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INDEX

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# LETTER FROM ACFS

The Australian Centre for Financial Studies (ACFS) is delighted to be a partner in the research which has resulted in the 2012 Melbourne Mercer Global Pension Index (the Index).

ACFS is a not-for-profit consortium of Monash University, RMIT University and Finsia (Financial Services Institute of Australasia) which was established in 2005 with seed funding from the Victorian Government.

ACFS specialises in leading edge finance and investment research, aiming to boost the global credentials of Australia's finance industry, bridge the gap between research and industry, and support Australia as an international centre for finance practice, research and education. ACFS draws on expertise from academia, industry and government to facilitate industry-relevant and rigorous research and consulting, thought leadership and independent commentary.

This is the fourth edition of the Index and the responses to the first three editions have indicated its value to government, industry and academia in contributing to the debate on how we best provide for an ageing population. As part of its role in the project, ACFS has convened an expert reference group to assist in the development of the Index and ensure that it represents an independent and unbiased view. Many thanks to the members of the reference group:

- Syd Bone, Chair, Deputy Chair of Australian Centre for Financial Studies and CEO of CP2;
- Prof. Keith Ambachtsheer, Director, Rotman International Centre for Pension Management, Rotman School of Management, University of Toronto
- Assoc. Prof. Hazel Bateman, Director, Centre for Pensions and Superannuation, University of New South Wales
- Prof. Gordon Clark, Oxford University, and Sir Louis Matheson Visiting Professor, Faculty of Business and Economics, Monash University
- Prof. Kevin Davis, University of Melbourne and Research Director ACFS
- Jeremy Duffield, Chair of ACFS
- Dr Vince FitzGerald, Chairman, Allen Consulting
- Ian Silk, Chief Executive, AustralianSuper
- Prof. Susan Thorp, Faculty of Business, University of Technology, Sydney

Our thanks to author Dr David Knox and his team at Mercer, especially those in-country experts, who have assisted with the collection and interpretation of data. Thanks also to the Victorian Department of Business and Industry in the Victorian Government for supporting this study.

The launch and dissemination of the Index has been assisted both in Australia and overseas by many bodies including the Australian Industry of Superannuation Trustees, the Financial Services Council of Australia, the Association of Superannuation Funds of Australia and the Rotman International Centre for Pension Management. Our thanks go to them also.



**Professor Deborah Ralston**

Executive Director

Australian Centre for Financial Studies

# PREFACE

In light of ageing populations, low investment returns and increasing government debt in many countries, retirement income systems are coming under greater scrutiny than ever before. Notwithstanding the great diversity of policies towards pensions around the world, it is important that comparisons are made and lessons are learned from the range of approaches adopted. This report presents such research and compares retirement income systems in 18 countries, representing more than half the world's population.

Many of the challenges facing governments relating to ageing populations are similar, irrespective of their social, political, historical or economic influences. Furthermore, many of the desirable policy reforms to alleviate these challenges are also similar and relate to pension ages, the level of saving for retirement, encouraging people to work longer and some benefit design issues that can reduce leakage of benefits before retirement. In recent years some governments have made important decisions which have a positive effect on the country's index value in this report. However in other cases, it has been more difficult, often due to the expectations of those in the workforce.

The immediate objective of this research is to benchmark each country's retirement income system against more than 40 indicators. An important secondary purpose is to highlight the shortcoming in each country's system and to suggest possible areas of reform that would provide more adequate retirement benefits, increased sustainability over the longer term and/or a greater trust in the private pension system. In addition, we have continued last year's approach of including a chapter which discusses a contemporary topic. This year we are exploring the significant variety in asset allocation between different systems.

The preparation of this international report requires input, hard work and cooperation from many individuals and groups. I would like to thank them all.

First, we are delighted that the Victorian Government continues to fund this project, on the basis that we add two new countries each year. This year, we have added Denmark and Korea and we look forward to adding Indonesia and Mexico next year. The introduction of Denmark has provided us with an insight into the first A-grade system.

Second, Professor Deborah Ralston and her team at the Australian Centre for Financial Studies have played a pivotal role in this project, particularly in establishing an expert reference group of senior and experienced individuals who provided helpful suggestions and comments throughout the project.

Third, the Mercer consultants around the world have been invaluable in providing information in respect of their countries' retirement income systems, checking our interpretation of the data, and providing insightful comments.

Naturally, we would value your feedback, suggestions and comments so that next year's report will be of even greater value than this fourth index report. My hope is that you enjoy reading the report and that it provides new insights into the provision of financial security in retirement for our older citizens.



**Dr David Knox**  
Senior Partner  
Mercer

# CHAPTER 1

## EXECUTIVE SUMMARY

The provision of financial security in retirement is critical for both individuals and societies as most countries are now grappling with the social and economic effects of ageing populations. Yet, a comparison of the diverse retirement income systems around the world is not straightforward. As the OECD (2011a) comments: “Retirement-income systems are diverse and often involve a number of different programmes. Classifying pension systems and different retirement-income schemes is consequentially difficult.”<sup>1</sup>

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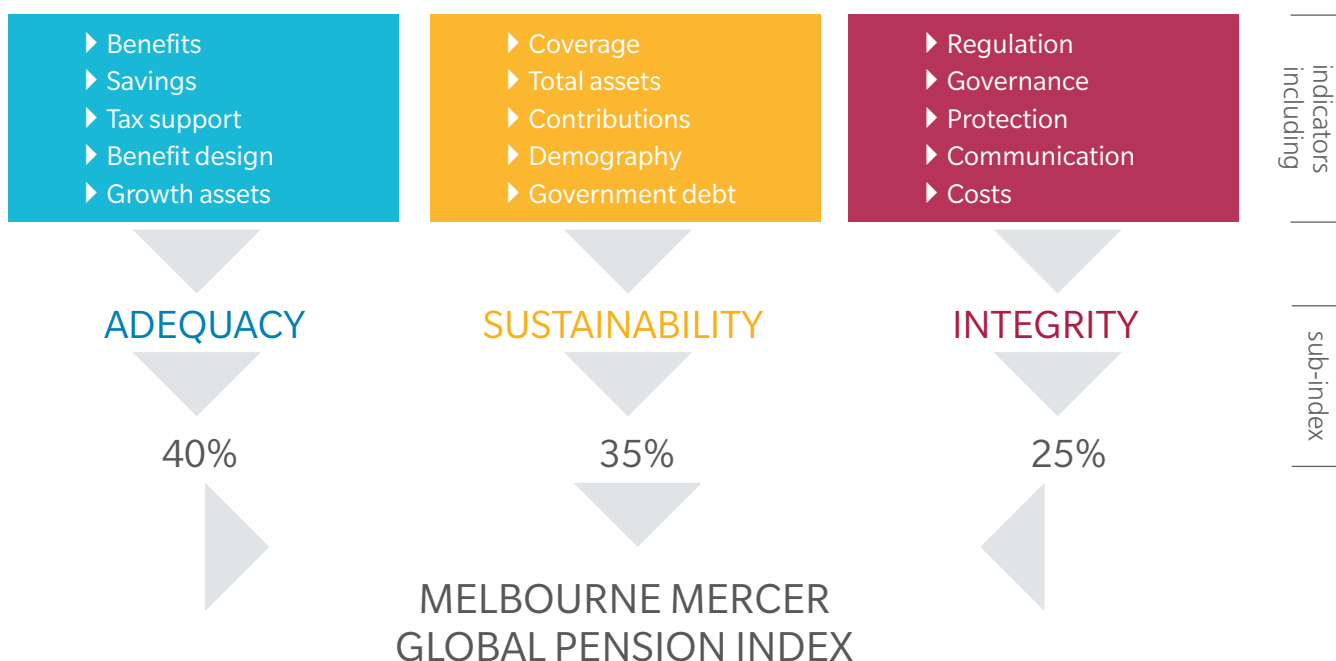
<sup>1</sup> OECD (2011a), *Pensions at a Glance 2011: Retirement-income systems in OECD and G20 countries*, OECD Publishing, p106.

Furthermore, any comparison of systems is likely to be controversial as each system has evolved from that country's particular economic, social, cultural, political and historical circumstances. There is no perfect system that can be applied universally around the world. However there are certain features and characteristics of retirement income systems that are likely to lead to improved benefits for individuals and households, an increased likelihood of future sustainability of the

system, and a greater level of confidence and trust within the community.

With these characteristics in mind, the Melbourne Mercer Global Pension Index uses three sub-indices – adequacy, sustainability and integrity – to measure each country's retirement income system against more than 40 indicators. The following diagram highlights some of the topics covered in each sub-index.

## Calculating the Melbourne Mercer Global Pension Index



The overall index value represents the weighted average of the three sub-indices. The weightings used are 40 percent for the adequacy sub-index, 35 percent for the sustainability sub-index and 25 percent for the integrity sub-index. The different weightings are used to reflect the primary importance of the adequacy sub-index which represents the benefits that are currently being provided together with some important benefit design features. The sustainability sub-index has a focus on the future and measures various indicators which will influence the likelihood that the current system will be able to provide these benefits into the future. The integrity

sub-index considers several items that influence the overall governance and operations of the system which affects the level of confidence that the citizens of each country have in their system.

This study of retirement income systems in 18 countries has confirmed that there is great diversity between the systems around the world with scores ranging from 42.4 for India to 82.9 for Denmark, with Denmark achieving the first A-grade result in the history of this research.

The following table summarises the results.

Grade	Index Value	Countries	Description
A	>80	Denmark	A first class and robust retirement income system that delivers good benefits, is sustainable and has a high level of integrity.
B+	75–80	Netherlands Australia	A system that has a sound structure, with many good features, but has some areas for improvement that differentiates it from an A-grade system.
B	65–75	Sweden Switzerland Canada	
C+	60–65	UK Chile	A system that has some good features, but also has major risks and/or shortcomings that should be addressed. Without these improvements, its efficacy and/or long-term sustainability can be questioned.
C	50–60	USA Poland Brazil Germany Singapore France	
D	35–50	China Korea (South) Japan India	A system that has some desirable features, but also has major weaknesses and/or omissions that need to be addressed. Without these improvements, its efficacy and sustainability are in doubt.
E	<35	Nil	A poor system that may be in the early stages of development or a non-existent system.

We believe that none of the countries in this study has an E-grade system, which would be represented by an index value below 35. A score between 35 and 50, representing a D-grade system, indicates a system that has some sound features but where there exist major omissions or

weaknesses. A D-grade classification may also occur in the relatively early stages of the development of a particular country's retirement income system, such as in China, Korea and India.

The following table shows the overall index value for each country, together with the index value for each of the three sub-indices: adequacy, sustainability and integrity. Each index value represents a score between zero and 100.

Country	Overall Index Value	Sub-Index Values		
		Adequacy 40%	Sustainability 35%	Integrity 25%
Australia	75.7	73.5	73.0	83.2
Brazil	56.7	71.5	26.9	74.8
Canada	69.2	74.2	56.3	79.3
Chile	63.3	50.1	67.7	78.4
China	45.4	55.7	30.5	49.7
Denmark	82.9	78.1	86.0	86.4
France	54.7	74.3	32.0	55.2
Germany	55.3	65.2	35.9	66.7
India	42.4	37.4	40.7	52.8
Japan	44.4	46.1	28.9	63.3
Korea (South)	44.7	45.1	42.3	47.5
Netherlands	78.9	77.0	73.0	90.3
Poland	58.2	63.6	43.4	70.1
Singapore	54.8	42.0	54.2	76.2
Sweden	73.4	68.0	73.3	82.5
Switzerland	73.3	71.3	67.9	84.1
UK	64.8	68.1	46.5	85.0
USA	59.0	58.3	58.4	61.1
<b>Average</b>	<b>61.0</b>	<b>62.2</b>	<b>52.1</b>	<b>71.5</b>

As noted earlier, each country's index value takes into account more than 40 indicators, some of which are based on data measurements which can be difficult to compare between countries. For this reason, one should not be too definite that one country's system is

better than another when the difference in the overall index value is less than two. On the other hand, when the difference is five or more it can be fairly concluded that the higher value indicates a country with a better retirement income system.



Chapter 5 makes several suggestions to improve each country's retirement income system. Although each system reflects a unique history, there are some common themes as many countries face similar problems in the decades ahead. As the OECD (2012a) concludes: "there is room for improvement in all countries' retirement-income provision."<sup>2</sup> The challenges that are common to many countries include the need to:

- Increase the state pension age and/or retirement age to reflect increasing life expectancy, both now and into the future, and thereby reduce the level of costs of the publicly financed pension benefits<sup>3</sup>
- Promote higher labour force participation at older ages, which will increase the savings available for retirement and reduce the length of retirement
- Encourage or require higher levels of private saving, both within and beyond the pension system, to reduce the future dependence on the public pension
- Increase the coverage of employees and/or the self-employed in the private pension system, recognising that many individuals will not save for the future without an element of compulsion or automatic enrolment
- Reduce the leakage from the retirement savings system prior to retirement thereby ensuring that the funds saved, often with associated taxation support, are used for the provision of retirement income.

It is interesting to note that Jackson et al (2010) of the Center for Strategic and International Studies concluded from their work on the Global Aging Preparedness Index that whilst there are many strategies available to address the economic and social challenges of an ageing population, two in particular can be win-win solutions. They are "extending work lives and increasing funded retirement savings."<sup>4</sup> Both these developments would improve a country's adequacy and sustainability sub-index values through higher retirement ages, increased labour force participation at older ages, greater pension coverage, higher contribution rates, increased savings and a higher level of pension assets.

More recently Karam et al (2011) of the IMF noted that "The pension reform with the most positive long-term economic effects is one that extends people's working years."<sup>5</sup> They also add that the impact of a cooperative approach to age-related fiscal reform is greater than when only one region undertakes reform. We agree. These challenges are not restricted to a single country or region. They are global and need to be considered within that context.

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2 OECD (2012a), *OECD Pensions Outlook 2012*, p13.

3 It should be noted that several countries have moved in this direction in recent years but even in these cases, very few are linking the future age to the ongoing increases in life expectancy.

4 Jackson et al (2010), *The Global Aging Preparedness Index*, p52.

5 Karam et al (2011), *Beyond Retirees, Finance and Development*, p15.

# CHAPTER 2

## BACKGROUND TO THE APPROACH USED

The structure and characteristics of pension systems around the world exhibit great diversity with a wide range of features and norms. Comparisons are not straightforward. In addition, the lack of readily available and comparable data in respect of many countries provides additional challenges for such a comparison. This situation is improving and the OECD in particular has made significant progress in recent years. Nevertheless it must be recognised that the lack of reliable data in respect of some key indicators remains a significant issue. For this reason, this report uses a wide variety of data sources.

These challenges of data and benchmarking should not, however, prevent the comparison of retirement income systems. This topic, within the context of our ageing populations and other long term financial pressures, is too important to be ignored. Furthermore, there is no doubt that policies and practices adopted in some countries provide valuable lessons, experience or ideas for the development or reform of pension systems in other countries.

This fourth report of the Index compares the retirement income systems of 18 countries spread over five continents, highlighting both the considerable diversity and the positive features that are present in many systems. Notwithstanding these highlights, the study also confirms that no pension system is perfect and that every system has some shortcomings. In Chapter 5, suggestions are made for improving the efficacy of each country's retirement income system. In that respect it is hoped that this study will act as a stimulus for each of the countries in the study (and indeed, other countries as well) to review their retirement income system and to consider making improvements so that future retirement incomes for their citizens can be improved.

