforce, an employer faces a complicated set of requirements, including the timing of duties, the range of processes to be completed and the suppliers and products involved. TPR receives a data feed from HMRC based on the latter's Pay as You Earn (PAYE) records, identifying each employer for TPR and allowing it to set a staging date. The regulator then informs the employer in writing of the staging date; the employer can also seek information on the TPR website using a simple tool. For the

largest employers with the most complex implementation, the regulator published 250 pages of comprehensive and detailed guidance, and made the legislation easy to understand. It also published complementary guidance for software providers.

Over time, TPR adjusted its guidance to focus on medium-sized employers. But in 2015, the regulator decided to take a different approach, having recognized it could not simply adapt its existing guidance and communications to increasingly smaller employers. It thus focused on employers with one or two employees, and designed a campaign and set of tools suited to these employers and likely work as well for employers with 5-30 employees. These employers informed TPR that they "just want to be told what to do". The regulator therefore devised a "duties checker" that allowed employers to determine which duties applied to them. This filtered employers who faced full duties from those who had no or limited duties. For example, employers with no workers had no duties, and employers with no workers earning more than the £10,000 per year threshold had no obligation to set up a pension scheme unless someone opted in. Finally, it also distinguished employers with domestic or care workers who received customized information.

TPR introduced a simple five-step process that helps employers become compliant. Eliminating options unlikely to be useful for small and micro employers simplifies the process substantially. Employers can choose a more complex process, as many have done with the support of advisers, but those who choose to apply the process themselves, with instructions on what to do, can easily follow the five steps.

6. Data issues
A final challenge involved getting accurate data about employers. HMRC proved extremely helpful in this regard, as it allowed TPR to communicate directly with employers by giving it access to their tax records. As these records were not established for the purpose of AE, they needed to be adapted to suit pension legislation. As this significant task continues, it is hard to overstate the importance of good quality data.

7. Other government reforms
Another challenge to enacting AE was HMRC's announcement that it would implement Real Time Information (RTI) in the same timescale (2011-2012 and 2012-2013). As a result, employers needed to assess, deduct and pay employee income tax in real time (at every pay cycle) rather than at the end of the tax year. While this transformational programme was necessary, it also meant that payroll companies had to adjust their software to enable RTI at a time when large employers were implementing AE and, in many cases, had to enact both at the same time. Indeed, the programmes had to run in parallel: RTI could not wait for AE to finish its roll-out and, similarly, AE could not be delayed. HMRC and TPR cooperated well; the former adjusted its introduction schedule to ease the pressure on large employers, and TPR worked with HMRC to ensure a consistent message. Some payroll providers had to prioritize RTI over AE, and introduced AE with a delay of over 12 months. This impacted some employers who implemented AE between October 2012 and April 2014.

The government's new National Living Wage became law on 1 April 2016. As of 1 April 2017, the National Living Wage will increase from £7.20 per hour to £7.50. This increased cost for employers, along with the costs of AE, precedes the phased increase of pension contributions under AE by 12 months.

Lessons learned

The challenges of balancing legislation that introduces new duties with existing requirements and processes should not be underestimated. While much is being done to strengthen industry regulation, the following recommendations, if not already in place, would provide particular support to new initiatives:
- Charge capping (limiting the fees charged on default funds)
- Licensing/registering master trusts
- Reporting requirements
- Considering universal interfaces for payroll and pension industries

Data capture, quality and sources should be the focus early on. Acquiring, managing and maintaining data for running the services are considerable tasks that can drive results and efficiency. Doing more, earlier, will help employers with pension scheme choices. As a regulator, TPR is limited in any role it may play in supporting the choice of scheme. Nevertheless, employers of all sizes who lack independent financial advice need to be made aware of schemes with minimum standards of governance and administration.

In addition, legislative complexities must be reduced. Legislation could better reflect existing requirements and processes that organizations are familiar with. The overarching aim is to provide simpler solutions to problems related to the demands put on organizations and individuals.

Key insights

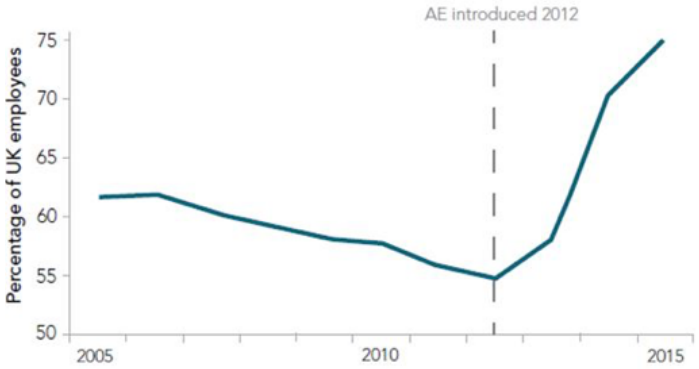
TPR and the wider programme have adopted a test-and-learn approach to implementing the reforms and driving for continuous improvement. Nevertheless, a range of important lessons may have broader application:
- Share a vision and goals
- Set clear accountabilities for delivery partners
- Establish strong programme management
- Test, adapt and change
- Engage the industry early
- Manage stakeholders to develop and maintain their support
- Start employer communications early in the process
- Use a single call to action

- Tailor the approach to different employers, primarily based on scale
- Automate where possible
- Leverage the impact of “official” written correspondence
- Use the "Nudge" concept (positive reinforcement and indirect suggestion) to engage employers
- Educate and enable before using enforcement

Results

AE has reversed the long-term decline in UK pension savings. By mid-2016, 66% of all employees were active members of a pension scheme, compared to just 47% in 2012. Between the introduction of the reforms in 2012 and April 2015, the overall share of eligible employees contributing to a workplace pension scheme increased from 55% to 75% (Figure G-3). Much of this originated from growth in private-sector savings, which increased from 42% in 2012 to 70% in 2015, whereas public-sector participation increased from 88% in 2012 to 91% in 2015.

Figure G-3: Proportion of Eligible Employees Belonging to a Workplace Pension, 2005-2015



Source: The Pensions Regulator, *Automatic enrolment: Commentary and analysis: April 2015-March 2016*, Figure 1, July 2016, http://www.thepensionsregulator.gov.uk/docs/automatic-enrolment-commentary-analysis-2016.pdf

By December 2016, over 7 million workers had been automatically enrolled. Of those enrolled in a DC scheme, 35% are in a contract-based scheme and 65% in a trust-based scheme. Of those in trust-based schemes, 83% have gone into a master trust. Opt-out levels by individuals are less than 1 in 10 (originally estimated at 1 in 3) and, although it is still early, estimates indicate that opt outs will be about 5% at re-enrolment (a three-year cycle for all employers). To date, over 250,000 workers have been re-enrolled through this process.

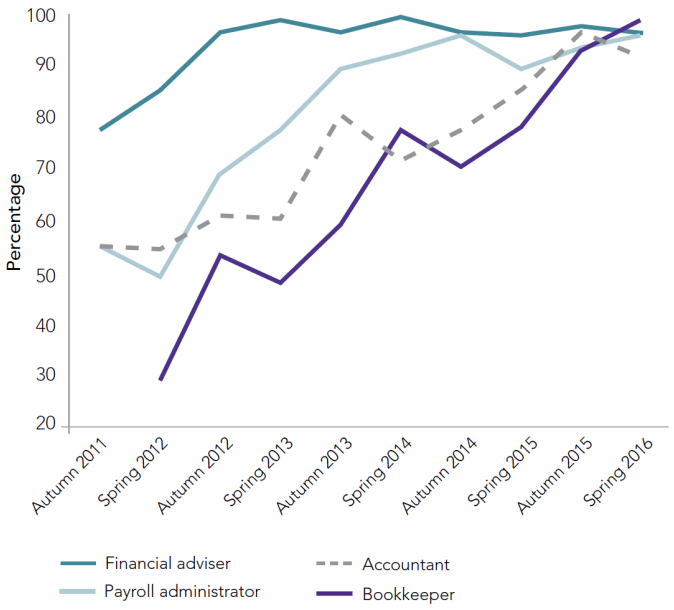
According to the Institute of Fiscal Studies (IFS), AE led to an estimated £2.5 billion in additional savings in workplace pensions per year. This included a boost in saving among various groups: those aged 22-29, those categorized as lower earners (earning between £10,000 and £17,000 per year) and those engaged at their current employer for less than a year. This contrasts with the particularly low pre-reform rates. The IFS also found that AE has increased the number of employees saving more than the statutory minimum, and has more than doubled the membership of workplace pensions among those not directly targeted by the policy.

Eligible employees across the public and private sectors had saved a total of £81.8 billion by 2015, representing an increase of £1.4 billion since 2014 or £7.1 billion since 2012. The increase from 2014 in the public sector was about £0.9 billion, with the private sector growing by £0.6 billion.

Analysis suggests that AE has increased total contributions to workplace pensions. Average contributions from eligible employees working for large and medium-sized private-sector employers climbed to 8.1% of total earnings by April 2015, compared with 7.0% in April 2012. AE also made greater levels of pension contributions more common. The effect of employers enrolling their employees at contribution levels above the minimum appears to have outweighed the effect of any levelling down of overall contribution rates. Finally, employees now tend to stay in their pension schemes, which maintains the long-term persistency of savings, an important factor in AE's success.

TPR is responsible for ensuring that employers are aware of their duties related to AE and know how to comply, and also for enforcing compliance. TPR research suggests that most micro employers and nearly all small employers who staged in 2016 or will stage in 2017 are aware of AE. Moreover, 60% of micro employers and 81% of small employers have an understanding of AE, and nearly all employers (92%) have already sought preliminary information. Levels of awareness and understanding remain almost universal among intermediaries (Figure G-4).

Figure G-4: Level of Awareness and Understanding among Market Intermediaries



Source: The Pensions Regulator, *Automatic enrolment: Commentary and analysis: April 2015-March 2016*, Figure 7, July 2016, http://www.thepensionsregulator.gov.uk/docs/automatic-enrolment-commentary-analysis-2016.pdf

From the view of compliance, most employers are doing the right thing and becoming compliant in good time. However, TPR is taking a firm stance with employers who do not comply; to date, it has issued over 27,000 compliance notices (warnings that employers may get fined if they do not become compliant) and 7,500 penalty notices. Overall compliance levels have been excellent, at 99% of medium-sized and large organizations and 97% of micro and small employers who are subject to the duties.

Future opportunities for enhancement

Current work is assessing approaches for potential improvements. Suggestions include:

- Better options for the self-employed market
- Further and better alignment of payroll and pension scheme software
- More default investment options for employers, including lifestyle funds and funds offering higher risk/return profiles
- Ability for the pension pot to follow members between employers

Endnotes

[1] UK Office for National Statistics, Annual Survey of Hours and Earnings, "Eligible employees participating in workplace pensions in Great Britain by sector: 2005 to 2015", at https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/workplacepensions/

[2] As estimated per information available through April 2015.

