



Australian Government
Australian Government Actuary

Actuarial Certification Test for Comprehensive Income Products for Retirement

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INTRODUCTION

The Australian Treasury (Treasury) has asked the Australian Government Actuary (AGA), in consultation with an Actuarial Technical Expert Group (ATEG), to develop a potential actuarial test for certifying a product that meets the minimum requirements of a Comprehensive Income Product for Retirement (CIPR) as outlined in the Government's discussion paper on CIPRs released on 15 December 2016. It should be noted that the ATEG was specifically consulted on technical aspects of the certification test and not on broader policy objectives or the suggested minimum requirements.

This report outlines a proposed actuarial income efficiency test that could be used to certify that a retirement income product meets the standards required to be a CIPR. This report also discusses some of the limitations and the key issues raised by the ATEG during the consultation process. There are a number of valid ways in which a test of income efficiency could be designed. Feedback on the proposed test will be useful to inform the next phase of the consultation process.

This certification test was designed to address the policy objectives outlined in the CIPR discussion paper and the suggested minimum requirements of:

- a **minimum level of income** that would (subject to consideration of guarantees) generally exceed an equivalent amount invested fully in an account-based pension that is drawn down at minimum rates; and
- provide, in expectation, a **stream of broadly constant real income for life**.

The purpose of this report is to set out the scope of work (including actuarial tests) that could be carried out by an independent actuary when certifying that a product meets the minimum requirements to be considered a CIPR. This includes the calculation of the income efficiency of a product based on the product design and its underlying assumptions.

The test outlined in this report is envisioned to assess the structure of a product and its ability to meet the suggested minimum requirements to be certified as a CIPR. It does not assess the ability of a product provider to deliver product outcomes or the appropriateness of products for individual members. In developing the test, the AGA, in consultation with ATEG, have worked within the proposed policy parameters in the Government's CIPR framework discussion paper.

The views expressed in this paper do not necessarily reflect the views of the Australian Government. The paper is intended to inform public discussion. Feedback on the proposed efficiency test can be provided to superannuation@treasury.gov.au or along with submissions in respect of the Government's discussion paper.

BACKGROUND

On 15 December 2016, the Government released a discussion paper on the Development of the Framework for Comprehensive Income Products for Retirement.

Australia's ageing population and maturing superannuation system means that we will see increasing numbers of Australians moving into retirement and relying on their superannuation to deliver income through their retirement.

Retirees face a number of risks (such as investment, inflation and longevity risk) when managing income throughout their retirement. Maximising income, while managing these risks, is complex. The retirement phase of superannuation in Australia is currently underdeveloped and new solutions could be developed to meet the income and risk management needs of many individuals and the objective of the superannuation system more efficiently. Well-developed, efficient retirement products will lift the standard of living of individuals in retirement. In doing so, this will better achieve the proposed objective of the superannuation system, which is to provide income in retirement to substitute or supplement the Age Pension.

A CIPR is intended to provide a retiree (or couple) with a higher level of product income over their lifetime, compared to an account-based pension drawn down at minimum rates, but without any increase in the risk of outliving their income.

The Government's paper explores a potential framework for the development and offering of Comprehensive Income Products for Retirement, or CIPRs. It is important to note that a CIPR is not a specific product specification. It is a framework, under which a range of possible products may be developed that deliver retirement income. To be classified as a CIPR, a product would need to meet some minimum requirements. The Government's paper proposed that there be a limited number of principles-based minimum product requirements for a CIPR. For example, it could be that the product must:

- deliver a **minimum level of income** that would generally exceed an equivalent amount invested fully in an account-based pension that is drawn down at minimum rates, with recognition of the benefit of a guaranteed level of income where relevant;
- provide, in expectation, a **stream of broadly constant real income for life** (to manage risks such as longevity); and
- include a component to **provide flexibility** to access a lump sum and/or leave a bequest.

An efficient retirement phase, in the context of delivering retirement income is ultimately measured by how much income an individual is likely to obtain from a CIPR throughout their retirement from their superannuation account balance. The discussion paper calls this **income efficiency** and proposes that a minimum level of income efficiency would ultimately be prescribed.

The Government's paper proposed that expert advice would be sought in determining the income efficiency methodology to be used in the framework (as well as the methodology for assessing other proposed minimum product requirements of a CIPR), by convening an actuarial technical expert group in 2017. The purpose of this paper is to document the income efficiency test proposed by the AGA, utilising the ATEG's input in order to provide the opportunity for broader input.