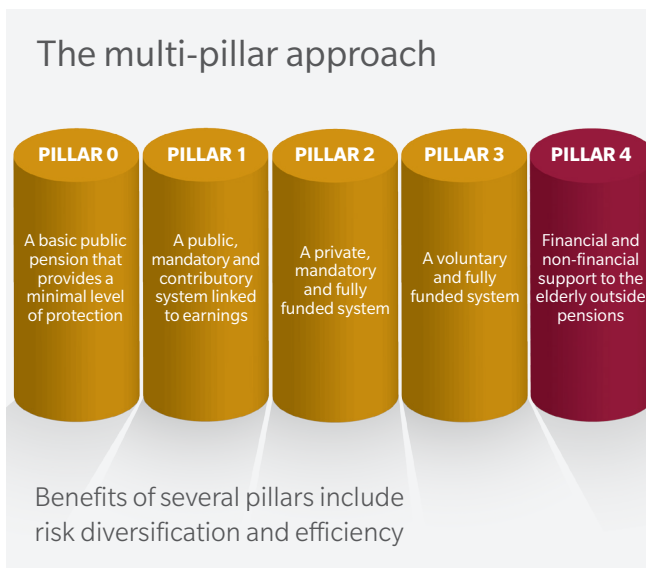
In its influential report "Averting the Old Age Crisis", the World Bank (1994) recommended a multi-pillar system for the provision of old-age income security comprising:

- Pillar 1: A mandatory publicly managed tax-financed public pension
- Pillar 2: Mandatory privately managed, fully funded benefits
- Pillar 3: Voluntary privately managed fully funded personal savings

Subsequently, Holzmann and Hinz (2005) of the World Bank extended this three-pillar system to the following five-pillar approach:

- Pillar 0: A basic pension from public finances that may be universal or means-tested
- Pillar 1: A mandated public pension plan that is publicly managed with contributions and, in some cases, financial reserves
- Pillar 2: Mandated and fully funded occupational or personal pension plans with financial assets
- Pillar 3: Voluntary and fully funded occupational or personal pension plans with financial assets

Pillar 4: A voluntary system outside the pension system with access to a range of financial and non-financial assets and support



In effect, they split the original first pillar into two and also divided the third pillar by adding a new fourth pillar which includes personal savings, home ownership and other assets held outside the pension system. The recognition of this fourth pillar highlights the important role that these assets play in providing financial support to individuals or households during retirement.

This five-pillar approach provides a good basis for comparing retirement income systems around the world. Hence the range of indicators used in this report considers features or results associated with each pillar.

The 'best' system for a particular country at a particular time must take into account that country's economic, social, cultural, political and historical context. In addition, regulatory philosophies vary over time and between countries. There is no pension system that is perfect for every country at the same time. It is not that simple! There are, however, some characteristics of all pension systems that can be tested or compared to give us a better understanding of how each country is tackling the provision of retirement income.

The Melbourne Mercer Global Pension Index has grouped these desirable characteristics into adequacy, sustainability and integrity.

## Adequacy

The adequacy of benefits is perhaps the most obvious way to compare different systems. After all, the primary objective of any pension system is to provide adequate retirement income. Thus this sub-index considers the base level of income provided as well as the net replacement rate for a median-income earner. It is recognised that an analysis focussing exclusively on benefits provided to a median-income earner does not represent the full spectrum of different income levels and that a more complete picture could be provided by considering benefits for a range of income levels. However, a more comprehensive approach would add considerable complexity to the comparison and risk a distraction from focussing on adequacy for the majority of workers.

Critical to the delivering of adequate benefits are the design features of the private pension system (or Pillars 2 and 3). Whilst there are many features that could be assessed, we have considered the following five, each of which represents a feature that will improve the likelihood that adequate retirement benefits are provided:

- Are voluntary member contributions by a median-income earner to a funded pension plan treated by the tax system more favourably than similar savings in a bank account? This question assesses whether the government provides any incentives to encourage middle income earners to save for retirement. It is recognised that the taxation treatment of pensions varies greatly around the world so this question assesses whether an incentive exists or not, not the value of the concession.
- Is there a minimum access age to receive benefits from the private pension plans (except for death, invalidity and cases of significant financial hardship)? This question determines whether the private pension system permits leakage of the accumulated benefits before retirement or whether the regulations are focussed on the provision of retirement benefits.
- On resignation from employment, are plan members normally entitled to the full vesting of their accrued benefit? After resignation, is the value of the member's accrued benefit normally maintained in real terms (either by inflation-linked indexation, or through market investment returns)? These questions focus on what happens to the individual's accrued benefits when they change employment. Traditionally, many pension designs penalised resigning members

which, in turn, affected the level of benefits available at retirement.

- What proportion, if any, of the retirement benefit from the private pension arrangement is required to be taken as an income stream? Many systems around the world provide lump sum retirement benefits which are not necessarily converted into an income stream. This question reviews the rules affecting the form of benefits that is required to be provided.
- Upon a couple's divorce or separation, are the individuals' accrued pension benefits normally taken into account in the overall division of assets? This question recognises that the financial treatment of accrued pension benefits can have a major effect on the future financial security of one or both partners, following a divorce or separation.

In addition to these design issues, we consider savings from outside formal pension programs, thereby highlighting the fact that, as the World Bank notes, Pillar 4 assets can play an important role in providing financial security in retirement. It is also recognised that Pillar 4 includes access to informal support (often the family) but the importance of this support is very difficult to measure in an objective manner.

Finally, we recognise that the net investment return over the long term represents a critical factor in determining whether an adequate retirement benefit will be provided. This is particularly true for the increasing number of members of defined contribution plans. While investment and administrative costs are considered as part of the integrity sub-index, the long term return is likely to be affected by the diversity of assets held by the pension fund. Hence the adequacy sub-index includes an indicator representing an assessment of the percentage of investments held in growth assets (including equities and property).

## Sustainability

The long-term sustainability of the current retirement income system in many countries is a concern, particularly in the light of the ageing population, the increasing old age dependency ratio and, in some countries, increasing government debt. This sub-index therefore brings together several measures that affect the sustainability of current programs. Whilst some demographic measures, such as the old age dependency ratio (both now and in the future) are difficult to change, others such as the state pension or retirement age,

the opportunity for phased retirement and the labour force participation rate amongst older workers can be influenced, either directly or indirectly, by government policy.

An important feature of sustainability is that the long-term risks are shared or, to put it another way, involve all the relevant stakeholders. Hence, this sub-index also considers contribution rates, the level of pension assets and the coverage of the private sector pension system. Finally, given the key role that the provision of a public pension plays in most countries, the existing level of government debt represents an important factor affecting a system's long-term sustainability.

## Integrity

The third sub-index considers the integrity of the overall pension system, but with a focus on the private sector system. After all, as most countries are relying on the private system to play an increasingly important role in the provision of retirement income over the longer term, it is critical that the community has confidence in the ability of private sector pension providers to deliver retirement benefits over many years into the future.

This sub-index therefore considers the role of regulation and governance, the protection provided to participants from a range of risks and the level of communication provided to members. In each case, we consider the requirements set out in the relevant legislation.

This year we have added an indicator based on the World Bank's Worldwide Governance Indicators as it is critical that the residents in each country trust the governance and legal framework of the overall system over the long term.

An important component of this long term confidence desired by members is that they receive good value from their pension plan and that costs are kept to a reasonable level. Although an international comparison of the total costs of operating each country's system is difficult, this sub-index includes some proxy measures relating to industry structure and scale which should provide a good indicator.

## The construction of the index

In the construction of the index, we have endeavoured to be as objective as possible in calculating each country's index value. Where international data are available, we have used that data. In other cases, we have relied on information provided by Mercer consultants in each country. In these instances, we have not asked them to assess the quality of their country's system. Rather we have asked them objective questions to which, in many cases, there is a "yes" or "no" answer. Of course, in some countries there is more than one system or different regulations in different parts of the country. In these cases, we have concentrated on the most common system or taken an average position.

The answers to some of these objective questions may be neither "yes" nor "no", but "to some extent". In these cases, we have compared responses from other countries and ranked each country accordingly, after receiving additional detail.

Each country's overall index value is calculated by taking 40 percent of the adequacy sub-index, 35 percent of the sustainability sub-index and 25 percent of the integrity sub-index. These weightings have remained constant since the first index in 2009.

Although each sub-index is not weighted equally, the robustness of the overall results is worth noting. For example, re-weighting of each sub-index equally does not provide any significant changes to the results, although most country's index value increases due to the higher average score of the integrity sub-index.<sup>6</sup>

It is acknowledged that living standards in retirement are also affected by a number of other factors including the provision and costs of health services (through both the public and private sectors) and the provision of aged care. However some of these factors can be difficult to measure within different systems and, in particular, difficult to compare between countries. It was therefore decided to concentrate on indicators that directly affect the provision of financial security in retirement, both now and in the future. Therefore the index does not claim to be a comprehensive measure of living standards in retirement; rather it is focused on the provision of financial security in retirement.

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<sup>6</sup> The attachments provide the results for the indicators in each sub-index so that readers may calculate the effects of changing the weights used between the sub-indices or, indeed, within each sub-index.

# CHAPTER 3

## CHANGES FROM 2011 TO 2012

The index has been expanded in 2012 to include two additional countries; namely Denmark and Korea. These additions continue the theme of considering a variety of retirement income systems from countries with different economic and political backgrounds. This highlights an important characteristic of the index; that is, to enable comparisons of retirement income systems around the world with a wide range of design features and norms.

We have also added two new questions this year.

The first is to include the World Bank's Worldwide Governance Indicators as part of the integrity sub-index. This development broadens the sub-index by considering governance at the national level whilst maintaining the previous questions which assessed the governance of private pension arrangements. The inclusion of this new question means that the integrity sub-index value for some countries (including Brazil, China, India and Poland) has been adversely affected.

The introduction of this question required a change in weightings for the integrity sub-index to 50 percent for the Regulation and Governance indicators (including the new question R5) and 40 percent for the Protection and Communication indicators which were previously 47.5 percent and 42.5 percent respectively. The weighting for Costs remains at 10 percent.

The second new question was a development of the indicator in the integrity sub-index which asked whether members were required to receive an annual report. With the growth of defined contribution plans around the world, it is important that members are provided with a minimum level of information on the broad asset classes in which the members' benefits are invested. The requirements for disclosure of investment allocation ranged from nil through to a full disclosure of all investments.

We have also slightly altered the scoring system for question A10 within the adequacy sub-index, which considers the proportion of total pension assets invested in growth assets. The maximum score can now be achieved if the percentage of assets invested in growth assets is between 40 percent and 60 percent, whereas the previous range was 50 to 60 percent. This change recognises that whilst diversification of a plan's investments is important, the previous range was too

narrow. This adjustment means that the index value for countries where pension assets have an investment allocation to growth assets of up to 50 percent has been positively affected.

There have been three other broad influences that have affected the index value for many countries from 2011 to 2012.

Firstly, there were positive returns from equity markets during 2010. This outcome means that countries where the pension assets have a significant equity exposure have been positively affected in respect of question S2 (which considers assets as a percentage of the country's GDP) and which forms an important part of the sustainability sub-index. The countries that have been most affected are Australia, Canada, the United Kingdom and the United States of America.

Secondly, there has been a change for some countries in the method by which the OECD measures the coverage of private pension plans, which forms the basis for question S1. The latest figures available in 2012 show significant differences from those available in 2011 for the Netherlands, Singapore, the United Kingdom and the United States of America. The differences mostly arise from refinements to the data available to the OECD for their calculation of pension coverage. These changes have resulted in an increased score for the Netherlands and the USA but reduced scores for Singapore and the United Kingdom.

Finally, some countries have passed legislation during the year which affected Social Security benefits, pension ages, taxation support and/or the rules governing pension plans. Naturally these changes affected the index values of the relevant countries and these are mentioned in the summaries in Chapter 5.

## A comparison from 2011 to 2012

The following table compares the results for the 16 countries which were part of the index in both 2011 and 2012. Comments in respect of each country are in Chapter 5.

Country	Total		Adequacy		Sustainability		Integrity	
	2011	2012	2011	2012	2011	2012	2011	2012
Australia	75.0	75.7	73.6	73.5	71.4	73.0	82.4	83.2
Brazil	58.4	56.7	71.0	71.5	27.3	26.9	81.7	74.8
Canada	69.1	69.2	74.1	74.2	55.8	56.3	79.7	79.3
Chile	64.9	63.3	53.1	50.1	67.8	67.7	79.8	78.4
China	42.5	45.4	48.1	55.7	30.6	30.5	50.1	49.7
France	54.4	54.7	73.6	74.3	30.7	32.0	56.8	55.2
Germany	54.2	55.3	63.5	65.2	36.4	35.9	64.4	66.7
India	43.4	42.4	37.3	37.4	39.4	40.7	58.8	52.8
Japan	43.9	44.4	44.1	46.1	28.4	28.9	65.2	63.3
Netherlands	77.9	78.9	75.9	77.0	70.8	73.0	91.4	90.3
Poland	58.6	58.2	64.3	63.6	40.7	43.4	74.5	70.1
Singapore	56.7	54.8	41.9	42.0	60.9	54.2	74.5	76.2
Sweden <sup>7</sup>	73.4	73.4	67.7	68.0	75.4	73.3	79.9	82.5
Switzerland	72.7	73.3	70.4	71.3	67.7	67.9	83.5	84.1
UK	66.0	64.8	67.8	68.1	50.8	46.5	84.5	85.0
USA	58.1	59.0	58.7	58.3	54.4	58.4	62.5	61.1
<b>Average</b>	<b>60.6</b>	<b>60.6</b>	<b>61.6</b>	<b>62.3</b>	<b>50.5</b>	<b>50.5</b>	<b>73.1</b>	<b>72.0</b>

These results show that there has been very little change in the overall index value for each country, with only China increasing by more than two points. However such a conclusion hides some of the changes at the sub-index value level. For example, the adequacy sub-index

increased by two or more in respect of China and Japan, whilst the sustainability sub-index rose by more than two in respect of the Netherlands, Poland and the United States of America. The integrity sub-index increased by more than two in respect of Germany and Sweden.

<sup>7</sup> Note that the October 2011 Index report showed an index value of 72.6 and an adequacy sub-index value of 65.6 which were both amended due to a subsequent correction in OECD data which affected Sweden only.



# CHAPTER 4

## ASSET ALLOCATION FOR PENSION FUNDS

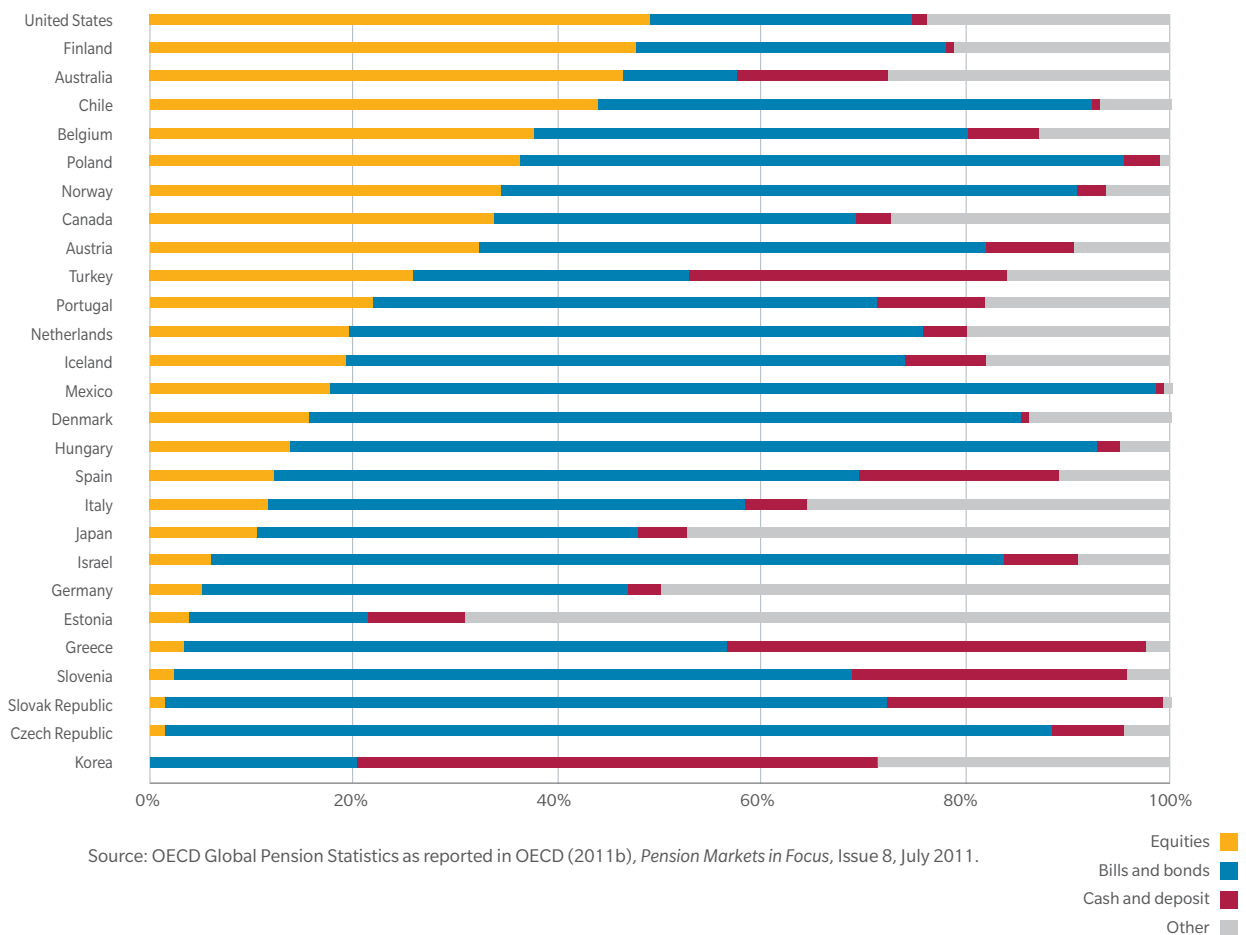
The primary objective of funded pension arrangements is to set aside funds during individuals' working years so that money is available to support them during their retirement years. In essence, it is a very simple concept and saving for the future has been around for centuries.