[3] The risk was that employers who already provided pensions for their workers would reduce their employer contributions down to the AE (legal) minimums. This behaviour has not been observed.

H. United Kingdom: Establishing the National Employee Savings Trust

Summary: As part of an initiative to increase the number of individuals saving in occupational pensions, NEST was established to look after the savings of those who were otherwise underserved by the private market.

Challenges:

Increasing life expectancies and lower birth rates	
Low levels of financial literacy	X
Lack of easy access to pensions	X
Inadequate savings rates	X
Low-growth investment environment	X
High degree of individual responsibility to manage savings	

Authors: Edmund Lowe, Senior Strategy Manager, NEST Corporation; Kathryn Petrie, Strategy Analyst, NEST

The National Employment Savings Trust (NEST) is only one part of a much wider programme of UK pension reform. Along with moves to provide a more generous state pension (Pillar One), automatic enrolment was intended to address the demand side of providing an occupational pension (Pillar Two).

Historically, employee participation in UK workplace pensions has varied significantly, depending on the size of the business. In 2006, approximately 20% of those working for employers with less than five employees were participating in such pensions. This compared to over 70% of workers in organizations with over 5,000 employees.

To address this issue, the UK government created automatic enrolment (AE) under the Pensions Act 2008. AE requires all employers with eligible staff to enrol their workers into a workplace pension scheme, regardless of the size of the workforce. All employees over the age of 22 with income greater than £10,000 are eligible for AE.

An existing market of pension providers was to meet much of the demand created by AE. The Pensions Commission advised, however, that existing private providers might not be able or willing to cater to the population that legislators wanted the policy to cover, including workers in smaller enterprises and low-to-moderate-income workers. Government consultation with the industry helped to test and confirm this conclusion. The National Employment Savings Trust (NEST), a workplace pension scheme established by the UK government, operates as an independent body and looks after savers' money under Trust law.

Challenges across a range of dimensions arise when creating a government-sponsored pension scheme to address what was previously a largely untouched market. These range from effective policy-making in setting the scheme's remit to the effective day-to-day management of millions of members. NEST took action to deliver innovative investment solutions and to communicate with its core market. First, it needed to build an investment approach that delivered an attractive and affordable product to members who had significantly different income, knowledge and attitudes from the relatively high-earning customer base of traditional UK pension products. The investment team at PADA, the government's delivery authority set up to establish what became NEST, began with much research into NEST's likely membership. The team then studied the way other countries had put together mass pension saving schemes. Research results helped to guide an approach to grow members' money while addressing their desire to keep it safe.

NEST's in-house team took existing and well-understood ways of managing money and combined them to create a new approach to long-term saving for UK workers. Members benefit from:

- NEST Retirement Date Funds offering a tailored approach for every member
- Clearly labelled fund choices addressing the needs of a diverse workforce
- The same low charge across all funds

Underlying the customer proposition, however, is a sophisticated investment strategy that adjusts the risk/return profile in stages, thereby limiting volatility and the impact this can have on the attitude of financially inexperienced savers towards saving for retirement, while at the same time achieving sufficient growth to contribute meaningfully towards retirement income. Over 90% of those automatically enrolled in NEST remain in the default fund.

The NEST target date fund comprises three sections or phases. The first or foundation phase is for individuals who are beginning to save and are thus far from retiring. While the fund management industry has historically assumed that younger individuals have more capacity for risk, NEST does not follow this approach. Younger individuals enrolled in a pension for the first time are less likely to have savings experience, and therefore may have less appetite for risk. During NEST's consultation, some stakeholders argued that establishing confidence in saving for the long term and reducing the possibility of individuals stopping their contributions might be more important than the investment return on a small amount of capital. This approach aims to encourage members to persevere and build up sufficient capital for future investment growth.

The second or growth phase concentrates on building a member's retirement income; it seeks returns of at least 3% more than inflation after charges. The third or consolidation phase aims to move the investments into lower-risk funds to protect pots from market volatility.

In addition to the default fund, NEST has another five funds designed specifically for those with different attitudes to risk, and for members of different religious faiths.

Early results

AE in the UK allows members to opt out of the programme. The initial government central estimate for the opt-out rate was around one-third. NEST has seen average opt-outs of 8% compared to an overall market opt-out rate of 10%. This validates both the behavioural insights that underlie the auto-enrolment and opt-out approach, and NEST's communications with members who are considering to opt out.

Investment targets

NEST funds target a given level of return over three investment phases. During the foundation phase, returns aim to match inflation and cover scheme charges, with the targeted average for long-term volatility at 7%. Return-on-investment targets during the growth phase are 3% plus inflation, include all scheme charges and target an average long-term volatility of 11%. The consolidation phase aims to outperform inflation after all charges while progressively dampening volatility. NEST has met all investment objectives since the scheme's launch.

Challenges

At the same time as providing enough capacity to onboard all comers, the partnership between NEST and the outsourced administration provider, Tata Consultancy Services, also needed to offer a service suitable for both the largest corporate customer and the smallest micro employer. To achieve this, the same easy-to-use online interface was offered to all employers; in the earlier days of the AE profile, it also supported some of the largest employers by providing access to named on-boarding managers who worked directly for NEST.

While member inertia was critical for the AE programme's early success, it also brings challenges. The corollary of inertia is a lack of engagement with pensions, particularly among new savers. In the future, greater member engagement may be part of the package required to achieve good retirement outcomes for both NEST members and the entire DC population. Minimum contribution levels are currently low, at 2% of qualifying earnings, and while they are due to rise to 8% from 2019 onwards, contributions at this level may not be sufficient to provide the most suitable level of retirement income for all members. NEST has created the NEST Insight Unit to leverage expertise and experience, together with outside sponsors and experts, in research on members' behaviour and attitudes regarding pension savings.

Future challenges

Communicating effectively with members, and at an economical cost, will be increasingly important to NEST. A critical part of this is to ensure as much electronic contact information (particularly email addresses) as possible is collected when members enrol. The ability to communicate with members at low cost would have been significantly improved if the original legislation for auto-enrolment in the UK had mandated employers to share member email addresses when they were available.

In cooperation with the payroll software industry, NEST has built a powerful and flexible interface that allows businesses to pay their auto-enrolment contributions to NEST simply and automatically, and concurrent with running their weekly or monthly payroll. However, when the idea for NEST was originally created, payroll software was not foreseen as a critical gateway for providing auto-enrolment pensions. Hence, the payroll software interface functionality was delivered as an enhancement to the core product in 2015, rather than being part of the offer from the beginning of the auto-enrolment profile in October 2012. In other countries, policy-makers seeking to learn from the UK's auto-enrolment experience might also consider whether common data standards, from payroll software to pension provider, could be established prior to beginning auto-enrolment.

Results

Since AE's introduction, over 6 million workers have been automatically enrolled into a workplace pension. More people are saving into a pension than ever before, and NEST has enrolled 3.9 million members and 229,000 employers. Investment performance has been strong; target date funds have outperformed the investment targets since the scheme's inception. Significant further growth is anticipated before the auto-enrolment staging process ends in 2018.

Opportunities

NEST has successfully provided a retirement savings product to its target market. The adequacy of pension savings is another major challenge facing the UK retirement system as a whole; encouraging savers to invest a greater proportion of their income will be critical for retirement outcomes. A response that attracts a broad consensus across government and the industry itself is likely required, similar to the consensus that helped create NEST and led to its success.

Endnotes

[1] UK Government (2015), Department for Work and Pensions, *Automatic Enrolment evaluation report 2015*, Research Report No. 909, London: Crown, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/477176/rr909-automatic-enrolment-evaluation-2015.pdf.

[2] UK Government (2016), The Pensions Regulator, *The essential guide to automatic enrolment*, http://www.thepensionsregulator.gov.uk/docs/the-essential-guide-for-automatic-enrolment.pdf.

[3] UK Government (2006), Department for Work and Pensions, *Security in retirement: towards a new pensions system*, London, http://collections.europarchive.org/tna/20100407170252/http:/www.dwp.gov.uk/docs/white-paper-complete.pdf.

[4] NEST Corporation (2015), *NEST insight 2015: Taking the temperature of auto enrolment*, London, https://www.nestpensions.org.uk/schemeweb/NestWeb/includes/public/docs/nest-insight-2015,pdf.pdf.

[5] NEST Corporation (2015), *Investing with NEST: A review of how your money is invested and the fund choices available*, London, https://www.nestpensions.org.uk/schemeweb/NestWeb/includes/public/docs/Investing-with-NEST,PDF.pdf.

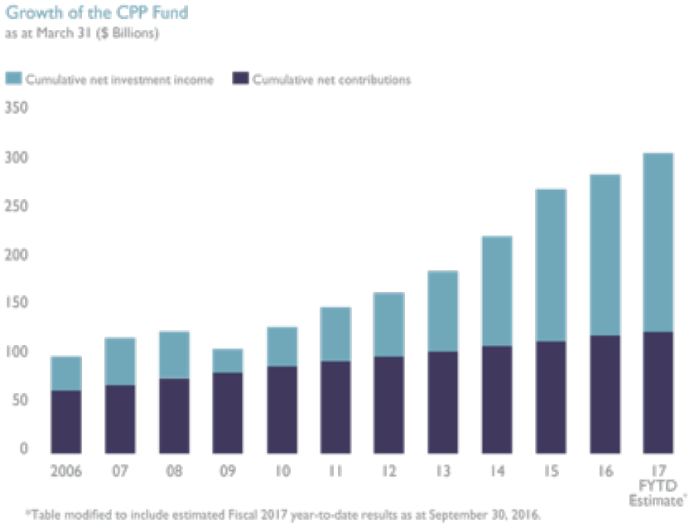
4. Pension Plan Perspectives

I. Canada Pension Plan Investment Board: Fulfilling an investment mandate without taking undue risk

The Canada Pension Plan Investment Board (CPPIB) is a professional investment management organization that invests Canada Pension Plan funds (currently about 300 billion; Figure I-1) on behalf of its 19 million Canadian contributors and beneficiaries. The Canada Pension Plan Investment Board Act governs the CPPIB and 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 of the Canada Pension Plan (CPP)".

The Act sets no specific investment requirements; namely, there are no geographic, economic, developmental or social limitations. While the federal and provincial finance ministers serve as stewards of the CPP Fund, they do not provide direction to follow any particular investing path. The result is a single and unambiguous investment objective and responsibility: to maximize long-term returns at an appropriate level of risk. Thus, the primary challenge is to establish what constitutes an "undue risk of loss" and, given that, an appropriate level of risk in the context of the CPP's financing and time horizon.