CERTIFICATION TEST

CONTEXT AND PROCESS OF THE TEST

CIPRs will require actuarial certification that they satisfy a ‘minimum income efficiency threshold requirement’. The actuarial certification process is a key plank in the CIPR regime, intended to ensure integrity in the system, and to ensure that the introduction of the CIPRs framework materially improves outcomes for individuals beyond the status quo.

The Government’s discussion paper contemplates different models for product regulation. This includes third party certification, trustee self-assessment or regulator authorisation. Under the third-party certification approach, a third-party or independent actuary would certify a CIPR using this test. The independence of the actuary is discussed later in this paper.

In broad terms, it is envisaged that the product provider (e.g. superannuation fund) would provide the certifying actuary with details of:

- The proposed product structure and specifications including how payments are determined, current pricing, fees, charges, surplus distribution rules and formulae, reserving policies and any other relevant information to enable the certifying actuary to independently determine the retirement income expected to be generated by the CIPR.
- The proposed investment strategy for any assets that will back investment-linked payments
- The relevant underlying assumptions:
 - Best estimate mortality basis for the expected purchasers of the product
 - Best estimate of the expected investment return on the assets backing investment linked payments, net of investment management fees
 - Best estimate of the proposed administration fee structure (for components where payments are not guaranteed)
 - Best estimate of the assumed future inflation rate

The certifying actuary would then use this information to undertake the certification test.

THE PROPOSED TEST

A five stage process is proposed for the certification test. The first three stages are technical tests, the fourth reviews the reasonableness of the assumptions and the final stage documents the certification.

1. Test that Constant Real Income in Expectation will be achieved

The Government's discussion paper sets out that one of the objectives of a CIPR is to deliver a stream of broadly constant real income for life. Such an income stream is expected to provide longevity and inflation risk management for retirees. In addition, providing a broadly constant retirement income (in real terms, in expectation) will aid comparability of CIPRs.

The purpose of this test is to determine if the proposed product design meets this objective. The certifying actuary should test that the proposed product specifications will, on the best estimate assumptions provided, deliver constant real income in expectation for the required duration.

The term 'in expectation' is used in an actuarial context for this section of the test and only refers to the best estimate outcome of the proposed product. The test is applied ignoring the potential for a member to exercise flexibility by making a lump sum partial commutation or withdrawal.

The term 'constant real income for life' could be interpreted literally, to be exactly the identical income, indexed to a measure of inflation, for the life of the retiree in a strict mathematical sense. The ATEG contemplated that there could be some flexibility around this objective and that good outcomes could be achieved for retirees whilst allowing some flexibility around this strict mathematical interpretation. This is not incorporated into this proposal, but is discussed later in this report.

At this stage, the test is not intended to test for volatility of outcomes around the best estimate.

2. Test that the Required Minimum Income Efficiency is met

The Government's discussion paper sets out that one of the objectives of a CIPR is to deliver a higher standard of living in retirement, compared to an account-based pension that is drawn down at minimum rates. This means that the CIPR needs to deliver a minimum level of income that would generally exceed the income produced by an equivalent amount invested in an account-based pension drawn down at minimum rates, after recognising the benefit of any guaranteed level of income where relevant. The purpose of this step is to test if the minimum level of income efficiency has been achieved.

This step compares:

- A minimum threshold, which is the expected, present value of the income, weighted by mortality, delivered by an account-based pension drawn down at minimum rates. This expected present value is increased by a prescribed minimum level of efficiency applicable to all CIPR products less an allowance that is proportionate to the income that is guaranteed by the CIPR
- The expected, present value of the income delivered by the CIPR, weighted by the same mortality.

For the ABP, calculate:

$E_{ABP} = PV^*_{ABP}$ [income payments made to the retiree while alive]/purchase price; where

- PV^*_{ABP} [income payments made to the retiree while alive] is calculated having regard to:
 - the best estimate mortality basis provided by the product provider,
 - the best estimate inflation assumption provided by the product provider
 - the prescribed baseline net of fees real investment return, R
 - the real discount rate will be the prescribed investment earnings rate, gross of investment fees, R^* (prescribed baseline real investment return)

The proposed prescribed values for R and R^* are discussed later in this report.