When it comes to saving for retirement, there are only three possible sources to generate the required level of funds at retirement. They are contributions, whether paid by the employer, the employee or the self-employed; support from government, either through direct contributions or taxation concessions with reduced taxation rates, direct subsidies or rebates; and investment income received by the pension plans from interest payments, dividends, property rentals, other forms of income and capital gains. In fact, under normal economic circumstances, the investment return generated by a pension plan during an individual's working and retirement years is by far the most important determinant in the provision of adequate retirement income. Indeed, more than 80 percent of an individual's retirement income is normally generated by the investment income received due to the power of compound interest and the long term horizons. Such an outcome applies in respect of both defined benefit (DB) and defined contribution (DC) arrangements.

This result means that the asset allocation of pension plans is probably the most important decision made by the plan's fiduciaries or trustees in their objective of providing adequate retirement incomes. It certainly has a direct effect on all defined contribution members. However, it can also have an effect on defined benefit members as a shortfall in funds, due to poor investment returns, can cause the closure or freezing of these arrangements.

The following graph shows the overall asset allocation of the retirement income system in 27 countries, as published by the OECD. The Other category includes loans, land and buildings, unallocated insurance contracts, private investment funds, other mutual funds (i.e. not invested in cash, bills and bonds or equities) and other investments.

## Pension fund asset allocation for selected investment categories in selected OECD countries, 2010



The relative high value for the Other category in some countries is also caused by a range of additional items, including:

- Australia – the net equity of pension funds in life office reserves
- Canada – other mutual funds
- Italy and Korea – unallocated insurance contracts
- Japan – payable and receivable accounts and outward investments in securities
- Germany – loans and other mutual funds
- Estonia – private investment funds

Notwithstanding the high value of Other investments in some countries, which include a variety of investments, it is apparent that there is great diversity in the asset allocation of pension plans around the world.

For example, when you allow for the Other category of assets, it is probable that the United States of America, Finland and Australia have at least half of their pension plans assets in equities and other growth assets. By comparison, several countries are likely to have at least 80 percent or 90 percent of the pension plans' assets invested in bills, bonds, cash and deposits.

On an asset-weighted basis, the importance of equities is even more important than suggested by the graph on the previous page. That is, based on the OECD data, the assets in six countries (Australia, Canada, Japan, the Netherlands, the United Kingdom and the United States of America) represent 89 percent of all pension assets in OECD countries and, with the exception of Japan, all these countries are located in the top half of the graph.<sup>8</sup>

This diverse asset allocation around the world highlights the following fundamental question for all funded pension arrangements:

*Given the critical importance of investment return in providing adequate retirement incomes from funded pension arrangements, what is the most appropriate long term asset allocation for pension plans?*

<sup>8</sup> Although the United Kingdom is not shown in the 2010 data, it ranked fifth in terms of equities exposure as shown in OECD (2011a), p181.

Simply put, there is not a single correct answer to this question that would apply in all circumstances. However, in view of its fundamental importance, it is worth considering the issues that should drive the asset allocation decision made by trustees, fund executives and/or fiduciaries.

There are a range of factors that need to be taken into account.

The first group of factors relates to the risk appetite of the ultimate risk bearer, whether they be the member in a DC plan, the employer sponsor in a DB arrangement, or both parties in a hybrid arrangement.

Within a DC environment, every individual member is likely to have a different risk appetite depending on their personal circumstances which is affected by their age, health, period to retirement, family circumstances, eligibility for Social Security benefits, other sources of retirement income, home ownership and the form of retirement benefits that they expect to receive. In general, younger members may be willing to withstand greater volatility in their investment returns in the hope of achieving higher returns while those who are planning to receive a lump sum benefit or purchase an annuity will not wish to experience a significant decline in their accumulated benefit as they approach retirement. Furthermore, many retirees in the drawdown phase are focussed on receiving a regular and stable income. That is, their measure of risk is more likely to be associated with the avoidance of loss rather than the standard deviation used by many practitioners in the investment industry.

In many DC arrangements, a default investment strategy is adopted for members who do not make an investment choice, where that is available. However a single strategy is clearly inappropriate for all members due to their diverse personal circumstances and varied risk appetites. Hence, it is prudent for the default arrangements to generate stable income and/or reducing volatility for older members as they approach retirement or are in the drawdown phase.

A DB environment is very different as the employer or sponsor bears most of the risk and the member has been provided with a promise that the benefit will be paid.<sup>9</sup>

<sup>9</sup> It is recognised that in some cases this promise may not be met due to poor investment returns or employer insolvency. However, this outcome is a relatively rare event in most countries.

The sponsor may have developed a DB pension scheme for many reasons including the need to attract or retain staff, competitive pressures, local expectations, other business objectives or legislative requirements. A key question for the sponsor is how volatile are they willing to let their future level of contributions become which, in turn, directly affects their risk appetite and the plan's investment strategy. It is also noted that if the sponsor has deliberately adopted a de-risking strategy, a higher allocation to fixed interest assets is likely.

A related but different question is the potential impact of accounting standards on the sponsor's balance sheet. Certain investment strategies of the DB pension plan can mitigate the effect of lower bond yields which would otherwise lead to an increase in the liabilities. Again, the investment strategy relates to the risk appetite of the major sponsor.

Whatever the actual pension arrangements, there should be a clear relationship between the plan's objectives, the assets, the liabilities and the risk appetite of the major stakeholders.

The second group of factors relates to the actual liabilities of the pension scheme. This is similar to the variety of risk tolerances discussed above but in this case, the investments are strongly driven by the actual liabilities. That is, the desire is to hedge, as far as possible, the future cash outflows with appropriate investments. Pension payments represent the best example where the future payments are broadly known, although there may be some uncertainty relating to longevity and future indexation rates. In this case, there is a desire to match the future investment cash flows with these 'known' payments. Naturally, such a desire tends to lead to a relatively high percentage of assets in fixed interest securities, and particularly indexed linked bonds, where available.

As the OECD Guidelines on Pension Fund Asset Management (2006) expresses it:

"The investment objectives should be consistent with the retirement income objective of the pension funds, and therefore, with the fund's liabilities."

A third group of factors relates to the characteristics of the particular economy where the pension plan is located. The history and stage of each country's social and economic development will affect the expectations of members, the availability of relevant securities (whether

they be debt, equity and/or hybrids), the depth and liquidity of the capital markets as well as the correlation between different asset classes. It is noteworthy that many of the countries with some of the highest market capitalisation in the world, when measured on a per capita basis, tend to have a relatively higher exposure to equities.

In addition, the local taxation and legal arrangements, as well as the level of government and corporate debt may also affect the availability of different financial securities. These variations mean that some asset classes may be more attractive than others due to the economic and financial arrangements of a particular country.

## The MMGPI approach

The Melbourne Mercer Global Pension Index considers the overall retirement income system in each country. We do not consider the characteristics or investment strategies of individual pension plans. However, it is apparent from the above discussion that there can be significant diversity in terms of investment policies between countries. It is recognised that many factors feed into this diversity, even when the asset allocation of the whole system is considered. Some of these characteristics include:

- the relative importance of DB and DC plans, including the form of benefits provided;
- the risk tolerance of DB sponsors;
- the age structure of the population, including pensioners;
- the benefits provided by Social Security which affect the importance of private pensions and the risk appetite of individuals;
- the growth prospects of the economy which affect the pricing within the financial markets;
- the maturity of the capital markets; and
- the legislative and taxation framework.

The OECD data allocated assets into three broad categories of equities, bonds and cash. In view of the paucity of data available, this approach is understandable. However, it should be recognised that this division of assets is somewhat limited with a significant "other" category for many countries.

We have therefore adopted an alternative approach which considers a split between “growth” and “defensive” assets. Whilst such a division is not perfect, it highlights the proportion of assets that are linked to economic growth compared to those that are designed to provide more stable returns. Generally “growth” assets are investments made with the objective of achieving an investment return that comprise both income and capital growth and include equities, property and some alternative assets such as infrastructure and private equity. Whilst some of these assets may be less liquid (or marketable) than other assets, it is also recognised that over the long term, these assets are likely to bear some relationship with the general standard of living and economic conditions within the economy. On the other hand, it is also recognised that the market value of growth assets is more volatile than defensive assets.

By contrast, “defensive assets”, such as fixed interest securities and cash, generally provide stable investment income but have no long-term link with economic conditions. However, it should also be noted that not all bonds, even sovereign bonds, are equal. There is always some risk present, as has recently become evident in some markets. It is also noted that under the current economic conditions, some sovereign bonds are now providing negative inflation-adjusted returns with no prospect of a long-term positive real return. Such an outcome raises a fundamental question about the outcome of funded arrangements and the provision of adequate benefits in the future.

The following table shows the answers to our question in the adequacy sub-index concerning the proportion of the total pension assets invested in growth assets in each country. Whilst these results are not exact due to the lack of complete data for most countries, they have been provided by Mercer experts in each country who are familiar with local conditions. It is again clear that, as with the earlier OECD results, there is great diversity.

Growth assets (% of total assets)	Countries
71–80%	Australia
61–70%	Nil
51–60%	Canada, Switzerland, UK, USA
41–50%	Chile
31–40%	Germany, Japan, Poland
21–30%	Brazil, France, Netherlands, Sweden
11–20%	China, Denmark
0–10%	India, Korea, Singapore

As noted above, there is not a single asset allocation that is correct for all circumstances. However this information does suggest that the asset allocation in certain countries is unlikely to provide the best outcome over the longer term.

We believe that the assets of the total pension system in any country should have a mix of growth and defensive assets.<sup>10</sup> Hence the scoring for question A10 in the adequacy sub-index gives the maximum score for countries with an allocation of between 40 percent and 60 percent to growth assets. Such a decision also confirms the benefits of diversification, in line with modern portfolio theory.

Diversification of assets across several investment categories (beyond equities and bonds) should also represent a fundamental feature of all pension plans. That is, these plans should be long term investors across a range of asset categories with both appropriate risk management practices and disclosure to plan members in place. Such developments are likely to provide improved investment outcomes as well as providing capital for ongoing economic development.

For countries with a “growth” asset allocation higher than 60 percent, as is the case for Australia, a maximum score was not achieved. The reason is that such an allocation provides a high level of exposure to volatile assets, particularly in a country which is predominantly DC, where members bear all the investment risk. A broader range of assets, including corporate bonds and credit, is likely to provide a better long-term outcome for members.

On the other hand, some countries have a very low exposure to growth assets. This is likely to limit the return achieved by the pension plans over the longer term which, in turn, affects the retirement benefits provided. It is recognised that in several economies, the capital markets are still developing and it may be impractical to invest a significant proportion of the assets in growth assets at this stage. Other countries also impose restrictions in investments in equities. Whatever the current situation, the goal should be to broaden the asset allocation over coming years in all countries.

<sup>10</sup> This does not imply that every pension plan should have this allocation for the many reasons discussed earlier.

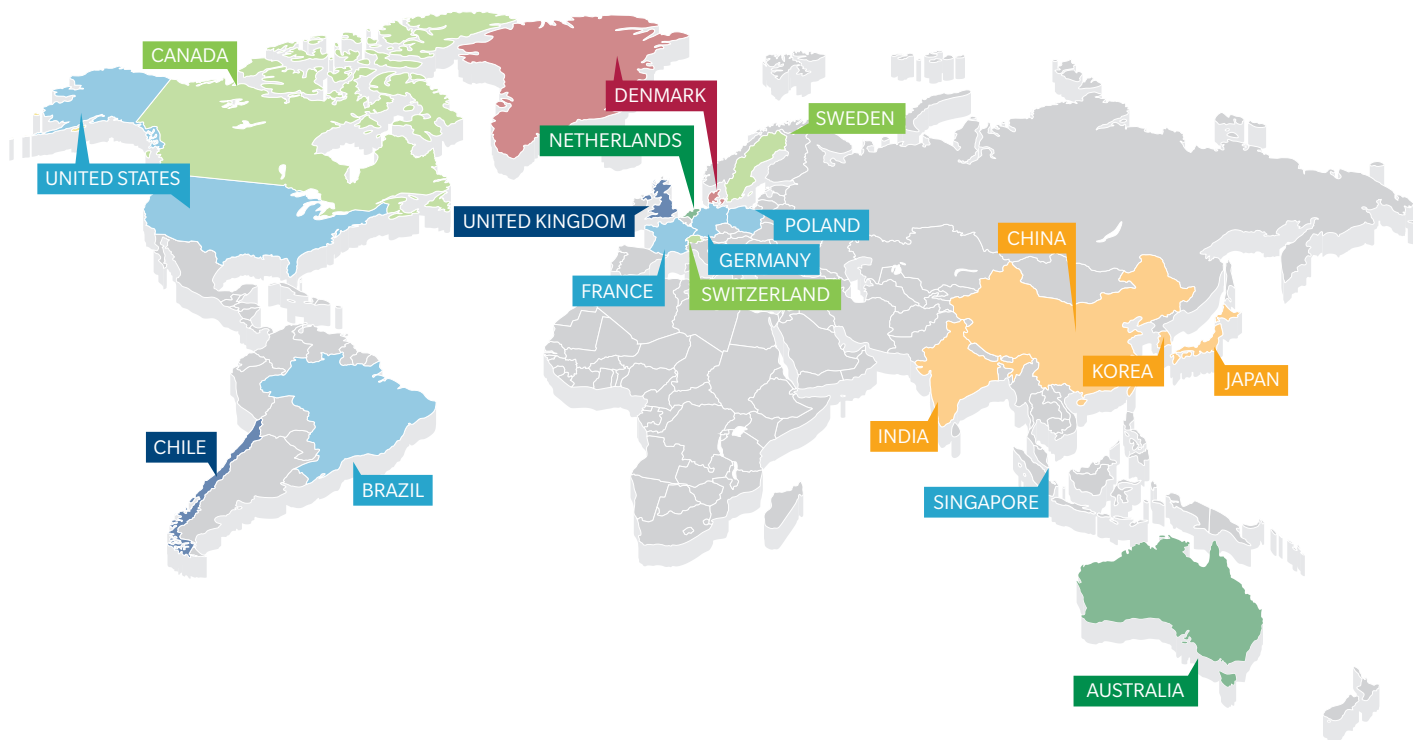
# CHAPTER 5







## A BRIEF REVIEW OF EACH COUNTRY

This chapter provides a brief summary of the retirement income system of each country in this study, together with some suggestions that would — if adopted — raise the overall index value for that country. Of course, whether such developments are appropriate in the short term depend on the country's current social, political and economic situation. Where relevant, a brief comment is also made about the change in the country's overall index value from 2011 to 2012.

As we review each country's results, it is noteworthy that Denmark received an overall index value of 82.9 and becomes the first system to be classified as A-grade. Interestingly, this is similar to the score that was described as a gold standard in last year's report. Denmark scores very well in most of the adequacy indicators; has a very well funded system with a high level of assets and strong contributions; and a private pension system with well developed regulations.

# Global Grades



Grade	Index Value	Countries	Description
A	>80		A first class and robust retirement income system that delivers good benefits, is sustainable and has a high level of integrity.
B+	75–80		A system that has a sound structure, with many good features, but has some areas for improvement that differentiates it from an A-grade system.
B	65–75		
C+	60–65		A system that has some good features, but also has major risks and/or shortcomings that should be addressed. Without these improvements, its efficacy and/or long-term sustainability can be questioned.
C	50–60		
D	35–50		A system that has some desirable features, but also has major weaknesses and/or omissions that need to be addressed. Without these improvements, its efficacy and sustainability are in doubt.
E	<35	Nil	A poor system that may be in the early stages of development or a non-existent system.