Figure I-1: Growth of the CPP Fund, 2006-2017



Note: $ = Canadian dollar
Source: CPP Investment Board, 2016 Annual Report (modified to include estimated 2017 results)

Summary: In 2015, the CPPIB put in place a new investment framework focusing on total fund return, taking advantage of its long-term horizon and relative freedom from investment policy limits.

Challenges:

Increasing life expectancies and lower birth rates	
Low levels of financial literacy	
Lack of easy access to pensions	
Inadequate savings rates	
Low-growth investment environment	X
High degree of individual responsibility to manage savings	X

Authors: Steve James, Director, Economic and Financial Market Forecasts, Total Portfolio Management, Canada Pension Plan Investment Board; Colin Carlton, Senior Consultant, Total Portfolio Management, Canada Pension Plan Investment Board

In the 2014 fiscal year, the Board and management undertook an intensive strategic review to determine the direction for the next decade. The review resulted in two principal themes:

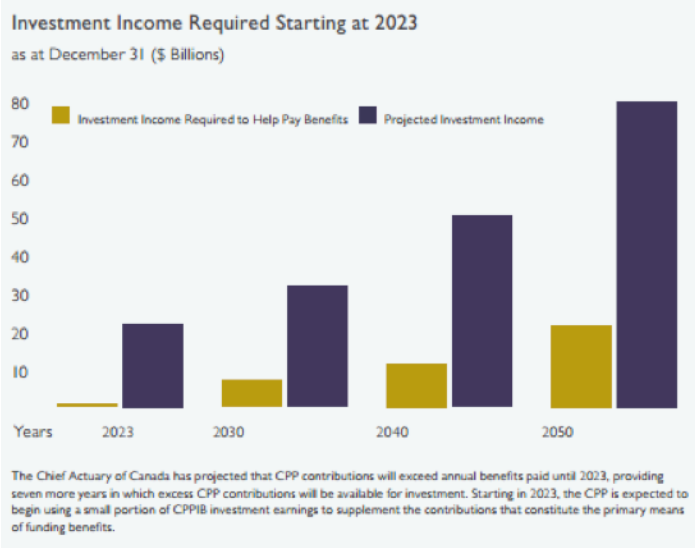
1. Although investments carrying higher risk are more volatile in the short term, they strongly correspond with higher returns over the long term. The CPP Fund has an exceptionally long-term horizon as well as mandatory contributions. The Fund should seek higher returns by prudently raising the long-term return-risk profile (from the 2014 level), and should explicitly express overall risk appetite in the benchmark reference portfolio (Figure I-3).

2. To prudently maximize long-term returns, it is critical to focus on total Fund returns, particularly by optimally diversifying the Fund – in asset classes, geographies, currencies, active management strategies and underlying risk factors. Strategic changes in portfolio composition should be made at times to capture opportunities or to protect the Fund. The investment strategy should focus on total returns, not simply on value added versus the benchmark reference portfolio as had largely been the case. This requires a balance of optimal asset diversification and strategic shifts in

exposure, as well as superior selection of investments. Correspondingly, the risk focus should be on the appropriate, overall total risk to take in the Fund over the long term, rather than on taking active risk from deviations versus the reference portfolio.

The Board and management developed a multi-year business plan based on these themes, with implementation beginning in fiscal year 2015.

Figure I-2: Investment Income Required, 2023-2050

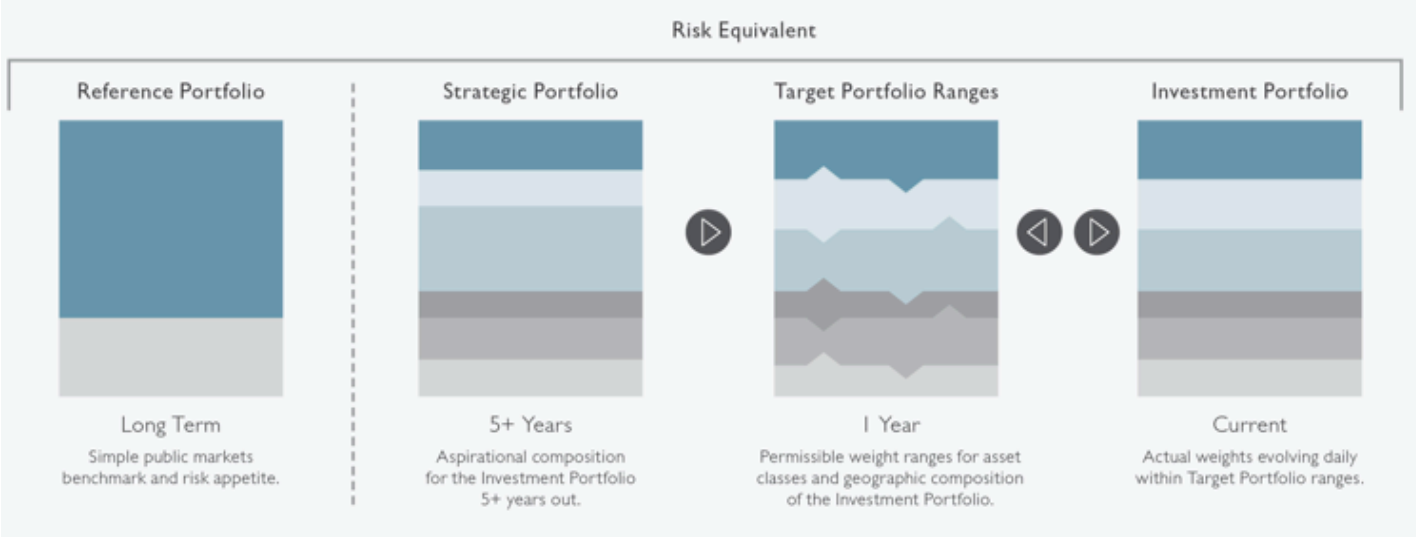


Note: $ = Canadian dollar
Sources: CPP Investment Board, *2016 Annual Report*

Objectives

The CPPIB must manage the Fund's assets prudently, without undue risk of loss. The main concern is not short-term volatility but longer-term impairment that could lead to an increase in CPP contributions or a reduction in benefits. Figure I-2 demonstrates long-term projections of investment income alongside the investment income required to help pay benefits. A total portfolio investment framework was developed with four principal components (Figure 1-3) to help balance maximizing returns with controlling risks. The figure demonstrates the risk equivalency between a reference portfolio composed of public equities and public fixed income, compared to CPPIB's investment portfolio composed of public equity, private equity, public fixed income, credit investments, real assets, cash and absolute return strategies.

Figure I-3: Elements of Enhanced Investment Framework

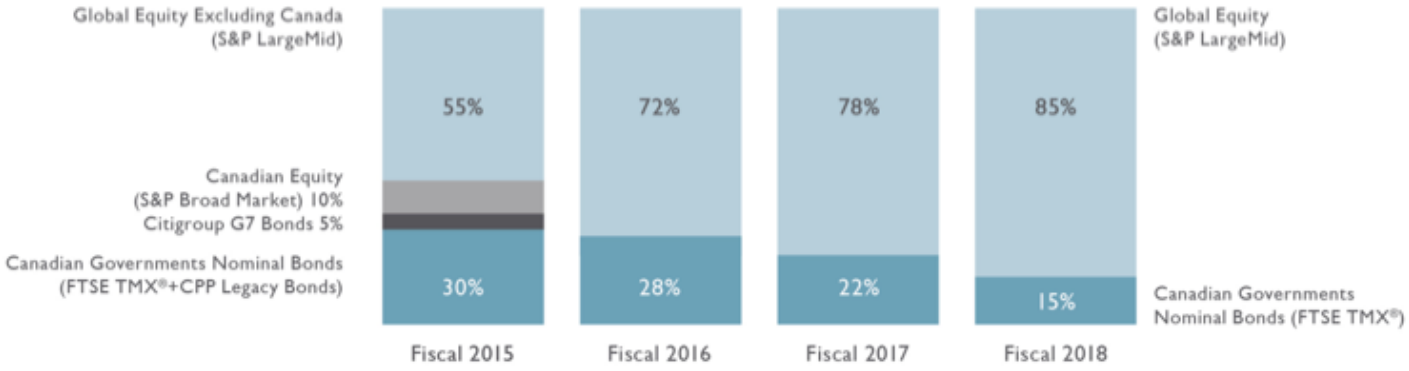


Source: CPP Investment Board, *2016 Annual Report*

1. Reference portfolio – With two asset classes, this portfolio expresses the long-term risk target and comprises only public market global equities and fixed-payment bonds issued by Canadian governments. The asset classes are represented by broad market indexes that could be invested in at minimal expense. The Fund's return-risk profile has been evolving in a prudent and gradual manner since April 2015 (Figure I-4). Its risk level could and should be increased over time to the same level of risk in a portfolio of 85% global equities and 15% Canadian government bonds, with a correspondingly material increase in expected long-term returns. The reference portfolio also serves as the risk-equivalent benchmark for the Fund's long-term returns.

2. Strategic portfolio – This portfolio expresses the long-term vision for optimally diversifying the investment portfolio five or more years into the future. A preferred mix of key systematic return-risk factor exposures was determined by looking through asset types to their underlying characteristics and the relative correlations among them, and by incorporating the presence and risk of active value-added strategies. The only investment restrictions imposed are practical market limitations facing a fund of this size. The mix of exposures is designed to maximize expected long-term returns, preserving the same total risk level as that of the reference portfolio. Leverage may be used to achieve this objective rather than simply increasing the Fund's equity content.

Figure I-4: Reference Portfolio – A Shift along the Return-Risk Spectrum, 2015-2018



Source: CPP Investment Board, *2016 Annual Report*

3. Target portfolio ranges – While the strategic portfolio is a long-term aspirational plan to deliver on the Fund's objectives, developing internal capabilities and judiciously managing transitions require a shorter-term plan for implementation. The weights of total portfolio holdings and risk exposures inevitably move and drift, given that portfolio investment values change daily, and that investments are actively bought and sold. The target portfolio ranges for the weights of each asset class and each of four geographic regions addresses this; they limit and guide how to invest assets today and over the next fiscal year.

4. Investment portfolio – The total portfolio approach, a sophisticated portfolio management system, runs through the investment framework. This is used to control the underlying return-risk profile in creating the total portfolio. By themselves, asset class labels do not fully convey the highly diverse nature of the investments within each class. To address this complex situation, asset class labels are noted to understand and weigh the underlying return drivers, risk factors and exposures. The result is a highly diversified portfolio at the intended total risk level, but one that is much more robust and resilient under a wide range of future economic and market circumstances than a simple portfolio of 85% public equity and 15% government bonds.