## Australia

Australia's retirement income system comprises a means-tested age pension (paid from general government revenue); a mandatory employer contribution paid into private sector arrangements (mainly DC plans); and additional voluntary contributions from employers or employees paid into these private sector plans.

The overall index value for the Australian system could be increased by:

- introducing a requirement that part of the retirement benefit must be taken as an income stream
- increasing the labour force participation rate amongst older workers
- introducing a mechanism to increase the pension age as life expectancy continues to increase
- increasing the minimum access age to receive benefits from private pension plans so that retirement benefits are not available more than five years before the age pension eligibility age

The Australian index value increased from 75.0 in 2011 to 75.7 in 2012 primarily due to an increase in the level of pension assets and a rise in the labour force participation rate amongst those aged 55–64. The increase in the mandatory Superannuation Guarantee contribution from 9 percent to 12 percent has not yet had any impact on the index value as the transition begins from 1 July 2013.



## Brazil

Brazil's retirement income system comprises a pay-as-you-go social security system with higher replacement rates for lower income earners; and voluntary occupational corporate and individual pension plans which may be offered through insurance companies or pension trusts.

The overall index value for the Brazilian system could be increased by:

- introducing a minimum access age so that the benefits are preserved for retirement purposes
- increasing the level of coverage of employees in occupational pension schemes thereby increasing the level of contributions and assets
- introducing a minimum level of mandatory contributions into a retirement savings fund
- increasing the state pension age over time
- introducing arrangements to protect the pension interests of both parties in a divorce
- enabling individuals to retire gradually whilst receiving a part pension

The Brazilian index fell from 58.4 in 2011 to 56.7 in 2012 primarily due to our introduction of the Worldwide Governance Indicators.



## Canada

Canada's retirement income system comprises a universal flat-rate pension, supported by a means-tested income supplement; an earnings-related pension based on revalued lifetime earnings; voluntary occupational pension schemes (many of which are defined benefit schemes); and voluntary individual retirement savings plans.

The overall index value for the Canadian system could be increased by:

- increasing the coverage of employees in occupational pension schemes through the development of an attractive product for those without an employer-sponsored scheme
- increasing the level of household savings
- maintaining the real value of accrued pension benefits from resignation until retirement

The Canadian index value increased slightly from 69.1 in 2011 to 69.2 in 2012 reflecting the positive impact of increasing the State pension age and the increase in assets which was offset by the negative impact of a reduction in the coverage of private pension plans as measured by the OECD.





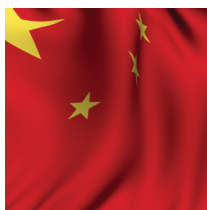
## Chile

Chile's retirement income system comprises means-tested social assistance; a mandatory privately-managed defined contribution system based on employee contributions with individual accounts managed by a small number of Administradoras de Fondos de Pensiones (AFPs); and a framework for supplementary plans sponsored by employers (the APVC schemes).

The overall index value for the Chilean system could be increased by:

- introducing a minimum access age for the supplementary plans so that it is clear that these benefits are preserved for retirement purposes
- introducing a requirement that part of the retirement benefit must be taken as an income stream
- continuing to review the minimum pension for the poorest pensioners
- raising the level of mandatory contributions to increase the net replacement rate
- introducing arrangements to protect the interests of both parties in a divorce
- enabling individuals to retire gradually whilst receiving a part pension

The Chilean index value fell from 64.9 in 2011 to 63.3 in 2012 primarily due to a significant reduction in the household savings rate as measured by the Economist Intelligence Unit.



## China

China's retirement income system comprises an urban system and a rural system. Both of them have a basic pension consisting of a pooled account (from employer contributions or fiscal expenditure) and individual accounts (from employee contributions).

Supplementary plans are also provided by some employers.

The overall index value for the Chinese system could be increased by:

- introducing taxation incentives for employee contributions to the supplementary plans
- introducing a requirement that part of the supplementary retirement benefit must be taken as an income stream
- increasing the state pension age over time
- enabling individuals to retire gradually whilst receiving a part pension
- improving the level of communication required from pension plans to members

The Chinese index value increased from 42.5 in 2011 to 45.4 in 2012 primarily due to recent decrees which required pension assets to be included in divorce settlements and ongoing improvements in the regulatory framework.



## Denmark

Denmark's retirement income system comprises a public basic pension scheme, a means-tested supplementary pension benefit, a fully funded defined contribution scheme, and mandatory occupational schemes.

The overall index value for the Danish system could be increased by:

- raising the level of household saving
- introducing arrangements to protect the interests of both parties in a divorce
- increasing the labour force participation rate amongst older workers
- providing greater protection of members' accrued benefits in the case of fraud, mismanagement or provider insolvency



## France

France's retirement income system comprises an earnings-related public pension with a minimum pension level; two mandatory occupational pension plans for blue and white collar workers respectively; and voluntary occupational plans.

The overall index value for the French system could be increased by:

- increasing the level of funded contributions thereby increasing the level of assets over time
- increasing the state pension age over time
- increasing the labour force participation rate amongst older workers
- improving the regulatory requirements for the private pension system

The French index value increased slightly from 54.4 from 2011 to 54.7 in 2012 primarily due to an increase in the level home ownership as shown in the latest data.



## Germany

Germany's retirement income system comprises an earnings-related pay-as-you-go system based on the number of pension points earned during an individual's career; a means-tested safety net for low-income pensioners; and supplementary pension plans which are common amongst major employers. These plans typically either adopt a book reserving approach, with or without segregated assets, or an insured pensions approach.

The overall index value for the German system could be increased by:

- raising the minimum pension for low-income pensioners
- increasing the requirement that part of the retirement benefit must be taken as an income stream
- continuing to increase the labour force participation rate amongst older workers
- improving the level of communication from pension arrangements to members

The German index value increased slightly from 54.2 in 2011 to 55.3 in 2012 primarily due to the change in scoring for the level of investment in growth assets and an improvement in the integrity sub-index.



## India

India's retirement income system comprises an earnings-related employee pension scheme, a defined contribution employee provident fund and voluntary employer managed funds.

The overall index value for the Indian system could be increased by:

- introducing a minimum level of support for the poorest aged individuals
- introducing a minimum access age so that it is clear that benefits are preserved for retirement purposes
- improving the regulatory requirements for the private pension system
- continuing to improve the required level of communication to members from pension arrangements
- increasing the pension age as life expectancy continues to increase
- increasing the level of contributions in statutory pension schemes

The Indian index value fell from 43.4 in 2011 to 42.4 in 2012 primarily due to our introduction of the Worldwide Governance Indicators.



## Japan

Japan's retirement income system comprises a flat-rate basic pension; an earnings-related pension; and voluntary supplementary pension plans.

The overall index value for the Japanese system could be increased by:

- raising the minimum pension for low-income pensioners
- increasing the level of pension provision and hence the expected net replacement rate for all income earners
- introducing a requirement that part of the retirement benefit must be taken as an income stream
- announcing a further increase in the state pension age as life expectancy continues to increase

The Japanese index value increased slightly from 43.9 in 2011 to 44.4 in 2012 primarily due to an increase in the adequacy sub-index arising from the introduction of tax relief for employee contributions and the change in scoring for the level of investment in growth assets.



## Korea (South)

Korea's retirement income system comprises a modest basic pension and a public earnings-related pension scheme with a progressive formula, based on both individual earnings and the average earnings of the insured as a whole.

The overall index value for the Korean system could be increased by:

- improving the level of support provided to the poorest pensioners
- introducing a requirement that part of the retirement benefit from private pension arrangements must be taken as an income stream
- increasing the level of funded contributions thereby increasing the level of assets over time
- increasing the state pension age over time
- improving the governance requirements for the private pension system, including the need for an audit
- improving the level of communication required to members from pension plans



## The Netherlands

The Netherlands' retirement income system comprises a flat-rate public pension and a quasi-mandatory earnings-related occupational pension linked to industrial agreements. Most employees belong to these occupational schemes which are industry-wide defined benefit plans with the earnings measure based on lifetime average earnings.

The overall index value for the Dutch system could be increased by:

- introducing a minimum access age so that it is clear that benefits are preserved for retirement purposes
- raising the level of household saving
- increasing the labour force participation rate amongst older workers
- providing greater protection of members' accrued benefits in the case of fraud, mismanagement or employer insolvency

The Dutch index value increased from 77.9 in 2011 to 78.9 in 2012 due to several factors including an increase in the state pension age, a rise in pension coverage as measured by the revised OECD methodology due to the use of survey data and the change in scoring for the level of investment in growth assets.



## Poland

Poland's retirement income system was reformed in 1999. The new system, which applies to people born after 1968, comprises a minimum pension and an earnings-related system with notional accounts. The overall system is in transition from a pay-as-you-go system to a funded approach. There are also voluntary employer sponsored pension plans and individual pension accounts.

The overall index value for the Polish system could be increased by:

- raising the minimum level of support available to the poorest pensioners
- introducing a requirement that part of the retirement benefit from private pension arrangements must be taken as an income stream
- raising the level of household saving
- increasing the level of funded contributions thereby increasing the level of assets over time
- increasing the labour force participation rate amongst older workers
- introducing tax incentives to occupational pension plans

The Polish index value fell slightly from 58.6 in 2011 to 58.2 in 2012 due to our introduction of the Worldwide Governance Indicators and a reduction in their net household saving rate. These reductions were partly offset by the change in scoring for the level of investment in growth assets.



## Singapore

Singapore's retirement income system is based on the Central Provident Fund which covers all residents. Some benefits are available to be withdrawn at any time for specified housing and medical expenses with other benefits preserved for retirement. A prescribed minimum amount is required to be drawn down at retirement age to buy a lifetime income stream.

The overall index value for the Singaporean system could be increased by:

- raising the level of social assistance available to the poorest aged members of society
- increasing the percentage of contributions required to be saved for retirement
- reducing the barriers to establish tax-approved group corporate and other retirement plans, to encourage non-residents (who comprise more than one-third of the labour force) to save for their retirement
- increasing the labour force participation rate amongst older workers

The Singaporean index value fell from 56.7 in 2011 to 54.8 in 2012 due to a reduction arising from the revised coverage figures as measured by the OECD. This reduction was offset by increases in the level of contributions required for retirement and our introduction of the Worldwide Governance Indicators.



## Sweden

Sweden's retirement income system was reformed in 1999. The new system is an earnings-related system with notional accounts. The overall system is in transition from a pay-as-you-go system to a funded approach. There is also an income-tested top-up benefit which provides a minimum guaranteed pension.

The overall index value for the Swedish system could be increased by:

- increasing the state pension age to reflect increasing life expectancy
- allowing and encouraging employee contributions into employer sponsored plans, as well as private savings
- improving tax incentives for employee contributions
- requiring annual information about the pension plan as a whole to be provided to plan members, as well as the individual statements
- introducing arrangements to protect all the pension interests of both parties in a divorce

The Swedish index value remained steady at 73.4<sup>11</sup> from 2011 to 2012 although there was a fall in the household savings rate and a fall in the value of assets due to improved data. This reduction was offset by the change in scoring for the level of investment in growth assets and our introduction of the Worldwide Governance Indicators.

<sup>11</sup> Note that the October 2011 Index report showed an index value of 72.6 which was amended due to a subsequent correction in OECD data which affected Sweden only.



## Switzerland

Switzerland's retirement income system comprises an earnings-related public pension with a minimum pension; a mandatory occupational pension system where the contribution rates increase with age; and voluntary pension plans which are offered by insurance companies and authorised banking foundations.

The overall index value for the Swiss system could be increased by:

- introducing a requirement that part of the retirement benefit must be taken as an income stream
- increasing the state pension age over time
- introducing a universal requirement to permit individuals to retire gradually whilst receiving a part pension

The Swiss index increased slightly from 72.7 in 2011 to 73.3 in 2012 primarily due to an increase in the level of home ownership based on the latest available data.



## The United Kingdom

The United Kingdom's retirement income system comprises a flat-rate basic pension supported by an income-tested pension credit; an earnings-related pension based on revalued average lifetime salary; and voluntary private pensions, which may be occupational or personal. Most of the larger voluntary occupational pensions are currently contracted-out of the earnings-related social security benefit.

The overall index value for the British system could be increased by:

- raising the minimum pension for low-income pensioners
- introducing a level of mandatory funded contributions
- increasing the coverage of employees in occupational pension schemes
- raising the level of household saving

The British index value fell from 66.0 in 2011 to 64.8 in 2012 primarily due to a significant reduction in pension coverage as indicated in the latest OECD information, where they relied on survey data rather than the previously used administrative data which had multiple counting issues.



## United States of America

The United States' retirement income system comprises a social security system with a progressive benefit formula based on lifetime earnings, adjusted to a current dollar basis, together with a means-tested top-up benefit; and voluntary private pensions, which may be occupational or personal.

The overall index value for the American system could be increased by:

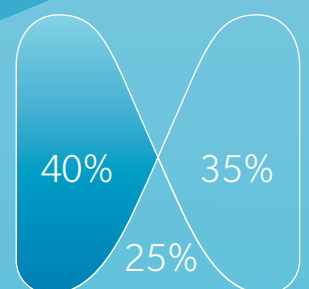
- raising the minimum pension for low-income pensioners
- adjusting the level of mandatory contributions to increase the net replacement for median-income earners
- improving the vesting of benefits for all plan members and maintaining the real value of retained benefits through to retirement
- reducing pre-retirement leakage by further limiting the access to funds before retirement
- introducing a requirement that part of the retirement benefit must be taken as an income stream

The American index value increased from 58.1 in 2011 to 59.0 in 2012 primarily due to an increase in pension coverage as the OECD information is now using survey data and an increased level of fund assets. This improvement was partly offset by a fall in the household saving rate and increased government debt.

# CHAPTER 6

## THE ADEQUACY SUB-INDEX

The adequacy sub-index considers the benefits provided to both the poor and the median-income earner, as well as several design features and characteristics (including asset allocation) which enhance the efficacy of the overall retirement income system. The net household saving rate and home ownership rate are also included as non-pension savings can represent an important source of financial security during retirement.



The countries with the highest value for the adequacy sub-index are Denmark (78.1) and the Netherlands (77.0), with India (37.4) and Singapore (42.0) having the lowest values. Whilst several indicators influence these scores, the level of the minimum pension (expressed as a percentage of the average wage) and the net replacement rate provided for a median-income earner are the most important.

Full details of the values in respect of each indicator in the adequacy sub-index are shown in Attachment 1.

## Question A1

What is the minimum percentage of the average wage that a single aged person will receive?

### Objective

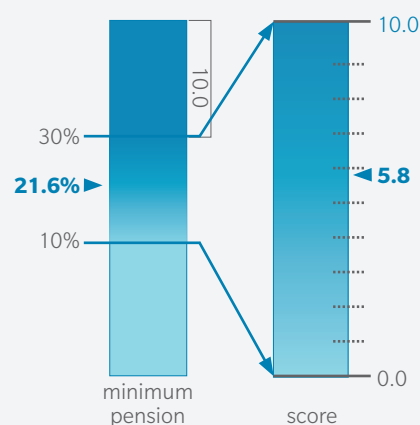
An important objective of any retirement income system is to provide a minimum pension to the aged poor. In terms of the World Bank's recommended multi-pillar system, it represents the non-contributory basic pension or Pillar 0, which provides a minimum level of income for all aged citizens. This minimum pension assumes no work experience, but will often require a minimum period of residency.

### Calculation

There is no correct answer as to what the minimum pension should be, as it depends on a range of socio-economic factors. However, it is suggested that a minimum pension of about 30 percent<sup>12</sup> of national average earnings adequately meets the poverty alleviation goal. Hence a minimum pension below 30 percent will score less than the maximum value, with a zero score if the pension is 10 percent or less of average earnings, as such a pension offers very limited income provision. Minimum pensions of 30 percent or higher of average earnings receive the maximum score of 10.

<sup>12</sup> This level was chosen in 2009 when it was slightly higher than the OECD average of 27% for their first tier benefits as shown in OECD (2009a), p157–160.

## Calculating A1 — Minimum Pension



### Commentary

The minimum pension for most countries is between 15 percent in Chile and 34 percent in Denmark. India does not provide a minimum pension whilst Korea and Singapore provide very modest public assistance. The Chinese results have been modified as the minimum pension is not available throughout the country.