Successful investing requires clear decision-making and accountability, as well as competitive compensation and carefully aligned, performance-based incentives. A new long-term compensation framework was introduced in fiscal year 2016 that aligns compensation with the new investment framework and multi-year business plan. A new total portfolio investment framework was designed and is being applied to better focus individual groups on their specific contributions to the total. At the same time, a new "balancing process" is being introduced to achieve and maintain the overall targeted exposures to the primary risk/return factors underlying the portfolio holdings. Beyond the new compensation framework, working groups, lunch-and-learn sessions and other internal communications tools helped to thoroughly communicate the modified total fund investment strategy and its rationale throughout the organization.

While an investment vision and beliefs are the cornerstone of a successful strategy, they are meaningless unless: (i) the beliefs and resulting investment strategies, at total fund level and in individual investment programmes, are fully understood, supported, carried out and constructively reviewed internally; and (ii) responsibility and compensation regimes are aligned with the frameworks presented in Figures I-4 and I-5.

The CPPIB is still carrying out the changes across the organization. While a vision has been defined for how the CPPIB will operate, the approach must be flexible and modifiable as lessons are learned during implementation.

Figure I-5: Aligning the Investment Framework

Source: CPP Investment Board, *2016 Annual Report*

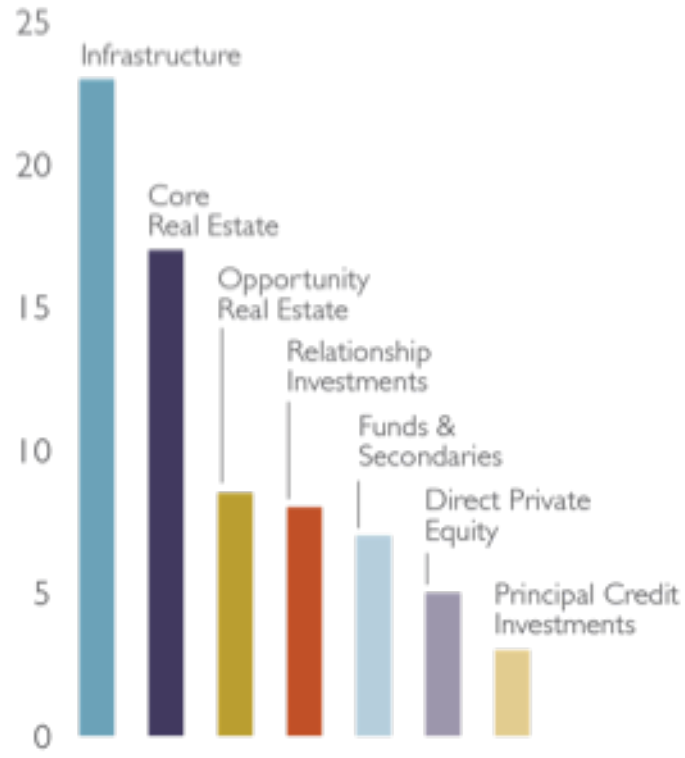
How could the CPPIB adopt this approach?

Compared to most pension plan investment administrators, the CPPIB has a distinctive position, with the CPP Fund offering three structural advantages:

Long time horizon

By law and according to its purpose, the CPP must serve Canadians for many future generations. As a result, the CPP Fund has an exceptionally long investment horizon, assessing opportunities, returns and risks over decades, not years or months. Other market participants are often forced to take a short-term approach because of business pressures or legislation. The Fund can benefit from the opportunities created by these short-term investors, and can take advantage of investments otherwise ignored or not available (see Figure 1-6 for the average hold periods by asset type).

Figure I-6: CPPIB Expected Average Hold Periods in Years, by Asset Type



Source: CPP Investment Board, *2016 Annual Report*

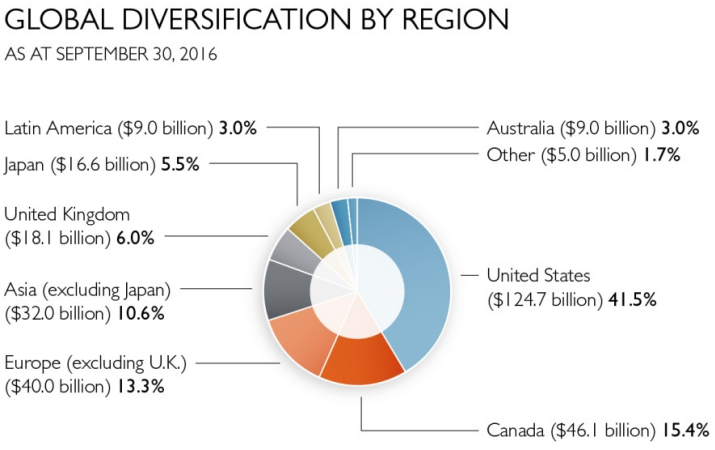
Certainty of assets to invest

The CPP Fund's cash flows and future asset base are certain and stable; no need exists to sell off investments to pay CPP benefits, or to provide cash for any other purpose. Nevertheless, the Fund maintains available cash to make major new investments and to adjust the total portfolio mix at any time.

Scale

Managing one of the largest retirement funds in the world, the CPPIB can access major opportunities globally that few others can compete with (Figure I-7). Substantial investments in private markets are possible, and public market strategies not readily accessible to all investors can be used. Highly skilled in-house investment teams, the best investment technology and operational capabilities can be built or assembled. By handling many of these activities in-house, the CPPIB ensures it is one of the most cost-effective global investing platforms.

Figure I-7: Global Diversification by Region



Note: $ = Canadian dollar
Source: CPP Investment Board, Internal graph, as at September 30 2016

The partially funded, open-group nature of CPP financing is another key advantage. CPP contributions are thus much less sensitive to investment returns than contributions to a fully funded plan, allowing for prudence when taking on more risk to maximize long-term returns. Such an approach would likely present more challenges for pension plan investment administrators who have shorter investment horizons, full funding requirements, less independence, fewer geographic or economic investment restrictions, and constraints on their ability to attract and retain internal investment expertise.

Results

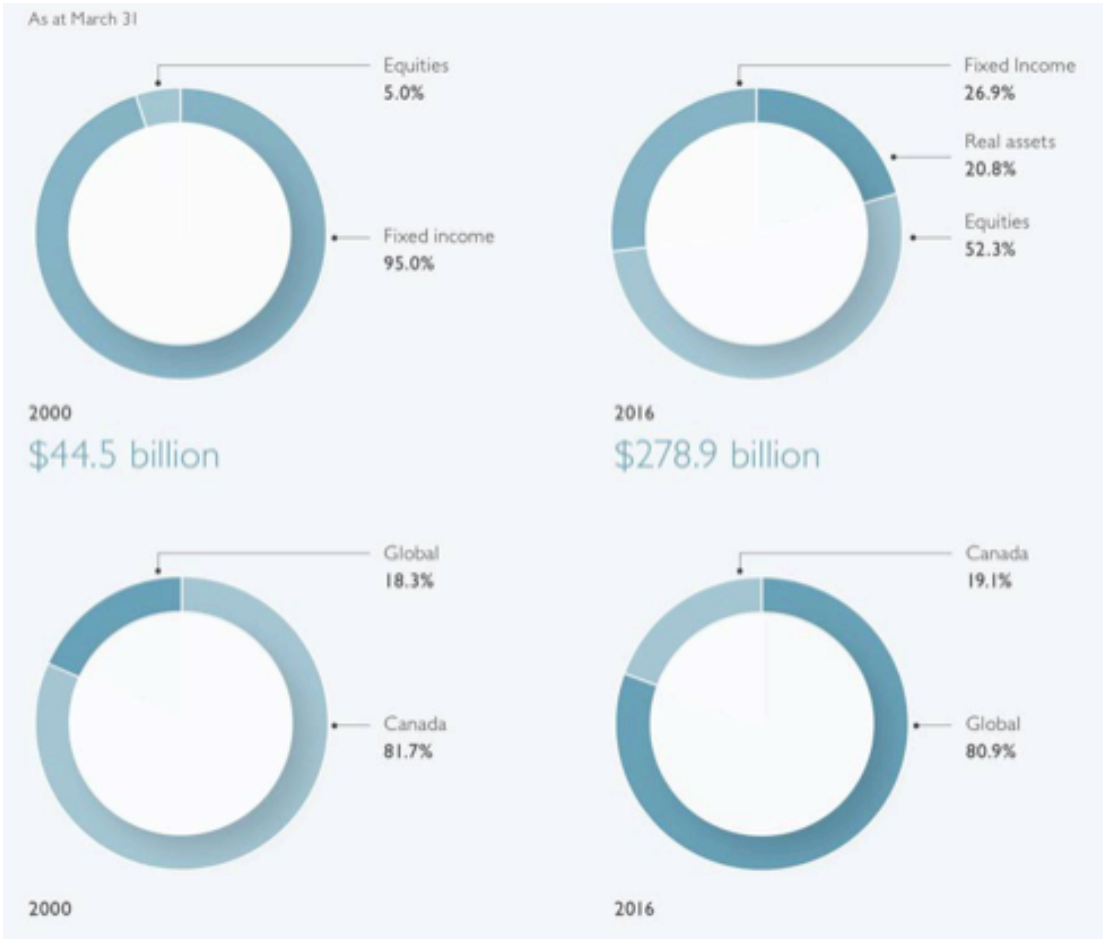
With this investment strategy, the CPP Fund has become increasingly more diversified and assumed a tolerance for risk appropriate for a truly long-term investor. While 81.7% of the Fund was invested in Canada and 18.3% globally in 2000, the Canadian proportion had dropped to 19.1% and the share invested globally had grown to 80.9% by the end of fiscal year 2016 (Figure I-8). This global diversification is key to the Fund's ability to rely very little on limited Canadian capital markets when supporting the CPP, and is a function of the investment beliefs and views on the growth of international markets. In addition to its greater spread geographically, the Fund is also more broadly diversified across asset classes, including alternatives. Over 50% of the Fund is invested in alternatives, such as private equity, hedge funds, infrastructure, principal credit, natural resources, agriculture and real estate.

This diversification requires strong internal expertise combined with a truly global organization. The CPPIB has expanded internationally to include eight offices (Toronto, New York, São Paulo, London, Luxembourg, Mumbai, Hong Kong and Sydney), giving it on-the-ground capability to source new opportunities and expert partners, supervise and enhance investments, and manage international risks.

With regard to risk tolerance, the Fund's overall risk level has grown from an equity-to-debt split of 65%/35% six years ago to approximately 80%/20% at the end of 2016. Diversification is again crucial, not only in the types of assets but also in maintaining over 20 active investment programmes.

The CPPIB is continuing to evolve and implement the new investment framework, and to better reflect risk and the long-term investment horizon. Given constantly changing global capital markets, significant work is under way to determine whether more emphasis could be placed on strategic tilts in major investment exposures and, if so, how. This would complement the primary emphases remaining on the other two sources of investment returns, namely asset diversification and the selection of investments.

Figure I-8: CPP Fund – Historical Comparison of Asset and Geography Mix, 2000-2016



Source: CPP Investment Board, *2016 Annual Report*

J. ATP: Rethinking asset allocation

Summary: ATP has used a risk-based asset allocation framework for many years, but is currently upgrading this approach to incorporate more granular methods of decomposing risk.

Challenge:

Increasing life expectancies and lower birth rates	
Low levels of financial literacy	
Lack of easy access to pensions	
Inadequate savings rates	
Low-growth investment environment	X
High degree of individual responsibility to manage savings	

Authors: Michael Preisel, Head, Quantitative Research, ATP; Frederik Harhoff, Executive Adviser, ATP

Asset allocation forms a core part of any multi-asset portfolio, and has notable implications for the portfolio's long-term risk-return characteristics. Some investment organizations decide at the board level on how to allocate assets, while others give management significant discretion.

ATP, a Danish pension fund, has had a flexible, risk-based asset allocation model since 2006, enabling its investment team to navigate the post-financial-crisis economy. It is currently upgrading this model by incorporating more granular methods for decomposing or breaking down the underlying risks of the assets it holds. ATP is also extending its risk-factor framework to include alternative risk premia and illiquid alternative assets.

Background on ATP

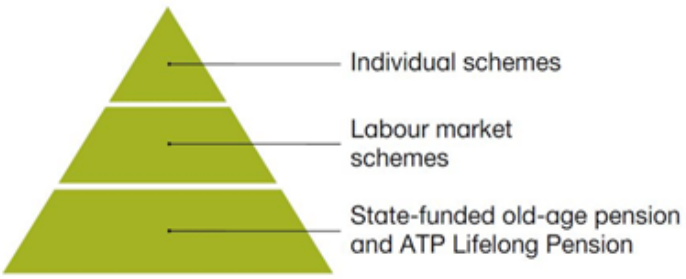
A statutory, defined contribution (DC) pension fund, ATP was established in 1964 to act as a funded supplement to Denmark's tax-funded old-age pension system. With 5 million members, it is the country's biggest pension scheme and is an integral part of the Danish pension system's first pillar (Figure J-1), which aims to provide universal minimum coverage for all the country's citizens. An ATP pension gives supplementary income to 90% of Danish old-age pensioners; for half of them, ATP is the sole source of pension income other than their state old-age pension. ATP's main objective is therefore to create good, stable pensions that provide basic retirement income for the Danish public.

Overview of the Pension Scheme

Type: Defined contribution pension plan
Assets under management: DKK 759 billion (Danish kroner), or approximately €101 billion
Internal investment team: 50 investment professionals
Liquidity profile: Net capital outflows with funded status of 113%
Investment objective: Generate stable income stream for retirees; generate 9% return on free capital via the investment portfolio
Governance structure:

1. **Executive board:** five senior ATP officers
2. **Supervisory board:** six employer representatives, six wage-earner representatives and an independent chair
3. **Board of representatives:** 15 employer representatives, 15 wage-earner representatives and an independent chair

Figure J-1: Danish Pension System

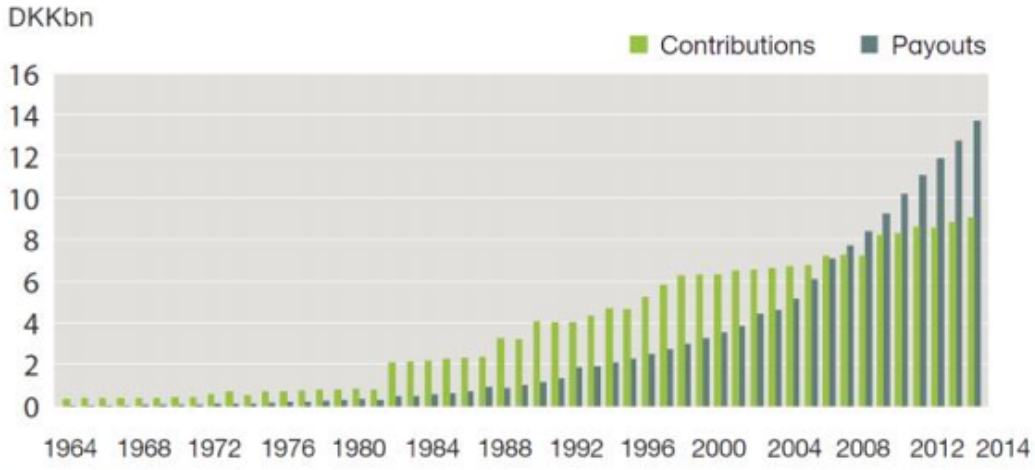


Source: ATP, 2016

Just over 90% of the Danish working-age population pays ATP contributions. Members start paying at 16 years of age and continue until retirement, as long as they are employed or receiving welfare benefits. The amount individuals contribute is not linked to their income, but varies according to how much they have worked during their working life. At retirement, the amount of pension paid out depends on the total amount the member has contributed to ATP.

As of December 2016, ATP's net assets under management (AUM) totalled DKK 759 billion (€101 billion). Of this, DKK 659 billion (€88 billion) was used to hedge ATP's pension guarantees, while DKK 100 billion (€13 billion) acted as free reserves, giving ATP a funded status of 113%. ATP is a mature pension fund, where payouts have exceeded contributions since around 2007 (Figure J-2). Continuing the current trend, the gap between payouts and contributions is expected to grow as the fund matures. This makes liquidity management and hedging particularly important priorities reflected in its portfolio structure.

Figure J-2: Pension Payout Profile at ATP, 1964-2014



Source: ATP, 2014

The ATP Group employed 2,800 full-time staff as of December 2016, with most employees carrying out pension-related and administrative activities. ATP's core internal investment team consists of about 50 employees responsible for internally managing more than 85% of AUM.

An executive board manages the Group and consists of the chief executive officer, chief information officer, chief financial officer, chief risk officer and the chief operating officer of the processing business and human resources. The executive board reports to ATP's supervisory board, a committee composed of a chairman and 12 other board members equally representing the social partners (associations representing Danish employers and employees). The supervisory board is overseen by a board of representatives, a 31-member board made up of a chairman and 15 representatives each from employer and employee associations.

Investment model

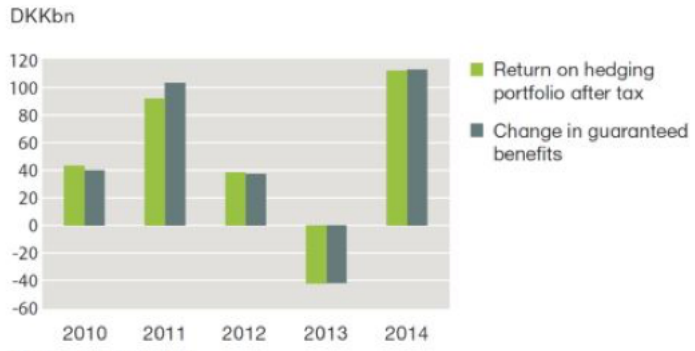
ATP has two sources for creating value: a hedging portfolio and an investment portfolio. A member's contribution is split, with 80% going to the hedging portfolio, whose objective is to produce pension guarantees, and 20% to the investment portfolio, which seeks returns and also looks to maintain and enhance the purchasing power of the pension guarantees.

ATP assigns a guaranteed rate of return to contributions made to the hedging portfolio, based on the prevailing 15-year interest rate of safe government bonds. The assets are invested in a liability-mimicking portfolio made up of interest-rate-sensitive instruments whose value changes in tandem with ATP benefits guaranteed for members. As of July 2015, all of ATP's liabilities were fully hedged, and ATP had a funded status of around 113%.

Hedging was employed because ATP's guaranteed benefits between years zero and 40 were valued using a market-based yield curve. Therefore, the benefits' value changes when interest rates change. Left unhedged, the value of guaranteed benefits would increase if interest rates declined, forcing ATP to draw down its reserves to deliver on its commitments (and vice versa). The hedging portfolio neutralizes this and ensures that changes in interest rates do not affect fund's ability to pay out its guaranteed benefits. It does this by hedging the interest rate risk on ATP's pension liabilities via a portfolio of bonds and interest rate swaps with maturities of up to 40 years. As of December 2016, assets in this portfolio included Danish government bonds, German government bonds, and interest rate swaps denominated in euros and Danish kroner.

Thus far, the hedging portfolio has successfully safeguarded ATP's reserves by ensuring that the value of hedging assets and guaranteed benefits moves in lockstep over time (Figure J-3).

Figure J-3: ATP Hedging Portfolio vs Guaranteed Benefits, 2010-2014



Source: ATP, 2014

The remaining 20% of member contributions is invested in ATP's investment portfolio, which aims to outperform the consumer price index's rate of change over time. The fund seeks to soundly diversify the investment portfolio by using a broad range of assets; good diversification, it is believed, can enhance a portfolio's risk-return characteristics while giving up little in return. As the economist Harry Markowitz has said, diversification is the only free lunch in finance. For this to be true, however, the diversification has to be real and effective.

The investment portfolio has access to additional funding because it can borrow cash from the hedging portfolio, which is composed of swaps and bonds with a duration matching the duration of liabilities. Since swaps do not tie up cash, the hedging portfolio contains surplus liquidity which can be activated by lending it internally to the investment portfolio. Access to this surplus liquidity lets the investment portfolio diversify investment risk rather than capital, allowing for a much more efficient diversification than that provided by a traditional asset manager.

In fact, effective diversification constitutes ATP's first line of defence against investment risks. In addition, the pension fund has enhanced its risk management in two ways: first, by holding outright hedges against tail risk events; and second, by dynamically adjusting the amount of the investment risk taken, based on the size of its reserves.

The resulting resilient investment portfolio is expected to generate good risk-adjusted returns and to deliver stable performance across a range of growth and inflation scenarios.

Excess returns from the investment portfolio accrue to ATP's free reserves, which are also referred to as the "bonus potential". These returns directly translate into better pensions for ATP members; if the value of the bonus potential exceeds 10% of the value of guaranteed benefits, ATP's supervisory board could decide to increase pension payouts for pensioners, as it did in 2013, 2014 and 2015. ATP's bonus potential amounted to 16.8% of guaranteed benefits in 2015, and the board decided to increase payouts by 1.5% for all current pensioners.