### Weighting

The major objective of any nation's retirement income system is to provide income support for its older citizens. The level of actual benefits therefore represents the major measurable outcome from the system. Hence this measure (which considers the income provided for the poorest in the community), together with the next measure (which calculates the income for a median-income earner), represent the two most important components within the adequacy sub-index. This indicator is therefore given a weighting of 17.5 percent in the adequacy sub-index.

## Question A2

What is the net replacement rate for a median-income earner?

### Objective

In “Averting the Old Age Crisis”, the World Bank (1994) suggested that a target replacement rate for middle income earners from mandatory systems should be:

- 78 percent of the net average lifetime wage
- 60 percent of the gross average lifetime wage
- 53 percent of the net final year wage
- 42 percent of the gross final year wage

It also noted that “The government should not necessarily mandate the full pension that might be desirable for individual households.”<sup>13</sup> That is, these targets could be met through a combination of mandatory and voluntary provisions.

The OECD produces measures of the net replacement rate for an individual earning the median-income (revalued with earnings growth) throughout his/her working life. Median income is used as it is a better representation than average earnings, which are skewed upwards by the highest income earners.

These calculations assume no promotion of the individual throughout their career; that is, the individual earns the median income throughout. Therefore replacement rates based on lifetime median income will be higher than when expressed in terms of final salary for most individuals.

The OECD expresses a target replacement rate of 70 percent of final earnings<sup>14</sup> which includes mandatory pension for private sector workers (publicly and privately funded) and typical voluntary occupational pension plans for those countries where such schemes cover at least 30 percent of the working population.

This indicator for the adequacy sub-index should only include mandatory components of a retirement income system for private sector workers, as voluntary plans that may include only 30 percent of the working population do not represent a good indicator of the total system.

The target benefits from a mandatory system should be less than 70 percent of final earnings to allow for individual circumstances and some flexibility. An objective of between 45 percent and 65 percent of final earnings is considered reasonable. Using the ratios between lifetime earnings and final earnings, the target for a net replacement rate (i.e. after allowing for personal income taxes and social security contributions) for a median-income earner from a mandatory system should be within the range of 70–100 percent of median lifetime earnings (revalued with earnings growth).

A net replacement rate below 70 percent of lifetime earnings suggests a significant reliance on voluntary savings whereas a figure above 100 percent does not provide the flexibility for individual circumstances and may suggest overprovision. The OECD average for a median-income earner is 72 percent of lifetime earnings.<sup>15</sup>

### Calculation

The maximum score for this indicator is obtained for any country with a result between 70 percent and 100 percent. Only Brazil and Denmark are within this range, with the Netherlands lying above it at 103.3 percent. Any score outside this range scores less than the maximum with a zero score being obtained for a result less than 20 percent or more than 150 percent.

For Singapore, the OECD data lists the net replacement rate for mean income earners; we have therefore performed a positive adjustment to this figure in order to align it with the other results based on median-income earners. Notwithstanding this adjustment, the net replacement rate for Singapore is less than 20 percent.

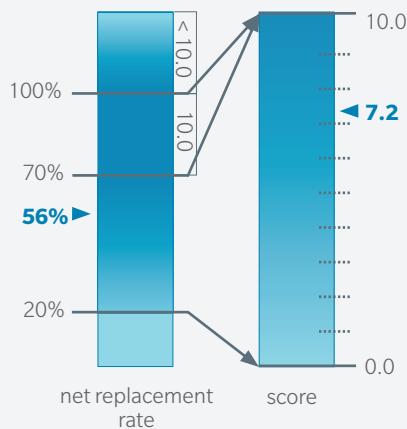
13 The World Bank (1994), *Averting the Old Age Crisis*, p295.

14 OECD (2009b), *OECD Private Pensions Outlook 2008*, p121.

15 OECD (2011a), *Pensions at a Glance 2011*, p125 as corrected by corrigenda 17 October 2011.



## Calculating A2 — Net Replacement Rate for Median Income Earner



### Commentary

With the exception of Brazil, Denmark, the Netherlands and Singapore, all countries have a result between about 40 percent (China, India and Japan) and 66 percent (Switzerland). The Singapore result, calculated by the OECD, is low due to the availability to members of most of their savings in the Central Provident Fund prior to retirement. On the other hand, the Netherlands result may be considered to produce a pension that is slightly too high for a median-income earner, whilst also not providing the appropriate individual flexibility throughout their lifetime. The Chinese figure has been adjusted to reflect the varying level of replacement rates that exist in practice, as shown in Park (2012). The Indian figure has been adjusted to reflect the low coverage of mandatory pension schemes, as shown in OECD (2011b).

### Weighting

These results represent a major outcome in the assessment of any retirement income system. As this indicator is likely to reflect the benefits provided to a broader group of retirees than the previous question, this indicator is given the highest weighting in the adequacy sub-index, namely 25 percent.

## Question A3

What is the net household saving rate in the economy?

### Objective

The living standards of the aged will depend on the benefits arising from the total pension system (which was covered in the previous two questions) as well as the level of household savings outside the pension system. In some countries, these savings may represent an important factor in determining the financial support available to the aged.

### Calculation

We have used data from the Economist Intelligence Unit and calculated the saving rate in the following way:

$$\text{Household Saving Rate} = \frac{(\text{PDIN} - \text{PCRD})}{\text{PDIN}}$$

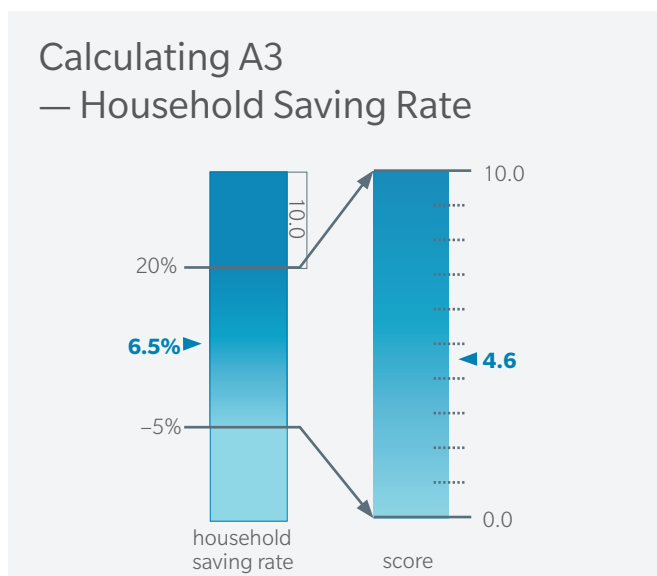
PDIN = Personal disposable income

PCRD = Private consumption

To remove some volatility that may occur in annual figures, we have averaged the 2010 and 2011 measurements.

The calculated household saving rates ranged from minus 9.0 percent in Denmark to 16.6 percent in China and 31.0 percent in India. We have provided a maximum score for any country with a saving rate of 20 percent or higher, and a zero score for any country with a saving rate of less than minus five percent.

It is noted that the EIU's calculation excludes contributions to pension plans. This is consistent with our approach as we allow for both pension plan assets and the level of pension contributions as part of the sustainability sub-index.



## Commentary

The net household saving rate provides some indication of the level of current income that is voluntarily being set aside from current consumption, either for retirement or for other purposes.

## Weighting

The weighting for this measure has been set at 10 percent for the adequacy sub-index. This indicates the importance of household savings, although it is noted that some of this saving will be used for other purposes. It is also recognised that most voluntary household saving will be carried out by higher income households so that this measure is unlikely to assist those at lower and median income levels.

## Question A4

Are voluntary member contributions made by a median-income earner to a funded pension plan treated by the tax system more favourably than similar savings in a bank account?

## Objective

The level of total retirement benefits received by an aged person will depend on both the mandatory level of savings and any voluntary savings, which are likely to be influenced by the presence (or otherwise) of taxation incentives designed to change individual behaviour.

## Calculation

This indicator is concerned with any taxation incentives that make savings through a pension plan more attractive than through a bank account. The benchmark of a bank account was chosen as this saving alternative is readily available in all countries.

## Commentary

All countries, except for China, offer some taxation incentive for voluntary contributions. In Japan and Sweden, additional employee contributions are encouraged in certain circumstances.

## Weighting

Taxation incentives represent an important measure that governments can introduce to encourage pension saving and long-term investments. Such incentives provide a desirable factor in the design of retirement income systems. We have therefore given this measure a weighting of five percent in the adequacy sub-index, which represents the same weighting as some other desirable design indicators discussed below.

## Question A5

Is there a minimum access age to receive benefits from private pension plans<sup>16</sup> (except for death, invalidity and/or cases of significant financial hardship)? If so, what is the current age?

### Objective

The primary objective of a private pension plan should be to provide retirement income; hence the availability of these funds at an earlier age reduces the efficacy of such plans as it leads to leakage from the system.

### Calculation

The first question was scored on a three-point scale with a score of 2 for “yes”, 1 if it was applied in some cases and 0 for “no”. The second question was scored on a scale for those who said “yes” to the first question; ranging from 0 for age 55 to a score of 1 for age 60. Australia and Japan scored 0.5 as age 60 applies to some members. A maximum score is achieved if a minimum access age exists and this age is at least age 60.

### Commentary

Many countries have introduced a minimum access age, while others have access provisions described in each plan’s set of rules. In some cases, early access is not prohibited although the taxation treatment of the benefit discourages such behaviour.

### Weighting

Ensuring that the accumulated benefits are preserved until the later years of a working life represents an important design feature of all pension arrangements. Hence, this desirable feature has been given a 10 percent weighting in the adequacy sub-index.

## Question A6

What proportion, if any, of the retirement benefit from the private pension arrangements is required to be taken as an income stream?

### Objective

The primary objective of a private pension system should be to provide income during retirement. Of course, this does not imply that a lump-sum payment is not a valuable benefit. It often is. Indeed, both Rocha and Vittas (2010) and the OECD (2012c) suggest that policymakers should target an adequate level of annuitisation but should be wary of causing excessive annuitisation. Hence, this indicator focuses on whether there are any requirements in the system for at least part of the benefit to be taken as an income stream, and if so, what level of annuitisation is required.

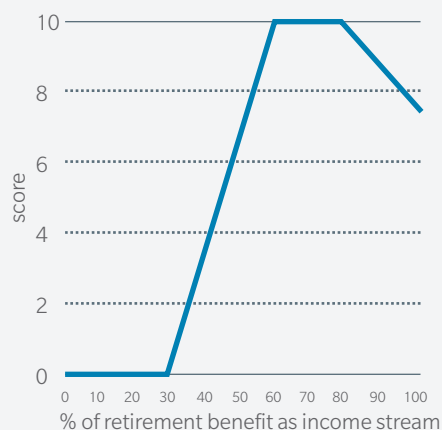
### Calculation

There is no single answer that represents the correct proportion of a retirement benefit that should be annuitised. A maximum score is achieved where between 60 percent and 80 percent of the benefit is required to be converted into an income stream. A percentage above 80 percent reduces the flexibility that many retirees need whilst an answer below 60 percent is not converting a sufficient proportion of the benefit into an income stream. A percentage below 30 percent results in a score of zero.

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<sup>16</sup> Private pension plans include both defined benefit and defined contribution plans and may pay lump-sum or pension benefits. They also include plans for public sector and military employees.

## Calculating A6 — Conversion to Income Streams



### Commentary

There is considerable variety between countries with some countries requiring most or all of the benefit to be converted into a lifetime annuity (e.g. the Netherlands, Sweden and the UK) whereas many countries have no requirement at all (e.g. Australia, Chile, China, Korea and Poland).

### Weighting

The requirement that part of a member's accumulated retirement benefit be turned into an income stream (which need not necessarily be a lifetime annuity) represents a desirable feature of a retirement income system and therefore a weighting of 10 percent has been used in the adequacy sub-index.

## Question A7

On resignation from employment, are plan members normally entitled to the full vesting of their accrued benefit?

After resignation, is the value of the member's accrued benefit normally maintained in real terms (either by inflation-linked indexation or through market investment returns)?

Can a member's benefit entitlements normally be transferred to another private pension plan on the member's resignation from an employer?

### Objective

Most individuals do not stay with a single employer throughout their working life. It is therefore important that individuals receive the full value of any accrued benefit on leaving an employer's service and that the real value of this benefit is maintained until retirement, either in the original plan or in another plan.

### Calculation

Each of these three questions were scored with a score of 2 for "yes", 0 for "no" and between 0.5 and 1.5 if it was applied in some cases where the actual score depended on the actual circumstances.

### Commentary

There is considerable diversity to the extent that the real value of members' benefit entitlements can be transferred or retain their real value after changing employment. That is, in only 10 of the 18 countries is full vesting present, the real value of the benefits maintained after resignation, and the accrued benefit can be transferred, where appropriate.

### Weighting

Maintaining the real value of a member's accrued benefit entitlements during a member's working life represents an important feature of all retirement income systems. Hence, this desirable feature has been given a 7.5 percent weighting in the adequacy sub-index.

## Question A8

Upon a couple's divorce or separation, are the individuals' accrued pension assets normally taken into account in the overall division of assets?

### Objective

The adequacy of an individual's retirement income can be disrupted by a divorce or separation. In many cases, the female can be adversely affected as most of the accrued benefits may have accrued in the male's name during the marriage or partnership. It is considered desirable that upon a divorce or separation, the pension benefits that have accrued during the marriage be considered as part of the overall division of assets. This outcome can be considered to be both equitable and provide greater adequacy in retirement to both individuals, rather than just the main income earner.

### Calculation

The question was scored on a three-point scale with a score of 2 for "yes", 1 if it was applied in some cases and 0 for "no".

### Commentary

In 12 of the 18 countries, it is normal practice for the accrued pension benefits to be taken into account in the overall division of assets upon a divorce or separation.

### Weighting

With a relatively high level of divorce or separation occurring in many countries, adequacy of retirement income for the lower income partner is improved if pension assets are considered in the overall division of assets. This desirable feature has been given a five percent weighting in the adequacy sub-index.

## Question A9

What is the level of home ownership in the country?

### Objective

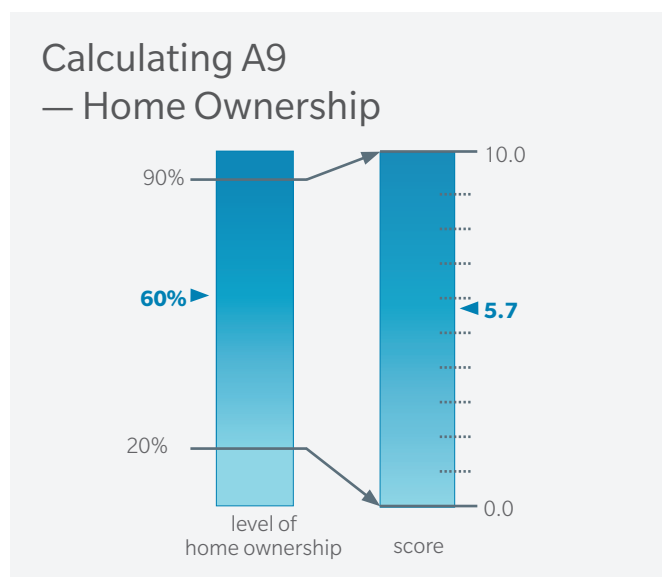
In addition to regular income, home ownership represents an important factor in affecting financial security during retirement. Indeed in some countries, such as Singapore, a portion of the member's savings can be used to help purchase a home. In other countries, taxation support encourages home ownership.

### Calculation

A maximum feasible score is considered to be 90 percent. Hence a home ownership level of 90 percent or more would score maximum results whilst a score of 20 percent or less would score zero.

### Commentary

The level of home ownership ranged from 44 percent in Switzerland to slightly less than 90 percent in China, India and Singapore.



### Weighting

Home ownership represents an important feature of financial security in retirement. Hence, this indicator has been given a five percent weighting in the adequacy sub-index.

## Question A10

What is the proportion of total pension assets invested in growth assets?