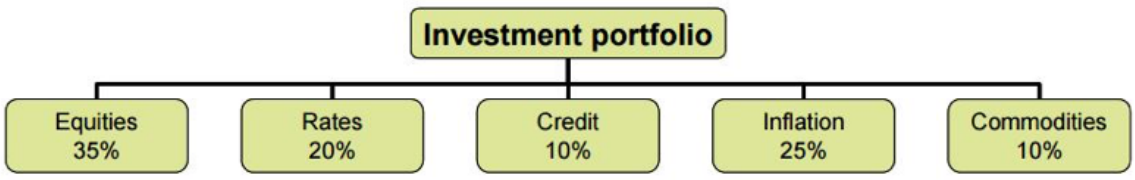
2006-2015: asset allocation and risk classes

To diversify effectively, the fund allocates to risk classes rather than to asset classes, a practice it began in 2006. This is driven by the belief that different asset classes often share common underlying risk drivers, even when their asset class labels do not look the same. As ATP cares about its portfolio's risk profile and not the nominal amounts allocated to each asset type, it seeks to highly diversify how it allocates risk, not capital. Assets are categorized into five risk classes with distinct profiles:

- Interest rates: interest rate-sensitive issuances, such as government bonds and mortgage debt
- Credit: instruments reflecting issuers' ability to repay their debt, such as loans to credit institutions and high-yield bonds
- Equities: instruments reflecting corporate earnings, such as listed and unlisted global equities
- Inflation: assets whose values move with the general price level, such as infrastructure, inflation-linked bonds and inflation-hedging strategies
- Commodities: assets related to the price of oil, such as oil-indexed bonds and oil-related financial contracts

ATP's supervisory board sets a long-term reference target for allocating investment risks between the five risk classes (Figure J-4).

Figure J-4: Long-Term Target Risk Allocations



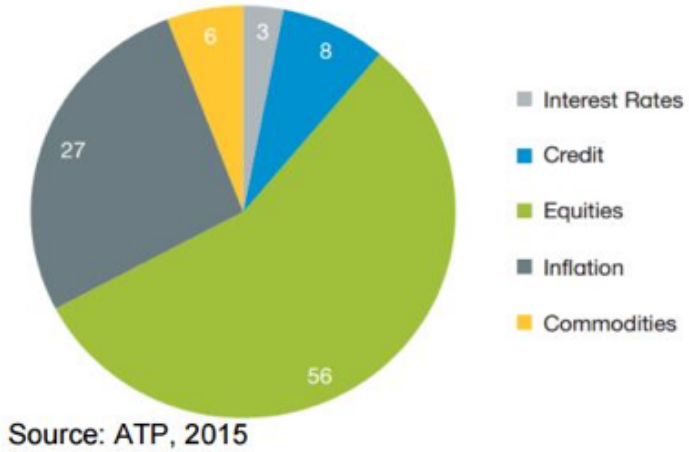
Source: ATP, 2014

This type of risk allocation seeks to create a portfolio offering better diversification than a traditional one, where 60% of capital is invested in equities and 40% in bonds. While a 60/40 portfolio allocates capital in a relatively balanced way over two asset classes, equities are far riskier than bonds and contribute substantially more risk than their 60% allocation: in fact, in a 60/40 portfolio, equity risk typically accounts for over 90% of the total risk. ATP's risk allocation model aims to overcome this by viewing the investment universe in terms of risk and constructing a portfolio that has a diversified exposure to various risks.

While Figure J-4 sets out a long-term target for allocating risk, in the shorter term the fund's management is not structurally encouraged to hold an investment portfolio with a risk composition matching the board's target. Instead, the supervisory board expects ATP to meet its long-term investment objective by beating a target of 9% absolute return on free capital before taxes and expenses. ATP's management then has the flexibility to alter short-term risk allocations to meet this objective.

In practice, this flexibility, as indicated through the average risk allocation in ATP's investment portfolio (Figure J-5), shows that the portfolio's allocation to interest rates (3%) is substantially below the long-term target (20%). This is a response to central banks' highly expansionary monetary policy, which has driven government bond yields to near-zero levels. Consequently, ATP believes that current and potential returns from bonds, as well as diversification benefits, are limited. This has led to the near-zero allocation to interest rate risk.

Figure J-5: ATP Investment Portfolio's Risk Allocation in First Half of Fiscal Year 2015 (%)



Source: ATP, 2015

On the other hand, ATP has maintained a higher level of risk in equities (56%) than the long-term target (35%). This reflects the belief that equities remain relatively appealing in the prevailing market, and that the other risk classes provide effective diversification against major risks.

Attributes supporting this approach

Organizational buy-in and support of the asset allocation team at management level are crucial to ATP's ability to act as a flexible, risk-aware investor. In fact, the core investment belief that asset allocation is central to determining the bulk of the fund's return underpins this. The organization explicitly acknowledges and supports this belief through appropriate resourcing and incentive structures. For example, the fund's benchmarking system does not encourage the organization to stay at a "neutral" risk allocation, and the board gives management the discretion to make relatively large decisions on asset allocations.

This investment model also puts the awareness of risk at the front and centre of investment decisions. By framing those decisions in terms of risk rather than assets, investment staff are consistently made to evaluate underlying risk drivers. Over time, this has led to a more comprehensive understanding of the portfolio's risks, more sophisticated methods of accessing desirable risk exposures, and the development of more advanced risk management systems and frameworks.

For an organization like ATP, the relatively small investment team needs the flexibility to allocate risk in a dynamic way and to make decisions that have a material impact on the total portfolio's return profile. While the investment team assumes greater responsibility with this arrangement and with how it decides on asset allocations, the arrangement successfully leverages the capabilities of the 50 investment staff members to actively manage the portfolio.

Enhancing the risk class allocation approach

ATP's investment portfolio performed well in the 2007-2013 economic cycle; it benefited particularly from a dramatic fall in interest rates, which led to the strong performance of fixed-income securities. The portfolio generated a Sharpe Ratio (a method for calculating risk-adjusted returns) of approximately 1.0, substantially exceeding the expected Sharpe Ratios of traditional benchmark portfolios that typically ranged from 0.3 to 0.4 over the six-year cycle.

Mindful that past performance does not guarantee future results, ATP launched an exercise in 2016 to update its approach to portfolio construction. External and internal factors contributed to the exercise. Externally, the low-interest-rate environment, changing patterns in diversification and weaker liquidity in specific segments of the financial markets prompted the ATP investment team to take a deeper look at how to best and effectively diversify the portfolio over the next economic cycle. Internally, the team sought to review the portfolio's construction given the overhauling of ATP's pension product and the revamping of its liability discounting curve.

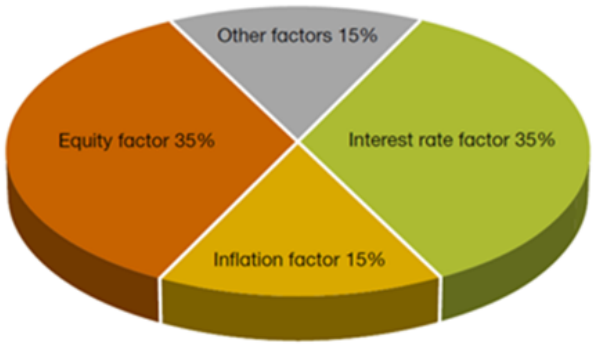
2016 and onwards: asset allocation and portfolio-wide risk-factor investing

Based on the portfolio review, it was decided to base ATP's investment approach on a risk-factor allocation framework as of 1 January 2016. Investments will be mapped to four risk factors – equity, interest rates, inflation and a category called "other factors" – as opposed to the previous five risk classes. The organization believes the new framework will create a more systematic approach to investments across all asset classes, teams and subsidiaries, as investments can be broken down into more granular risk factors and be more easily compared. The new framework also aims to strengthen overall risk management, with a special focus on illiquid investments.

While comparable to the previous investment model (certainly in name), the new model contains important differences. Assets had been bucketed into risk classes whose risk characteristics most closely corresponded to the assets' underlying drivers. In the new model, each asset will be broken down into exposure corresponding to the four risk factors. This increased granularity aims to more accurately reflect all the risks in a given asset. For example, a corporate bond would formerly have fit into the "rates" risk class but, under the new approach, it will be broken down into some amount of rates risk and equity risk.

As before, the goal of breaking down the constituent risks of every asset is to allow ATP to build a well-diversified, long-term portfolio, whose factors driving investment return are balanced and stable over different economic scenarios. Figure J-6 shows the indicative weightings of the four new risk factors in ATP's long-term target portfolio.

Figure J-6: Indicative Long-Term Weightings of Risk Factors in the Investment Portfolio



Source: https://www.atp.dk/sites/default/files/annual_report_2016.pdf

Empowered by the detail and flexibility of its new risk factor model, ATP expects to be able to build a better portfolio – more geographically diversified and with a greater range of assets. Already, to build a better "balanced beta" portfolio, the organization is planning to increase its exposure to global stocks, credit spreads, interest rates and new commodity markets.

Of the four risk factors, the fundamental ones – equity, interest rates and inflation – are intuitive and represent risks associated with their corresponding economic factors. The more complex other factors category is not a residual catch-all group, but rather a combination of two types of risk that have features distinct from the fundamental factors, namely alternative risk premia strategies and illiquid alternative investments. Both types of investments are analytically and operationally more complex, and ATP believes that some alternative risk premia and illiquid factors share certain common risk drivers. ATP's history of implementing alternative risk premia strategies internally began in 2006 through its alpha and hedge fund unit, ATP Alpha. In late 2012, however, ATP shut down this unit and integrated the alpha platform into its main investment portfolio. This merged the once-separate alpha and beta investment functions and housed all investments on one common platform, as one portfolio. The process evolved naturally through the integration of alternative risk premia strategies to be a broader component of ATP's overall risk allocation framework.

Looking ahead, ATP plans for the other factors category to house a diversified portfolio of alternative risk premia strategies across multiple large asset classes. As of July 2015, ATP had six forms of low-risk and high-carry strategies in its alternative risk premia portfolio, and it intends to grow the portfolio over time to some 20 strategies across all large asset classes. The alternative risk premia portfolio aims to generate higher returns and diversify the total portfolio, thus noticeably improving the portfolio's risk-adjusted performance.