### Objective

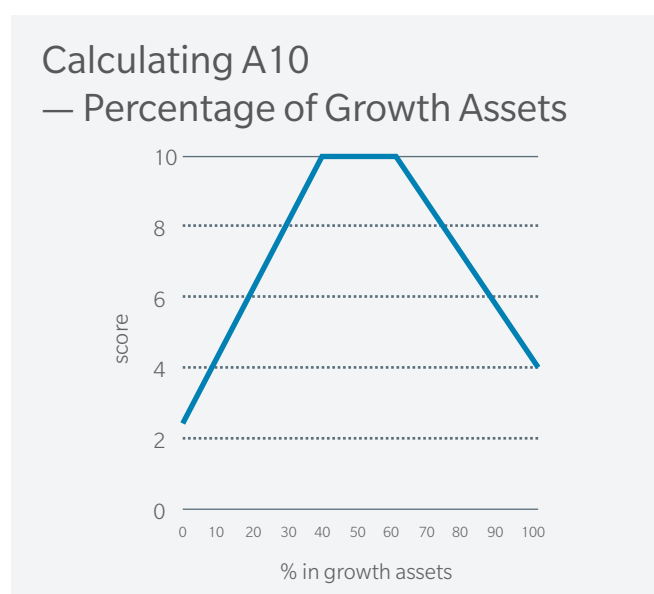
The investment performance of funded pension funds over the long term, after allowing for costs and any taxation, represents a key input into the provision of adequate retirement income. Yet, as Hinz et al (2010) have noted correctly, international comparisons of investment returns might not be totally meaningful.<sup>17</sup> They also note that any benchmarks need to consider a range of factors including the age of the plan member, the availability of other income (such as Social Security), the contribution rates, the target replacement rate, the risk tolerance of the member and the types of retirement income available. It is apparent that there is no ideal asset allocation that is appropriate for all members at all ages. The growing interest in life cycle funds suggests that the best approach is likely to be a changing asset allocation during an individual's lifetime.

It is also important to recognise that the investment performance of a pension fund needs to focus on the longer term and not be focused on short term returns. With this in mind, we believe that it is appropriate for the investments of pension funds within any country to be diversified across a range of asset classes, thereby providing the opportunity for higher returns with reduced volatility. This topic was discussed in more detail in Chapter 4.

### Calculation

Many countries have pension fund assets invested in a range of assets ranging from cash and short term securities through bonds and equities to alternative assets such as property, venture capital and infrastructure. As a proxy to this preferred approach, we have used the percentage of growth assets (including equities and property) in the total pension assets in each country.

A zero percentage in growth assets highlights the benefit of security for members but without the benefits of diversification and the potential for higher returns. In some emerging markets, it is also recognised that the capital markets are underdeveloped. Therefore a zero percentage scores 2.5 out of a maximum score of 10. This score increases to the maximum score of 10 as the proportion in growth assets increase to 40 percent of all assets. If the proportion is beyond 60 percent the score is reduced to reflect the higher level of risk and volatility.



### Commentary

The level of growth assets ranges from virtually zero in Singapore to slightly more than 70 percent in Australia. Ten of the 18 countries have a percentage between 30 percent and 60 percent, which indicates a reasonable level of exposure to growth assets. In comparison, India, Korea and Singapore have very low exposures to growth assets.

### Weighting

Asset allocation represents an important feature of all funded retirement systems. This indicator has therefore been given a five percent weighting in the adequacy sub-index.

<sup>17</sup> Hinz R, Rudolph H P, Antolin P and Yermo J (2010), *Evaluating the Financial Performance of Pension Funds*, The World Bank, Washington DC, p2.

## Sources of data for the adequacy sub-index

### Question A1

OECD (2011a), *Pensions at a Glance 2011*, p109 for OECD countries.

OECD (2012b), *Pensions at a Glance Asia Pacific 2011*, p28 for China and India.

Mercer calculations for Brazil and Singapore using government websites.

### Question A2

OECD (2011a), *Pensions at a Glance 2011*, p125 for all countries except Singapore.

OECD (2012b), *Pensions at a Glance Asia Pacific 2011*, p33 for Singapore.

### Question A3

Data from the Economist Intelligence Unit was provided for all countries.

### Question A9

The answers were sourced from a variety of sources including:

Australian Bureau of Statistics (2010), 1370.0 Measure of Australia's Progress.

Eurostat Database, 2010 data for Distribution of Population by Tenure Status, Type of Household and Income Group.

The World Bank (2012), *2012 World Bank Development Indicators*.

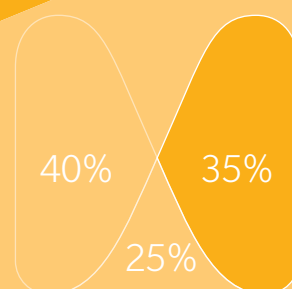
### Questions A4, A5, A6, A7, A8 and A10

The answers were sourced from Mercer consultants in each country.

# CHAPTER 7

## THE SUSTAINABILITY SUB-INDEX

The sustainability sub-index considers a number of indicators which influence the long-term sustainability of current systems. These include factors such as measuring the economic importance of the private pension system, its level of funding, the length of expected retirement both now and in the future, the labour force participation rate of older workers and the current level of government debt.





The country with the highest value for the sustainability sub-index is Denmark (86.0) with the lowest values being for Brazil (26.9) and Japan (28.9). Whilst several indicators influence these scores, the level of coverage of private pension plans, the level of pension assets as a proportion of GDP and the projected demographic factors are the most important.

Full details of the values in respect of each indicator in the sustainability sub-index are shown in Attachment 2.

## Question S1

What proportion of the working age population are members of private pension plans?

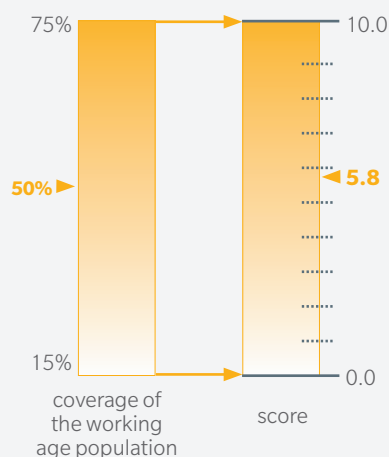
### Objective

Private pension plans (including pension plans for public sector employees and the military) represent an important pillar within all retirement income systems. Hence, a higher proportion of coverage amongst the workforce increases the likelihood that the overall retirement income system is sustainable as it will reduce reliance on government expenditure in the future.

### Calculation

The rates of coverage ranged from less than six percent in India and about 10 percent in Brazil to in excess of 75 percent of the working age population in Denmark, the Netherlands and Sweden. Each country's score was related to its coverage, with a maximum score obtained for 75 percent coverage and a zero score relating to coverage of 15 percent or less, as such coverage represents a minimal contribution to the future provision of retirement income.

## Calculating S1 —Coverage



### Commentary

Only six countries have coverage rates over 60 percent of the working age population (that is, a score of 7.5 or more), indicating a heavy reliance on the social security system in the future for a substantial proportion of the workforce.

### Weighting

The private pension pillar plays a critical role in a multi-pillar retirement income system, particularly with the financial pressures associated with ageing populations. Hence, this indicator was given a weighting of 20 percent in the sustainability sub-index.

## Question S2

What is the level of pension assets, expressed as a percentage of GDP, held in private pension arrangements, public pension reserve funds, protected book reserves and pension insurance contracts?

### Objective

The level of current assets set aside for future pensions, when expressed as a percentage of a country's GDP, represents a good indicator of an economy's ability to meet these payments in the future.

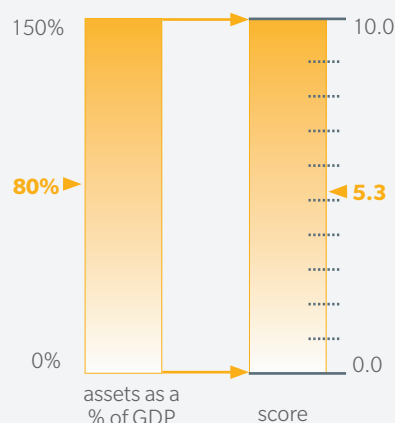
### Calculation

We have included assets from private pension funds, public pension reserve funds, protected book reserves and pension insurance contracts to calculate the total level of assets held within each country to pay future pensions, irrespective of whether the pensions are paid through public pension provision or from private pension plans. After all, in most countries an individual's retirement income can include both a public pension and a private pension. The types of funds that have been included are:

- Assets held in private pension plans
- Assets held by insured or protected book reserves which are being accounted for to pay future pensions
- Social security reserve funds
- Sovereign reserve funds which have been set aside for future pension payments
- Assets held to support pension insurance contracts

The level of assets ranged from less than six percent for China and India to more than 150 percent for Denmark. These scores were then scaled to provide a maximum score for 150 percent of GDP and a minimum score for zero percent.

### Calculating S2 — Level of Assets



### Commentary

There is considerable variety in the size of assets set aside for future pensions around the world, reflecting the importance of both social security reserve funds as well as the second and third pillars in each country's system. In addition, many countries are part-way through a reform process which is expected to increase the level of assets over many decades. In these cases, we would expect the score for this indicator to gradually increase in future years.

The level of private pension assets goes beyond pension funds and includes book reserves, pension insurance contracts and funds managed as part of financial institutions such as Individual Retirement Accounts. These assets have been included as they represent assets set aside to provide future retirement benefits.

### Weighting

This indicator shows the level of assets set aside to fund retirement incomes. It therefore represents a key indicator in the future ability of each country's system to pay future benefits. Hence, this indicator was given a weighting of 20 percent in the sustainability sub-index.

## Question S3

- What is the current gap between life expectancy at birth and the state pension age?
- What is the projected gap between life expectancy at birth and the state pension age in 2035? (This calculation allows for mortality improvement.)
- What is the projected old-age dependency ratio in 2035?
- What is the Total Fertility Rate (TFR) averaged over the last six years?

### Objective

A retirement income system is designed to provide benefits to an individual from when the person leaves the workforce to his/her death. The longer the period, the larger the total value of benefits will need to be and hence there will be an increased financial strain placed on the overall system. Although individuals retire for many reasons, the state pension age represents a useful proxy that guides many retirement decisions. As life expectancy increases, one way of reducing the strain is to encourage later retirement.

In the second question, we project more than two decades ahead to highlight the fact that many governments have already taken action in respect of the state pension age, thereby reducing the forthcoming pension burden. This projected old age dependency ratio question highlights the impact of the ageing population between now and 2035 and therefore the likely effects on the funding requirements for pensions, health and aged care.

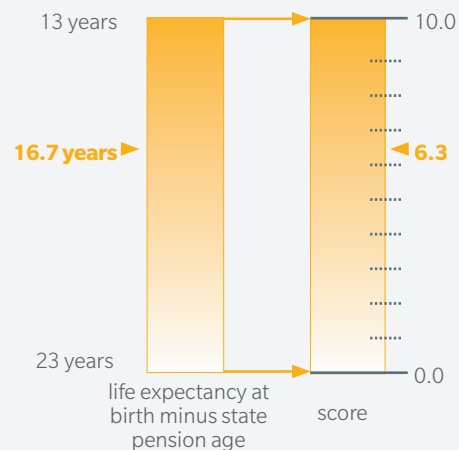
Consideration of the TFR provides an even longer term perspective as it provides an indication of the likely balance between workers and retirees in the decades ahead.

## Calculations

- We have calculated the difference between the life expectancy at birth and the existing state pension age, as used in Park (2009). The answers provide an indicator of the average period of pension payment and range from 7.0 in India and 12.8 in USA to 20.7 in Korea and 21.2 in Japan. A maximum score is achieved with a difference of 13 years or less and a zero score with a score of 23 years.
- For 2035, the results range from 12.0 in India and 12.9 in Poland to 22.3 years in France. The formula used remains unchanged with a maximum score for 13 years or less and a zero score for 23 years.

The calculations for these two questions are averaged for males and females.

### Calculating S3 — Life Expectancy and State Pension Age



- The old-age dependency ratio is the population aged 65 and over divided by the population aged between 15 and 64. The projected dependency ratios for 2035 range from 14 percent in India and 23 percent in Brazil to 55 percent in Germany and 57 percent in Japan. A maximum score is achieved with a dependency ratio of 20 percent or less and a zero score with a ratio of 60 percent or higher.
- The TFR ranges from 1.23 in Singapore to 2.1 in the USA and 2.7 in India. In view of these scores and the likely range in the future, a minimum score of zero is achieved for a TFR of 1.0 or less with a maximum score for a TFR of 2.5 or higher.

## Commentary

All countries have a difference between life expectancy and state pension age of less than 20 years, with the exception of France, Japan and Korea, thereby highlighting the challenge for these three countries of a relatively low state pension age and longer life expectancy.

The projected results for 2035 differ from the current results, with China, France, Japan and Switzerland having a difference in excess of 20 years.

It is pleasing to note that several countries passed legislation during the last year to raise the state pension age, including Canada, the Netherlands, Poland and the United Kingdom.

A TFR of less than 1.5 in Germany, Japan, Korea, Poland, Singapore and Switzerland raises serious issues for the future age structure of these countries. Whilst immigration can assist in the short term it is unlikely to provide sound long term solutions.

## Weighting

These demographic-related indicators have a weighting of 20 percent in the sustainability sub-index with a five percent weighting for each question.

## Question S4

What is the level of mandatory contributions that are set aside for retirement benefits (i.e. funded), expressed as a percentage of wages? This includes mandatory contributions into public or private sector funds.<sup>18</sup>

### Objective

Mandatory contributions from employers and/or employees represent a feature of every country's retirement income system. In some countries these contributions are used to fund social security benefits immediately whereas in other cases the contributions are invested, either through a central fund (such as Singapore's Central Provident Fund or a reserve fund) or through a range of providers in the private sector. In terms of longer-term sustainability, the important issue is whether the contributions are set aside to pay for the future benefits of the contributors, irrespective of the vehicle used for the saving.

### Calculation

There is considerable variety in the extent to which the contributions paid are actually invested into a fully funded investment vehicle. This calculation multiplies the level of mandatory contributions by the percentage of these funds that are invested to provide for future retirement benefits. For example, in Australia, Chile and Denmark the mandatory contributions are fully invested for the individuals concerned. On the other hand, Germany and the UK adopt a pay-as-you-go basis.

In some cases, neither extreme is adopted. For instance, the Canada Pension Plan adopts a 'steady-state' funding basis so that contributions will remain constant for 75 years. In this case we have assumed that 75 percent of the contributions are invested. In China, only the employee contributions are required to be funded but, currently, many of the individual accounts are notional. Hence 62.5 percent of employee contributions have been used. We have used 50 percent in Sweden as they are transitioning from a pay-as-you-go approach to a fully funded one. For India, we have used the level of contributions paid into the Employees Pension Scheme but excluded contributions paid to the Employees Provident Fund Scheme as these benefits can be used for a range of purposes.

<sup>18</sup> This question does not include contributions arising from statutory minimum levels of funding for defined benefit plans as these plans do not represent mandatory arrangements.

In other countries, social security reserve funds are funded by the difference between contributions and current benefit payments or through top-up contributions from the government. Japan, Korea and the USA are examples of this approach. In these cases, we have assumed that 15 percent, 50 percent and 33 percent of the contributions are funded respectively. For Singapore we have used a contribution rate of seven percent which represents the amount that must be set aside for retirement purposes for 36–45 year olds.

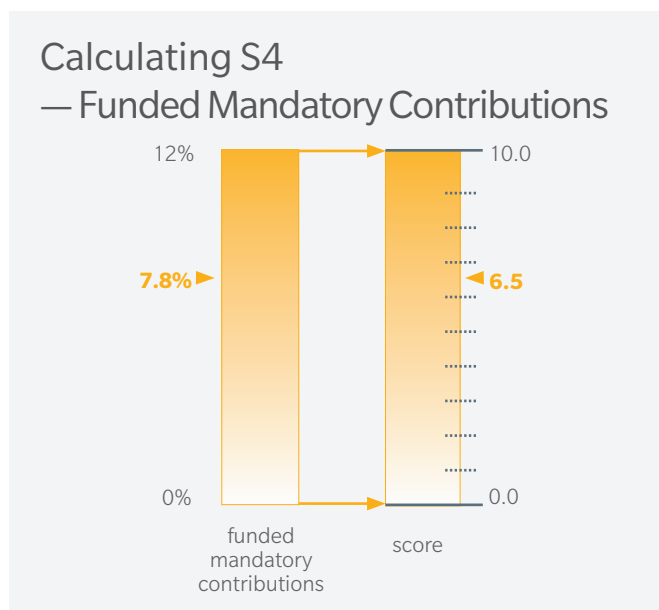
The results of the above calculations have meant that the net funded level of mandatory contributions (expressed as a percentage of earnings) range from zero percent in several countries to 12 percent in Denmark. In view of this range and likely developments in some countries, a maximum score is achieved with a level of 12 percent with a zero score being obtained where there are no funded mandatory contributions.