For illiquid alternative investments, ATP will apply a three-step approach to decomposing risks. First, the risks of an illiquid investment will be mapped to the three fundamental factors. A private equity investment, for instance, would have considerable exposure to the equity factor. Risks that cannot be allocated to the fundamental factors are then allocated to the other factors category. Second, illiquid investments will be evaluated relative to the marginal cost of illiquidity within the ATP portfolio. This means the costs associated with ATP's inability to quickly liquidate the asset (or to do so only at distressed prices) are assessed relative to the total portfolio's liquidity requirements for rebalancing, collateral management and pursuing new opportunities. Third, the residual risks of illiquid investments, bucketed within other factors, will be analysed according to 12 different criteria, covering potential exit, duration, geography and various economic factors. These include both quantitative and qualitative factors, and are aimed at giving a more meaningful representation of the risks in private assets, which are usually difficult to analyse precisely.

Challenges

As of December 2016, ATP had launched its new risk-factor allocation framework but was still fine-tuning its implementation. To execute its new model, the organization must tackle four main challenges. First, it needs to identify multiple systematic risk factors across a large range of asset classes. In some cases, academic research will lay the groundwork for these choices; for example, value and size have been identified as sources of excess return in the equity market, and subsequent research expanded on this analytic framework. However, a lack of quantitative data in other markets means that this kind of analysis is limited to the most liquid markets, such as developed-market equities and bonds. To extend the framework into other risk classes, ATP must conduct substantial proprietary research and rely more heavily on theoretical assumptions.

Second, applying the model will require technical know-how for designing systematic (or semi-systematic) investment strategies in various markets that can harvest risk premia efficiently. This will also involve consistently monitoring risk-factor performance to ensure that investment theses are playing out as expected. In some markets, it will mean investing in derivatives markets or long/short positions, which often require new risk management and monitoring systems.

Third, the overhaul of the current investment model is extensive in scope and covers the entire portfolio, affecting investment teams across asset classes and subsidiaries. It will require revamping ATP's operational and risk management set-up, adding new staff to the internal investment team and strengthening in-house analytical capabilities. The dedicated team that constructed the portfolio and drove the initial portfolio review will assume a permanent position to oversee and monitor the framework's development.

The fourth main challenge is that implementation requires a strong governance framework and a long time horizon for investing. Risk premia are cyclical and expressed over years. Even the equity risk premium – the well-documented tendency for risky equities to outperform safe bonds – has gone through long periods when the premium was zero or negative, most recently in the decade after 1999. Investors seeking to invest in long-term systematic risk premia must be ready to deal with extended periods of volatility and underperformance. This challenge is even more pronounced when the risk factors in question are less well documented and have little recorded history to serve as a guide. The onus will be on ATP's senior management to maintain a long-term view and to garner the board's support and buy-in during periods of underperformance.

Conclusion

The precise role of asset allocation in a fund's return is something of an intellectual curiosity among academics. In 1986, a seminal paper on the subject implied that asset allocation explained over 90% of a fund's performance. Years of debate followed, aptly summed up by the title of an article appearing in 2000: "Does Asset Allocation Policy Explain 40, 90, or 100 Percent of Performance?" Much of the discussion has centred on definitions of the underlying mathematical methods and interpretations of what the typical investor considers as "fund performance".

The specific effect of asset allocation is, however, a moot point. Asset allocation policy affects the vast proportion of a fund's assets and could result in significant shifts in a fund's risk profile and return potential. For instance, increasing a portfolio's equity risk content by 10 or 20 percentage points could dramatically increase its long-term expected return, typically at the expense of greater drawdown risk. Having an integrated, dynamic asset allocation framework thus allows a company to control and understand its risk profile, and to make effective investment decisions with a relatively small team of investment professionals.

ATP has used a risk-based asset allocation framework since 2006, implementing it at every level of the organization. This represents a clear commitment to a governance framework that has encouraged an empowered internal investment team. A strong performance in the previous market cycle shows that it is reaping the rewards of this approach. To make its investment framework more resilient, ATP has been extending its asset allocation framework to give a better understanding of its portfolio's risk factors. Its new model will incorporate more granular risk factors, decompose the risk profile of assets more precisely and integrate alternative risk premia investing into a diversified portfolio that seeks to grow substantially over time. It will also add a significant, new dimension to analysing and managing the risks of its illiquid alternative investments by systematizing a new risk decomposition framework for illiquid assets.

ATP believes that a broader understanding of its portfolio based on risk factors can offer more nuanced insight into the ultimate sources of risk and return. Integrating these factors into its asset allocation framework, it believes, is an important part of the investment model that maintains its competitive edge. This new framework will face a number of challenges; they include the difficulty of identifying systematic risk factors, particularly where data is sparse, and the time required to build up internal capabilities. Although risk-factor investing can entail long periods of underperformance, ATP appears to be fully committed to preparing its asset allocation framework for the future.

Endnotes

1 The unemployed also contribute, in which case the government pays employer contributions.
[2] ATP (2016).
[3] Ibid.
[4] Faber (2015).
[5] ATP changed its pension product in January 2015. All future contributions were assigned rolling 15-year rather than lifelong guarantees, which was the case before 2015. Thus, while a significant part of ATP's pension liabilities were still long-dated, all of ATP's pension liabilities over time will be rolling guarantees of not more than 15 years.
[6] Fama and French (1992).
[7] Carhart (1997).
[8] The Economist (2010).
[9] Brinson, Hood and Beebower (1986).
[10] Ibbotson and Kaplan (2000).

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5. Employer Perspectives

K. Robert Bosch: Occupational pension approach

Summary: Bosch maintains its commitment to occupational pensions as a core benefit to employees and broader society.

Challenges:

Increasing life expectancies and lower birth rates	
Low levels of financial literacy	X
Lack of easy access to pensions	X
Inadequate savings rates	X
Low-growth investment environment	
High degree of individual responsibility to manage savings	X

Authors: Dirk Jargstorff, Senior Vice-President, Corporate Pensions and Related Benefits, Robert Bosch; Hansjörg Müllerleile, Director, Corporate Pensions and Related Benefits, Robert Bosch

Founded in 1886, Robert Bosch, known also as "Bosch", is a multinational engineering and electronics company headquartered in Germany. In 1929, Bosch introduced its first pension system to help provide retirement income for employees. Since then, in keeping with the tradition set by the company founder, the pension system has been continuously updated and developed.

As the Bosch group has expanded globally (currently, Bosch is represented in 150 countries with about 390,000 employees), numerous pension systems around the world in very diverse cultural, political and economic environments have applied the original system's core values, including safeguarding employees against existential risks. Despite this diversity, the company has managed to uphold its socially responsible approach and care for associates, and considers the occupational pension an extension of Bosch's core values. For decades Bosch has actively participated in political discussions attempting to improve the legislative framework for occupational schemes, as it believes they provide a significant benefit to society.

Bosch believes occupational pensions offer employees the most efficient way to accumulate capital for retirement. An employer provides a workplace pension as a benefit to its employees, rather than as an investment product sold to individuals on the market. According to Bosch, second-pillar occupational pensions, being not-for-profit and having a collective structure, are a vital component of any national pension system.

Key characteristics of the Bosch pension system:

- Pension commitment from the board and shareholders that is embedded in company values
- Commitment to excellence and sustainability demonstrated through the pension benefits provided, as well as via administrative capabilities and employee communications
- Management and operation by the company of its own Institution for Occupational Retirement Provision (IORP)
- Strong and trusting cooperation with social partners supporting company decisions and minimizing risks
- Sophisticated investment strategy, coordinated globally
- Attractive, innovative, simplified and transparent solutions

To manage plans globally, Bosch adopted a centralized pension governance steering structure, enabling the company to provide a highly efficient pension solution by managing costs and contracts on a global level. This approach has also allowed Bosch to maintain its commitment to providing the most sustainable solution, one that is robust and resilient even through difficult macroeconomic conditions.

To respond to the challenges facing retirement plans, Bosch initiated three activities:
1) Executing a pension master plan for Germany, the home market
2) Establishing a global governance framework
3) Conducting a global de-risking programme

Collectively, this approach had the following objectives:

- Provide an innovative and sustainable solution
- Ensure continued competitiveness in the labour market
- Reduce risks for the company (e.g. pension benefit guarantees, demographic changes, increasing longevity)
- Minimize balance-sheet risks (preferably through defined contribution [DC] systems) while ensuring a best-possible pension income at a given contribution rate

– Take advantage of higher return opportunities through a more flexible investment strategy
– Provide a high level of transparency for both the company and beneficiaries
– Create plans to support cross-border transfers (e.g. allow assets to be transferred into a pan-European fund, once available)

1) Pension master plan for Germany

The master plan for Germany represented a transition from a traditional diversified pension promise structure of more than 70 different pension plans (mainly book reserves) to one consolidated pension solution that includes:
– First-in-industry pension funds established alongside a traditional German book reserves structure, providing similar flexibility in investment strategy and efficiency of management
– Bosch Pensionsfonds, the core component of the Bosch Vorsorge Plan, the workplace pension solution established to combine employer and employee contributions in one structure
– A reasonable safety level offered to beneficiaries, allowing for an excellent risk-bearing capacity to provide best long-term returns even under rough circumstances
– Highly professional outsourcing partners providing:
  – Fiduciary management (ensuring a holistic approach to strategic controlling, managing asset liability and implementing the investment strategy)
  – Independent investment adviser and controller
  – Administration services
  – Participant communication
  – Fund management
– A strong relationship and connection with employees (e.g. including employees on the pension committee)

2) Global governance framework
This framework required the right balance between local responsibility and global oversight and integration. Main elements of the global governance framework include:
– Global corporate pension guidelines (e.g. principles regarding pension promises, guidelines on financial management of the plan, description of local/regional vs corporate responsibilities, approval processes)
– Global preferred provider policy
– Global actuary mandate
– Global broker mandate
– Global risk mitigation programme
– Global pension management competencies
  – Standards to ensure local internal teams have the appropriate, required pension expertise
– Regular sharing of best practice between countries

The global mandates are contracted and guided globally, but work locally. With that approach they meet two important requirements:
1. Provide the global steering group with knowledge of the local systems at any given time, as well as control when and if needed
2. Give the local management team the ability to manage local systems under the direction of centralized global guidelines

It is crucial to strike the right balance of trust in local competencies and the ability to assess risks and efficiencies on a global level.

3) Global de-risking programme

So that Bosch's pension plans could provide sustainable management and intergenerational equality, global de-risking of those plans was deemed necessary. The de-risking programme focused on defined benefit (DB) plans, aiming to shift them to DC or hybrid solutions. Under this initiative, Bosch belonged to the first Western companies to introduce DC plans to Japan and China. In addition, significant plan changes were implemented in the United States, United Kingdom, Brazil and many other countries to reduce any unnecessary risk exposure for the company without cutting employee benefits. These changes were made while also maintaining competitiveness in the local labour markets.

Challenges

The lack of political support to create an appropriate legislative framework.is a major challenge facing occupational pensions. Legislation can have ambiguous objectives, and can change without warning, depending on the political interests of legislators and supervisors.

The special nature and needs of IORPs are often not well understood. In many cases, the legislative framework does not help to optimize solutions for beneficiaries, whether legislation is lacking or regulations create unnecessary complexity.

Key insights

Lessons from Bosch’s experience include:
– Involve social partners from the very beginning, at least in countries where they play a vital role, and involve them in institutional operations: Such partners create a very powerful multiplier effect and can help to maintain trust in the approach. Also, they can be helpful and supportive when unpopular decisions must be made.
– Have a clear vision and long-term commitment: The employer’s vision needs to be well and frequently communicated to social partners. Both sides must be willing to address challenges and act in the best interests of employees and the company.
– Recognize that innovative solutions cannot be implemented without corresponding adjustments to the legal framework: This requires continuous involvement and contribution to political discussions.

What contributed to Bosch's success?

– The company's position and strong commitment to offer an occupational pension
– The board's understanding of what is required to continuously improve the system and ensure it remains state-of-the-art
– The company's commitment to excellence, which relates to everything: products as much as services, solutions and schemes, including employee benefits
– An empowered pension team that worked with experts externally, including policy-makers and industry stakeholders
– A highly qualified pension team with excellent competencies, ambition, attitude and passion

Future initiatives

Bosch believes that national and other (e.g. European) policy-makers should be fundamentally interested in preserving and fostering occupational pension schemes as an efficient and, therefore, valuable way of providing retirement income for workers. The legislative framework should:

– Safeguard the reliability and predictability of benefits
– Offer flexibility
– Facilitate the creation of inexpensive, efficient and major cross-border collective structures, with completely equal supervision to support cross-border portability

Endnotes

[1] "Social partners" in this context describes a group that provides employee input and representation for pension decisions. In some situations, this may be referred to as a workers/employee council or committee.

[2] IORP is a directive of the European Union designed to create an internal market for providing occupational retirement. It lays down minimum standards for funding pension schemes and the types of investments pensions may make, and permits cross-border management of pension plans. For more details, see http://www.pensionseurope.eu/iorp-ii-directive.

[3] IPE International Publishers, IPE Awards 2016, https://ipe.swoogo.com/awards2017/winners2016.

L. CERN: Occupational pension approach

Summary: CERN Pension Fund has adopted an investment strategy that will serve the member base and its size most effectively.

Challenge:

Increasing life expectancies and lower birth rates	
Low levels of financial literacy	
Lack of easy access to pensions	
Inadequate savings rates	
Low-growth investment environment	X
High degree of individual responsibility to manage savings	

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Founded in 1954 in Geneva, Switzerland, the European Council for Nuclear Research (l'Organisation européene pour la recherche nucléaire, or CERN) was one of Europe's first intergovernmental organizations. It now has 22 member states and six associate member states, including countries from outside Europe, as well as a world-class fundamental physics research laboratory established in 1954.

The CERN Pension Fund provides pension benefits to over 7,000 beneficiaries. Over the past few years, institutional investors, in a search for yield, have been increasing allocations into illiquid assets and alternative strategies. At just over $4 billion in assets under management, the CERN Pension Fund performed extensive analysis on allocating assets customizing an investment strategy in the most effective way to serve the member base and its size. The analysis focused on the products' appeal and risk, and outlined the approach, adopted by the CERN Pension Fund, to manage them.

Rationale behind the drive to illiquid and alternative strategies

A number of elements motivate institutional investors to move into illiquid assets and alternative investment products. One is the financial industry's focus on volatility, or measures derived from it. The appeal of such measures of risk is that they are easy to calculate and communicate to management, boards and sponsors. While an investment's compounded returns clearly suffer from high volatility, a single statistical measure of the investment return distribution clearly cannot summarize the multidimensional nature of risk associated with any investment.

In considering private equity investments, the CERN Pension Fund studied the idea that selection bias can overstate returns and understate idiosyncratic risk. In other words, the returns expected on paper would only be those of successful firms, while firms that fail would drop out of the database. Indeed, and as expected, the systemic risk exposure is lower on paper than in reality, and so are volatilities of returns. Arguably, and when fees are accounted for, any alpha is truly added by private equity investments. Fee levels have been estimated at more than 25% of capital invested, while performance has been below that of the Standard & Poor's (S&P) 500. In addition, the subjectivity in the valuation of private equity funds represents another uncertainty; a fund's true value is only discovered when it is liquidated, a decade or so later.

The good news is that the top quartile of private equity funds have managed to outperform the S&P 500 over the same period. However, not all investors will manage to identify and access the top quartile of investment managers. Furthermore, with regard to the predictability of these funds' returns, a previous track record is not an accurate predictor of performance when raising capital. Private equity's left-tail performance – the period of an investment's most extreme downside performance – is not substantially different from that of listed equities. Investor-agency interaction is an additional issue; it is rife with different types of risk and conflict of interest, which are neither immediately transparent nor controlled by the average investor in private equity funds.

Risk is not limited to illiquid assets. Regarding liquid markets, institutional investors have been exploring investment vehicles or products based on listed liquid assets, which promise the higher yields and low volatility that investors want. The trend towards risk premia, smart beta and alternative beta, be it long only or long/short, is another example of a set of products that presents types of risk that are not immediately obvious.

The CERN Pension Fund believes that premia are gained by taking risk and performing proper due diligence, as taking risk alone is not sufficient to achieve positive returns. The discourse in academic literature on different risk premia somehow appears to obscure one common fact: the existence of a type of risk premium related to a certain asset class is not sufficient to guarantee either capital preservation or positive returns when invested in that asset class. For example, a piece of real estate, given its idiosyncratic nature, can lose a large portion of its value in an otherwise surging real estate market in the same country or region. A commercial building that loses 80% of its value would arguably lose more if it would be a liquid asset, thanks to the illiquidity premium. While this may be true, it is meagre consolation for someone who suffers this type of write-down. In addition, while leverage serves as an essential tool of investing, the CERN Pension Fund is mindful that turning an illiquid, low-yielding investment into a higher-yielding one through leverage does not make it a better investment on a risk-adjusted basis.

The CERN approach

The CERN Pension Fund has taken the view that searching for higher yields in the current environment requires the following:

1. Re-evaluate the underlying investment model
2. Examine unexploited sources of yield currently harvested by other agents in the value chain of assets (performing some of the functions currently served by intermediaries and gaining their portion of investment returns)
3. Avoid leveraging illiquid assets

Outsourcing vs insourcing

Taking its size, governance constraint and availability of resources into consideration, each investor should find its own "sweet spot" that best balances outsourcing and insourcing. The risk of outsourcing must be carefully weighed against the benefit. Outsourcing may provide little or no benefit if no strong competence in an asset class is available in-house (as the investor may also lack the competence to select an outsourced service provider or to effectively supervise its actions). At a minimum, in-house competence should be sufficiently developed to allow investors to carry out serious value-added due diligence on outsourcing managers.

CERN analysed asset classes to identify those it felt belonged to a portfolio of an institutional investor of similar size; this was defined as the basis of its asset space. It assessed internal competence and resources for this subset to determine which would allow full direct implementation and control of the investment process. For many institutional investors with internal portfolio management capabilities, this would typically include competence in equities and fixed income. By assessing the level of development of the base competences, it could decide whether the asset-class coverage was complete or partial. A more appropriate way to meet the needs of those with partial or insufficient coverage was through strengthening internal infrastructure and resources.

Managing risk and preserving capital, two cornerstones of the CERN Pension Fund's governance, require strong competence and fully understanding and controlling the investment process. Straying from this framework exposes the invested capital to unknown and therefore uncontrollable risk. For private markets, this can expose investors to the risk of providing liquidity to smarter investors, or to taking uncontrolled risk as with quantitative strategies based on liquid assets. For instance, previous external management of a large quantitative equity allocation was replaced by in-house equity allocation quantitative models and expertise. While it required investing in and developing internal infrastructure and models, this was a natural approach given the organization's quantitative nature and focus on research, and it received support and encouragement from governing bodies.

Benefits of insourcing

Insourcing brought about unexpected benefits. Allocation models were built for the quantitative equity strategy, but the team also developed extremely useful experience and knowledge when monitoring and assessing the quantitative strategies of external managers. The resulting deep critical thinking and questioning would otherwise have been difficult to develop if investment team members were not directly and actively engaged in their respective fields of competence.

Invest in resourcing and required infrastructure

With opaque illiquid markets, the team needs the infrastructure and competencies for assessing deals in depth and selecting those that will deliver positive returns as well as the targeted risk premia. The same applies to elaborate quantitative strategies based on liquid assets, which are often disguised as innocuous index products. In-house competence is extremely important to manage risk here as well.

The CERN Pension Fund is currently assessing competencies for the asset classes it is invested in and deciding how those could be further developed or complemented. Significant progress has already been made in real estate, private debt and the hedge fund, where it has identified internal team synergies and put the appropriate structures in place.

Challenges

An institutional investor adopting a similar approach may face challenges if the governance framework and supervisory bodies are vulnerable to cyclical changes in attitudes and viewpoints. Because this strategy is difficult to assess over the short term, a long-term commitment and performance tracking are important.

The CERN Pension Fund has benefited from a governance framework that allows investment decisions to be taken at the appropriate level while ensuring a robust level of reporting and control. At the same time, significant effort has been invested in training board members, as both knowledge and discipline are required to resist falling into the above discussed traps of the latest fad of new products and the outsized promises of illiquidity premia.

Key insights

Importantly, the Fund's approach must be well communicated and understood by individuals at all levels of the governance structure. That approach can be summarized as:

- Restrain from undertaking, late in the cycle, what market forces push investors to do
- Strive to harvest unexploited sources of yield to cover the whole value chain of the investment process
- Concentrate on areas of base in-house competence
- If competence is missing in-house for a certain asset class, obtain it either by hiring or acquiring knowledge; if this cannot be done, abandon the asset class

– Align return ambitions with effort and work, and refrain from looking for shortcuts
– Train all stakeholders on the multiple dimensions of investment risk

Endnotes

[1] Korteweg and Sorensen (2010).
[2] Ang (2011).
[3] Estimated by Phalippou and Gottschalg (2009).
[4] Ibid.
[5] Ibid.
[6] According to research carried out by Hochberg, Ljungqvist and Vissing-Jørgensen (2014).
[7] As pointed out by Ang (2011).
[8] Ang (2011) describes this in detail.

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Our objective is to raise awareness among key stakeholders of the implications of the market shift and to look for opportunities to drive pension policy reforms. We will also identify best practices and draft recommendations aimed at ensuring: 1) access by individuals to retirement solutions; 2) the sustainability of retirement systems; and 3) access by businesses and infrastructure to long-term capital.

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