## Commentary

The level of mandatory contributions paid by employers and employees around the world varies considerably. In some cases, they represent taxation for social security purposes and are not used to fund future benefits. On the other hand, funded retirement savings with the associated investment funds provide a better level of sustainability for the system and greater security for future retirees.

## Weighting

This item represents one of several key indicators representing desirable features of a sustainable retirement income system. A weighting of 15 percent in the sustainability sub-index is used for this indicator.



## Question S5

What is the labour force participation rate for those aged 55–64?

### Objective

Higher labour force participation at older ages means that individuals are retiring later thereby reducing both the number of years in retirement and the level of retirement income needed, as well as accumulating greater savings for retirement during the working years.

### Calculation

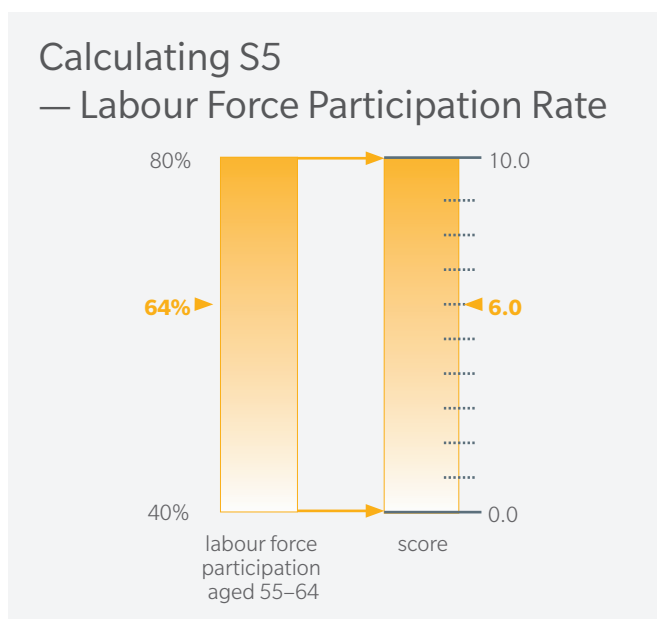
The percentages ranged from 37.2 percent in Poland and 42.6 percent in France to 70.6 percent in Switzerland and 74.5 percent in Sweden. A maximum feasible score is considered to be 80 percent for this age bracket. Hence a participation rate of 80 percent or more scores maximum results whilst a participation rate of 40 percent or less scores zero.

### Commentary

Labour force participation rates at older ages had been declining in many countries. However with the increasing awareness of the pressures associated with an ageing population, it is important that governments continue to encourage higher labour force participation rates at these older ages. It is pleasing to note that many countries are now experiencing increases in their labour force participation rates at these older ages.

### Weighting

This item has a weighting of 10 percent in the sustainability sub-index.



## Question S6

What is the level of adjusted government debt (being the gross public debt reduced by the size of any sovereign wealth funds that are not set aside for future pension liabilities<sup>19</sup>), expressed as a percentage of GDP?

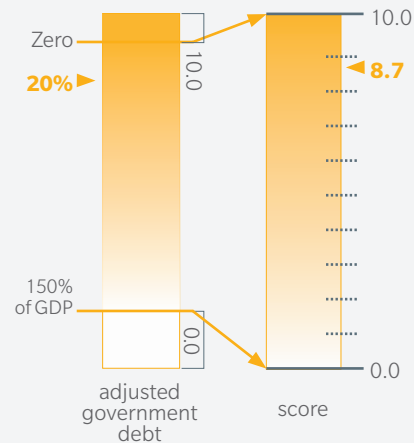
### Objective

As social security payments represent an important source of income in most retirement income systems, the ability of future governments to pay these pensions and/or other benefits (such as health) represents an important factor in the sustainability of current systems. Clearly, higher government debt increases the likelihood that there will need to be reductions in the level or coverage of future benefits.

### Calculation

The level of the adjusted government debt ranges from less than zero for Singapore to 230 percent in Japan. A maximum score was achieved for countries with a negative level of adjusted government debt (i.e. a surplus), with a zero score for countries with an adjusted government debt of 150 percent of GDP or higher.

### Calculating S6 — Adjusted Government Debt



### Commentary

Government debt is likely to restrict the ability of future governments to support their older populations, either through pensions or through the provision of other services such as health or aged care. Hence, governments with lower levels of debt are in a stronger financial position to be able to sustain their current level of pension payments into the future. The level of debt increased in many countries following the Global Financial Crisis. There are also other longer term adverse economic effects of higher government debt which can affect the investment returns received by pension plan members.

### Weighting

This item has a weighting of 10 percent in the sustainability sub-index.

<sup>19</sup> This reduction does not include sovereign wealth funds that have been set aside for future pension payments as these have been considered in Question S2.

## Question S7

In respect of private pension arrangements, are older employees able to access part of their retirement savings or pension and continue working (e.g. part time)? If not, are there other tax advantaged pre-retirement vehicles available to help transition workers into retirement that are commonly used?

### Objective

A desirable feature of any retirement income system, particularly where there is an ageing population, is to permit individuals to phase into retirement by gradually reducing their reliance on earned income whilst at the same time enabling them to access their accrued retirement benefit through an income stream.

### Calculation

The first question was given a score of 2 for “yes” and 0 for “no”. However, it is not as simple as that in many countries where it may depend on the particular fund rules. In these cases, a score between 0 and 2 was given depending on the circumstances and practice. A maximum score was achieved where the answer was yes for the majority of older employees.

If the answer to the first question is no, but there are other incentives to encourage similar behaviour, a score between 0.5 and 1 was given depending on the strength of the incentives.

### Commentary

In several countries employees are able to continue working at older ages whilst also accessing an income stream from their accumulated benefits.

### Weighting

This item has a weighting of five percent in the sustainability sub-index as it is not considered as critical as the previous indicators.

## Sources of data for the sustainability sub-index

### Question S1

Mercer calculations for Brazil, Japan and France.

OECD (2012a), *Pensions at a Glance Asia Pacific 2011*, p43 for China, India and Singapore.

OECD (2012b), *Pensions Outlook 2012*, p105 for all other countries although adjustments were needed when data was not available or comprehensive.

### Question S2

Mercer calculations for Singapore.

OECD (2011a), *Pensions at a Glance 2011*, p179 in relation to private pension plans for Brazil, China, India and Japan, and in relation to pension insurance contracts for Germany.

OECD (2012a), *Pensions Outlook 2012*, p229 in relation to public pension reserve funds for all countries where relevant.

OECD StatExtracts Database, Funded Pensions Indicators 2010, in relation to pension funds (autonomous) and pension insurance contracts for all countries (except where specified above).

### Question S3

The life expectancy, aged dependency and total fertility rate (2005–2010) data were from United Nations (2011), *World Population Prospects: The 2010 Revision*.

The total fertility rate 2011 data were from CIA, *The World Factbook*.

State pension ages were sourced from Mercer consultants in each country.

### Question S5

International Labour Organization (2011), *Key Indicators of the Labour Market*, 7th Edition.

### Question S6

International Monetary Fund (2012), *World Economic Outlook Database*, April 2012.

Sovereign Wealth Fund Institute: [www.swfinstitute.org](http://www.swfinstitute.org)

### Questions S4 and S7

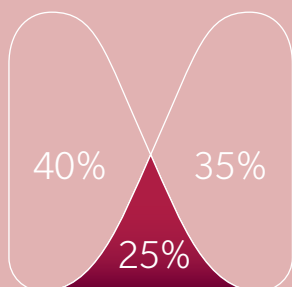
Answers were sourced from Mercer consultants in each country.



# CHAPTER 8

## THE INTEGRITY SUB-INDEX

The integrity sub-index considers three broad areas of the pension system, namely regulation and governance; protection and communication for members; and costs. This sub-index also asks a range of questions about the requirements that apply to the private sector pension plans in each country. After all, well operated and successful private sector plans are critical because without them the government becomes the only provider, which is not a desirable or sustainable long-term outcome. Hence they represent a critical component of a well governed and trusted pension system, which has the long term confidence of the community.



The country with the highest value for the integrity sub-index is the Netherlands (90.3), with the lowest value being for Korea (47.5). The better scores were achieved by countries with well developed private pension industries.

Full details of the values in respect of each indicator in the integrity sub-index are shown in Attachment 3.

## Regulation and governance

### Question R1

Do private sector pension plans need regulatory approval or supervision to operate?

Is a private pension plan required to be a separate legal entity from the employer?

Is a private pension plan required to have separate assets from the employer?

### Objective

These questions are designed to assess the extent to which a private sector pension plan is required to be a separate entity from the sponsoring employer and hold assets that are separate from the employer.

Twelve of the eighteen countries obtained the maximum score indicating the presence of the basic groundwork needed for a sound governance framework.

### Calculation

Each question in this section was scored with a score of 2 for “yes” and 0 for “no”. In some cases the response was neither a clear “yes” nor “no” so that the score may be between 0 and 2 depending on the actual circumstances.

### Weighting

The first and second questions were given a five percent weighting with the third question given a 2.5 percent weighting, resulting in a total of 12.5 percent for these three questions. (In 2011, the third question was given a five percent weighting for a total of 15 percent.)

## Question R2

Are private sector pension plans required to submit a written report in a prescribed format to a regulator each year?

Does the regulator make industry data available from the submitted forms on a regular basis?

How actively does the regulator (or protector) discharge its supervisory responsibilities? Please rank on a scale of 1 to 5.

The following table was provided to assist in answering the third question.

Scale	Description	Examples of Activity by the Regulator
1	Inactive	Receives reports from plans but does not follow up
2	Occasionally active	Receives annual reports, follows up with questions but has limited communication with plans on a regular basis
3	Moderately active	Receives annual reports, follows up with questions and has regular communication with plans, including on-site visits
4	Consistently active	Obtains information on a regular basis from plans and has a focus on risk-based regulation. That is, there is a focus on plans with higher risks
5	Very active	Obtains information on a regular basis from plans and has a focus on risk-based regulation. In addition, the regulator often leads the industry with ideas, discussion papers and reacts to immediate issues

## Objective

These questions were designed to assess the level of supervision and the involvement of the regulator with the industry.

## Calculation

The first two questions in this section was scored with a score of 2 for “yes” and 0 for “no”. In some cases the response was neither a clear “yes” nor “no” so that the score may be between 0 and 2 depending on the actual circumstances.

The last question was scored on a five-point scale as shown in the table. It is important to note that this question did not assess the quality of the supervision; rather it considered the activity of the regulator.

The results highlight that the role of the pension regulator varies greatly around the world. Generally speaking, the pension regulator plays a stronger role where the pension industry has developed over many decades.

## Weighting

The first and third questions were each given a five percent weighting, with the second question being given a 2.5 percent weighting, resulting in a total weighting of 12.5 percent for these three questions.

## Question R3

Where assets exist, are the private pension plan's trustees/executives/fiduciaries required to prepare an investment policy?

Are the private pension plan's trustees/ executives/ fiduciaries required to prepare a risk management policy?

### Objective

These questions were designed to assess the regulatory requirements in respect of certain functions that may be required in respect of the fiduciaries who oversee private sector pension plans.

Half the countries obtained the maximum score highlighting the fundamental role of trustees or fiduciaries in pension plan governance.

### Calculation

Each question in this section was scored with a score of 2 for "yes" and 0 for "no". In some cases the response was neither a clear "yes" nor "no" so that the score may be between 0 and 2 depending on the actual circumstances.

### Weighting

Each question was given a five percent weighting in the integrity sub-index, resulting in a total of 10 percent for these two questions.

## Question R4

Do the private pension plan's trustees/executives/ fiduciaries have to satisfy any personal requirements set by the regulator?

Are the financial accounts of private pension plans (or equivalent) required to be audited annually by a recognised professional?

### Objective

These questions were designed to assess the regulatory requirements in respect of these two aspects of the governance of private sector pension plans. Interestingly only Brazil, China, Denmark, France and the Netherlands received the maximum score indicating that several countries could improve their requirements, particularly in respect of the first question.

### Calculation

Each question in this section was scored with a score of 2 for "yes" and 0 for "no". In some cases the response was neither a clear "yes" nor "no" so that the score may be between 0 and 2 depending on the actual circumstances.

### Weighting

Each question was given a 2.5 percent weighting in the integrity sub-index, resulting in a total of five percent for these two questions. (In 2011 each question was given a five percent weighting for a total of 10 percent.)

## Question R5

What is the capacity of the government to effectively formulate and implement sound policies?

What respect do citizens and the state have for the institutions that govern economic and social interactions among them?

### Objective

These new questions were designed to assess the integrity of the government who plays a critical role in the ongoing governance, legal framework, regulation and policy development of the country's retirement income system.

### Calculation

The World Bank publishes results from the Worldwide Governance Indicators (WGI) project for 213 economies for six dimensions of governance. The following four indicators were considered most relevant to the governance and integrity of retirement income systems:

- Government effectiveness
- Regulatory quality
- Rule of law
- Control of corruption

From this publicly available source, each indicator provided a score for each country in the standard normal units, ranging from approximately -2.5 to +2.5. These four scores were summed and then increased by 1.5 to avoid any negative scores. The scores ranged from 0.4 for China to 9.8 for Denmark.

### Weighting

Each question was given a five percent weighting in the integrity sub-index, resulting in a total of 10 percent for these two questions.

### Commentary on the regulation and governance results

For 2012, the weighting for the regulation and governance questions was increased from 47.5 percent to 50 percent of the integrity sub-index to incorporate the new question R5.

The scores ranged from 19.3 for Korea to a near maximum score of 49.8 for Denmark. The low score for Korea is indicative of the fact that the regulator has minimal requirements when compared to the more developed pension industries.

## Protection and communication for members

### Calculation

With the exception of question P1 dealing with funding, each question in this section is scored with a score of 2 for “yes” and 0 for “no”. In some cases the response is neither a clear “yes” nor “no” so that the score may be between 0 and 2 depending on the actual circumstances.

## Question P1

Describe the required minimum level of funding for defined benefit and defined contribution schemes and the requirements to reach full funding when this does not occur.

### Objective

These questions were designed to assess the level of funding required in respect of both defined benefit (DB) and defined contribution (DC) plans. Funding levels are critical in securing members’ future retirement benefits.

### Calculation

The calculation considered the requirements for both DB and DC plans (where relevant). For the DB funding assessment, we considered both the extent of the funding requirement and the period over which any deficit must be rectified.

### Commentary

Most countries require full funding of DC plans; in fact, many respondents noted that this feature is the essence of such a plan. However the requirements for funding DB plans vary considerably. There are, in effect, no requirements in some countries whereas in other countries, such as in the Netherlands and the USA, any deficit requires rectification within a specified period.

### Weighting

The funding of a member’s retirement benefit in a private sector pension plan represents a basic protection of the member’s accrued benefits and this indicator is therefore given a 10 percent weighting in the integrity sub-index. (In 2011, this question was given a weighting of 12.5 percent.)

## Question P2

What are the limits, if any, on the level of in-house assets (that is, equity or debt investments in the sponsoring employer) held by a private sector pension plan?

### Objective

An essential characteristic of a sound retirement income system is that a member's accrued retirement benefit is not subject to the financial state of the member's employer.

### Commentary

Most countries have a restriction on the level of in-house assets held by a pension plan. These restrictions are often set at five percent of the plan's assets. The exceptions are France, Germany, Japan, Poland, Singapore and some defined contribution plans in the USA.

### Weighting

This requirement represents a key method of protecting the member's accrued benefits and is therefore given a five percent weighting in the integrity sub-index.

## Question P3

Are the members' accrued benefits provided with any protection or reimbursement from an act of fraud or mismanagement?

In the case of employer insolvency (or bankruptcy), describe how the members' accrued benefits are protected, if at all.

### Objective

There are many risks faced by members of pension plans. These two questions considered what protection, if any, the members receive in the case of fraud, mismanagement or employer insolvency. In the latter case, the employer may not be able to pay any contributions that are owed.

### Commentary

The answers to these questions vary considerably by country. In some cases, there are some restricted arrangements in place to support the member whereas in the UK a fraud compensation scheme exists.

### Weighting

Whilst these issues are very important where such incidents occur, experience in most countries suggests that it is not a common event or that its financial effect is relatively minor. Hence each question is given the weighting of 2.5 percent in the integrity sub-index, resulting in a total of five percent for these two questions.

## Question P4

When joining the pension plan, are new members required to receive information about the pension plan?

### Objective

It is important that members receive information when joining a pension plan, including a description of the benefits and the risks they may face, particularly with the global growth of DC plans.

### Commentary

All countries, except China, Denmark and India, require information to be provided when members join the plan. However, most members in Denmark do receive individual information about their benefits.

### Weighting

The weighting for this question is five percent in the integrity sub-index.

## Question P5

Are plan members required to receive an annual report about the pension plan?

Does the report have to show the plan's allocation to major asset classes?

### Objective

Annual reports present the opportunity for pension plans to communicate with their members, highlighting plan information and contemporary issues that may need to be considered by the members.

As defined contribution arrangements become more prevalent, it also becomes important for members to have a minimum level of information on the broad asset classes in which their accumulated benefits are invested.

### Commentary

There is considerable variety in the responses, with China, France, Germany, India and Poland having no requirements in respect of annual reports.

The responses for disclosure of investment allocation ranged from no requirement through to disclosure of all investments. The maximum score was given to Australia, Brazil, the Netherlands, Singapore, Switzerland and the USA where there was a requirement to disclose, as a minimum, the allocation to major asset classes.

### Weighting

The first question was given a four percent weighting in the integrity sub-index whilst the second question was given a one percent weighting in the integrity sub-index, resulting in a total of five percent for these two questions.



## Question P6

Are plan members required to receive an annual statement of their current personal benefits from the plan?

Is this annual statement required to show any projection of the individual member's possible retirement benefits?

### Objective

Whilst an annual report about the plan is valuable, most members are more interested in their personal entitlement. The first question therefore ascertained whether the provision of such information was a requirement whilst the second question considered whether this requirement required any projections about the member's future retirement benefit.

### Commentary

A majority of countries have a requirement concerning annual personal statements, but the Netherlands, Sweden, Switzerland and the United Kingdom require some form of projection. As account balances increase and individuals take on greater responsibility for their retirement benefits, the provision of this type of information will become increasingly important to members.

### Weighting

The first question was given a five percent weighting in the integrity sub-index whilst the second question was given a 2.5 percent weighting in the integrity sub-index, resulting in a total of 7.5 percent for these two questions.

## Question P7

Do plan members have access to a complaints tribunal which is independent from the pension plan?

### Objective

A common way to provide some protection to individuals who receive benefits from a contract with a financial services organisation (such as a bank or insurance company) is to provide them with access to an independent complaints tribunal or ombudsman.

As the provision of retirement benefits can represent an individual's most important financial asset, there is good reason for such a provision to exist in respect of private sector pension plans.

### Commentary

Only five countries (Australia, Denmark, the Netherlands, Switzerland and the UK) have a complaints system focused on pension plans, although Canada, Chile, Poland and the USA have a process that could be used for this purpose.

### Weighting

Whilst this indicator is not as important as funding or communication to members, it represents a desirable feature of the better pension systems as it provides all members with access to an independent body, should an adverse event occur. It is given a 2.5 percent weighting in the integrity sub-index.

### Commentary on the protection and communication results

For 2012, the weighting for the protection and communication questions was reduced from 42.5 percent to 40 percent of the integrity sub-index.

The scores ranged from 14.8 in India and 15.6 in China to 35.0 in the Netherlands and 36.8 in Switzerland. The low scores in China and India are caused by very limited requirements in these countries to provide information to members.

## Costs Questions

What percentage of total pension assets is held in various types of pension funds?

What percentage of total pension assets is held by the largest ten pension funds/providers?

### Objective

As noted by Luis Viceira in Hinz et al (2010), costs are one of the most important determinants of the long run efficiency of a pension system. He goes on to comment that:

“Unfortunately, there is very little transparency about the overall costs of running most pension systems or the total direct and indirect fees that they charge to participants and sponsors.”<sup>20</sup>

This is absolutely correct. The huge variety of pension systems around the world, with a great diversity of retail, wholesale and employer sponsor arrangements means that some administrative or investment costs are clearly identified whereas others are borne indirectly or directly by providers, sponsors or third parties.

Yet, in the final analysis many costs will be borne by members and thereby affect the provision of their retirement income. We have therefore used two proxies for this indicator.

The first question represents an attempt to ascertain the proportion of each country’s pension industry that is employer-sponsored plans, not-for-profit plans and retail funds, which may be employer based or individual contracts. Each type of plan is likely to have a different cost structure which, in turn, influences the overall cost structure of the industry.

The second question highlights the fact that economies of scale matter. That is, it is likely that as funds increase in size, their costs as a proportion of assets will reduce and some (or all) of these benefits will be passed onto members.

### Calculation

For the first question, each type of plan was given a weight ranging from 1 for individual retail or insurance contracts to 10 for a central fund. These scores were then weighted by the actual characteristics of the pension industry in each country.

For the second question, we considered the size of the assets held by the ten largest providers or funds. A score of 1 was given when these assets were less than 10 percent of all assets rising to a maximum score of 5 when these assets represented more than 75 percent of all assets.

### Weighting

Each question was given a five percent weighting in the integrity sub-index, resulting in a total of 10 percent for these two questions.

### Commentary on the costs results

The scores for these two indicators ranged from 3.7 for the USA to 9.9 for India and 10.0 for Singapore. The maximum scores for these two countries are not surprising as each country has a central fund which should provide administrative savings with the potential to add value through investment opportunities.

### Sources of data for integrity sub-index

As the integrity sub-index is primarily based on the operations of the private sector pension industry in each country, answers to all but one of the questions were sourced from Mercer consultants in the relevant countries. The exception was Question R5 which used the World Bank’s Worldwide Governance Indicators.

20 Hinz R, Rudolph H P, Antolin P and Yermo J (2010), *Evaluating the Financial Performance of Pension Funds*, The World Bank, Washington DC, p259.

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# Attachment 1: Score for each country for each indicator in the adequacy sub-index

Question	Question weight	Score for each country																	
		Australia	Brazil	Canada	Chile	China	Denmark	France	Germany	India	Japan	Korea	Netherlands	Poland	Singapore	Sweden	Switzerland	UK	USA
A1 What is the minimum percentage of the average wage, that a single aged person will receive?	17.5%	6.9	10.0	10.0	2.7	5.0	10.0	6.6	5.2	0.0	4.7	0.0	9.6	3.5	0.4	7.4	7.2	4.6	4.5
A2 What is the net replacement rate for a median-income earner?	25%	8.9	10.0	8.3	7.8	4.1	10.0	8.2	7.7	4.0	4.3	6.4	9.3	7.9	0.0	7.5	9.2	5.6	6.7
A3 What is the net household saving rate in the economy?	10%	5.8	3.1	4.7	0.0	8.6	0.0	6.9	5.8	10.0	2.4	3.4	1.6	2.3	6.5	3.2	6.1	3.3	5.2
A4 Are voluntary member contributions by a median income earner to a funded pension plan treated by the tax system more favourably than similar savings in a bank account?	5%	10.0	10.0	10.0	10.0	0.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	5.0	10.0	10.0	10.0
A5 Is there a minimum access age to receive benefits from the private pension plans (except for death, invalidity and cases of financial hardship)? If so, what is the current age?	10%	8.3	0.0	3.3	5.0	8.3	10.0	10.0	10.0	0.0	5.0	6.7	3.3	10.0	6.7	6.7	5.3	6.7	6.3
A6 What proportion, if any, of the retirement benefit from the private pension arrangements is required to be taken as an income stream?	10%	0.0	5.5	5.0	0.0	0.0	6.7	5.0	0.0	2.5	0.0	0.0	7.5	0.0	4.6	7.5	0.0	10.0	0.0
A7 On resignation from employment, are plan members normally entitled to the full vesting of their accrued benefit? After resignation, is the value of the member's accrued benefit normally maintained in real terms (either by inflation-linked indexation, or through market investment returns)? Can a member's benefit entitlements normally be transferred to another private pension plan on the member's resignation from an employer?	7.5%	10.0	10.0	6.0	10.0	9.0	10.0	9.0	5.0	4.5	6.0	6.0	10.0	10.0	10.0	10.0	10.0	10.0	5.0
A8 Upon a couple's divorce or separation, are the individuals' accrued pension benefits normally taken into account in the overall division of assets?	5%	10.0	0.0	10.0	0.0	10.0	0.0	5.0	10.0	0.0	10.0	10.0	10.0	10.0	10.0	2.5	10.0	10.0	10.0
A9 What is the level of home ownership in the country?	5%	6.9	7.7	6.9	6.6	9.7	6.7	6.0	4.7	9.6	5.9	5.9	6.7	7.0	9.6	7.3	3.5	7.1	7.0
A10 What is the proportion of total pension assets invested in growth assets?	5%	8.4	8.1	10.0	10.0	6.3	6.3	6.4	10.0	3.4	9.8	3.4	7.0	9.1	2.5	8.1	10.0	10.0	10.0
Adequacy sub-index	100%	73.5	71.5	74.2	50.1	55.7	78.1	74.3	65.2	37.4	46.1	45.1	77.0	63.6	42.0	68.0	71.3	68.1	58.3

Each question is scored for each country with a minimum score of 0 and a maximum score of 10.

## Attachment 2: Score for each country for each indicator in the sustainability sub-index

Question	Question weight	Score for each country																	
		Australia	Brazil	Canada	Chile	China	Denmark	France	Germany	India	Japan	Korea	Netherlands	Poland	Singapore	Sweden	Switzerland	UK	USA
S1	20%	8.9	0.0	5.8	9.8	0.4	10.0	6.6	5.4	0.0	3.0	3.0	10.0	6.6	5.1	10.0	9.2	4.7	5.4
S2	20%	6.4	1.1	5.2	4.6	0.2	10.0	0.9	1.2	0.4	3.4	2.8	8.6	1.1	4.3	5.5	7.6	6.2	7.2
S3	20%	6.0	7.5	5.6	5.8	4.8	7.0	3.5	4.4	10.0	1.7	3.2	5.7	6.9	3.3	5.2	3.4	5.8	8.1
S4	15%	7.5	0.0	6.2	8.3	4.2	10.0	0.0	0.0	6.9	2.1	3.8	6.7	1.9	5.8	7.2	7.1	0.0	3.4
S5	10%	5.7	4.1	5.6	5.2	4.3	5.1	0.6	5.6	4.1	7.2	5.7	4.0	0.0	5.3	8.6	7.7	4.9	6.2
S6	10%	8.5	5.6	4.3	9.5	9.2	6.9	4.3	4.6	5.5	0.0	8.0	5.6	6.3	10.0	7.5	6.8	4.5	3.3
S7	5%	10.0	0.0	7.5	0.0	0.0	10.0	10.0	7.5	0.0	5.0	10.0	10.0	10.0	10.0	10.0	5.0	7.5	5.0
Sustainability sub-index		100%	73.0	26.9	56.3	67.7	86.0	32.0	35.9	40.7	28.9	42.3	73.0	43.4	54.2	73.3	67.9	46.5	58.4

Each question is scored for each country with a minimum score of 0 and a maximum score of 10.

## Attachment 3:

### Score for each country for each indicator in the integrity sub-index

Question	Question weight	Score for each country																		
		Australia	Brazil	Canada	Chile	China	Denmark	France	Germany	India	Japan	Korea	Netherlands	Poland	Singapore	Sweden	Switzerland	UK	USA	
Regulation and Governance (R1–R5)																				
Do private sector pension plans need regulatory approval or supervision to operate?	12.5%	10.0	10.0	10.0	10.0	10.0	10.0	10.0	6.0	8.5	10.0	8.0	7.0	10.0	8.0	10.0	10.0	10.0	10.0	10.0
Is a private pension plan required to be a separate legal entity from the employer?																				
Is a private pension plan required to have separate assets from the employer?																				
Are private sector pension plans required to submit a written report in a prescribed format to a regulator each year?																				
Does the regulator make industry data available from the submitted forms on a regular basis?	12.5%	9.2	9.2	8.7	9.2	4.4	10.0	8.2	4.4	6.1	7.6	4.4	9.2	7.6	5.6	9.2	8.4	10.0	5.6	5.6
How actively does the regulator (or protector) discharge its supervisory responsibilities?																				
Where assets exist, are the private pension plan's trustees/executives/fiduciaries required to prepare an investment policy?																				
Are the private pension plan's trustees/executives/fiduciaries required to prepare a risk management policy?	10%	10.0	10.0	7.5	10.0	5.0	10.0	5.0	5.0	7.5	5.0	5.0	0.0	10.0	10.0	10.0	5.0	10.0	0.0	0.0
Do the private pension plan's trustees/executives/fiduciaries have to satisfy any personal requirements set by the regulator?																				
Are the financial accounts of private pension plans (or equivalent) required to be audited annually by a recognised professional?	5%	7.5	10.0	7.5	7.5	10.0	10.0	10.0	10.0	7.5	5.0	7.5	0.0	10.0	7.5	7.5	7.5	7.5	5.0	5.0
What is the capacity of the government to effectively formulate and implement sound policies?																				
What respect do citizens and the state have for the institutions that govern economic and social interactions among them?	10%	8.8	1.8	8.9	6.9	0.4	9.8	7.2	8.0	0.5	6.7	5.0	5.0	9.0	4.3	9.4	8.9	8.1	7.2	7.2

Continues next page

## Attachment 3: (continued) Score for each country for each indicator in the integrity sub-index

Question	Question weight	Score for each country																			
		Australia	Brazil	Canada	Chile	China	Denmark	France	Germany	India	Japan	Korea	Netherlands	Poland	Singapore	Sweden	Switzerland	UK	USA		
Protection and communication for members (P1-P7)	Describe the required minimum level of funding for defined benefit and defined contribution schemes and the requirements to reach full funding when it does not occur.	7.0	8.0	9.0	10.0	5.0	10.0	5.0	8.0	6.0	9.0	7.0	10.0	10.0	6.0	7.0	8.0	7.0	7.0		
	What are the limits, if any, on the level of in-house assets held by a private sector pension plan (that is, equity or debt investments in the sponsoring employer)?	10.0	10.0	10.0	10.0	10.0	10.0	5.0	7.5	10.0	0.0	10.0	10.0	10.0	0.0	10.0	10.0	10.0	10.0	5.0	
	Are the members' accrued benefits provided with any protection or reimbursement from an act of fraud or mismanagement?																				
	In the case of employer insolvency (or bankruptcy), describe how unpaid employer contributions or members' accrued benefits are protected, if at all.	5.0	0.0	2.5	0.0	1.3	2.5	2.5	7.5	2.5	2.5	0.0	0.0	0.0	2.5	5.0	5.0	5.0	10.0	5.0	
	When joining the pension plan, are new members required to receive information about the pension plan?	10.0	10.0	10.0	10.0	0.0	0.0	10.0	10.0	0.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
	Are plan members required to receive an annual report about the plan?	10.0	10.0	6.0	4.0	0.0	8.0	0.0	4.0	0.0	4.0	0.0	10.0	10.0	0.0	10.0	4.0	10.0	5.0	10.0	
	Does the report have to show the plan's allocation to major asset classes?																				
	Are plan members required to receive an annual statement of their current personal benefits from the plan?																				
	Is this annual statement to individual members required to show any projection of the member's possible retirement benefits?	7.5%	6.7	6.7	6.7	6.7	6.7	3.3	3.3	3.3	3.3	3.3	3.3	10.0	6.7	6.7	10.0	10.0	6.7	6.7	
	Do plan members have access to a complaints tribunal which is independent from the pension plan?	2.5%	10.0	0.0	7.5	5.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	10.0	5.0	0.0	0.0	10.0	10.0	5.0	
What percentage of total pension assets in your country is held in the following types of pension funds?																					
What percentage of total pension assets in your country is held by the largest ten pension funds/providers?	10%	4.6	6.0	5.6	5.5	5.6	8.8	4.1	6.4	9.9	8.6	8.7	7.4	7.5	10.0	8.2	6.7	6.2	3.7		
Integrity sub-index	100%	83.2	74.8	79.3	78.4	49.7	86.4	55.2	66.7	52.8	63.3	47.5	90.3	70.1	76.2	82.5	84.1	85.0	61.1		

Each question is scored for each country with a minimum score of 0 and a maximum score of 10.