Then for the CIPR calculate:

PV^*_{CIPR} [income payments made to the retiree while alive]

= PV^*_G [income payments made to the retiree while alive] + PV^*_{NG} [income payments made to the retiree while alive]; where

- PV^*_G [income payments made to the retiree while alive] is the present value of payments for fully guaranteed components and is calculated having regard to:
 - the initial guaranteed payment.
 - the best estimate mortality basis provided by the product provider,
 - the best estimate inflation assumption provided by the product provider
 - the prescribed baseline real investment return, R^* to be used for discounting payments. This is the same rate used in the calculation of PV^*_{ABP}
- PV^*_{NG} [income payments made to the retiree while alive] is the present value of payments for non-guaranteed components and is calculated having regard to:
 - the best estimate mortality basis provided by the product provider,
 - the best estimate inflation assumption provided by the product provider
 - the best estimate fee assumptions provided by the product provider
 - the best estimate net of investment fee earnings rate assumption provided by the product provider
 - the discount rate will be the investment earnings provided by the product provider (immediately above), but gross of investment fees

Then calculate the minimum efficiency threshold for the CIPR.

The minimum income efficiency threshold will be risk adjusted and expressed relative to the income efficiency thresholds for an ABP and a fairly priced pure Group Self-Annuity (GSA) product.

Minimum Threshold = $K \times [E_{ABP} + T \times (E_{MAX} - E_{ABP})]$; where

- E_{ABP} is the income efficiency of an ABP at minimum drawdowns
- E_{MAX} is the income efficiency of a fairly priced pure GSA and will be prescribed
- T is the prescribed minimum improvement required above E_{ABP}
- K is the risk adjustment for non-guaranteed products; where
 - K is calculated as $[1 - D \times (PV^*_G / PV^*_{CIPR})]$
 - D is the prescribed 'discount' to the threshold for fully guaranteed products

The value of K provides a maximum risk adjustment to the baseline measure for the guaranteed components. The proposed prescribed values of T and D are discussed later in this report.

Finally test whether:

PV^*_{CIPR} [income payments made to the retiree while alive]/ purchase price

exceeds the prescribed Minimum Threshold.

3. Test that the Minimum Required Average Annual Real income is achieved

The purpose of this test is to determine whether the proposed CIPR will deliver a level of expected absolute income that would exceed the income produced by an equivalent amount invested in an account-based pension drawn down at minimum rates. This differs from step 2, which tests income efficiency. This step provides a floor to ensure the level of income exceeds the level of income produced by an account-based pension. The combination of both tests provides a more robust mechanism to ensure the policy objectives are delivered.

A minimum prescribed percentage increase is proposed. The prescribed minimum increase will be lower where some, or all, of the income delivered by the CIPR is guaranteed.

The test calculates the average yearly income expected from the CIPR based on the provider's mortality assumptions and the CIPR's payment profile (i.e. the average income each retiree would have received at each year, had they survived to that year). This is then compared to the average income expected from the account-based pension drawn down at minimum rates, increased by a risk adjusted prescribed percentage.

First calculate the average real income expected to be produced by the CIPR:

The average annual real income is calculated as the average annual real income received at each age, weighted by mortality.

Z_{CIPR} is the average annual real income per \$100,000 purchase price, calculated using:

- the best estimate mortality basis provided by the product provider,
- the best estimate inflation assumption provided by the product provider
- the best estimate, net of fees, real investment return
- Annuity pricing and any other fees not included above, if applicable.

Then calculate minimum level of acceptable expected real annual income produced by an account-based pension drawn down at minimum rates:

The minimum average real income = $Z_{ABP} * 1.1 * A$

Where:

- Z_{ABP} is the average annual real income per \$100,000 purchase price, calculated using
 - the best estimate mortality basis provided by the product provider,
 - the best estimate inflation assumption provided by the product provider
 - the prescribed net of fees real investment return, R
 - Any other fees not included above, if applicable
- A is the risk adjustment for the minimum average annual real income and calculated as
 $A = [1 - D \times (Z_G / Z_{CIPR})]$; where
 - D is as defined in part 2 of the test
 - Z_G is the average annual real income of the guaranteed component
 - Z_{CIPR} is the average annual real income of the CIPR

Test

Test that the average real income for the CIPR exceeds the minimum level.

4. Review the Reasonableness of Assumptions and Other Elements

The fourth step that is proposed is for the certifying actuary to independently certify that they are of the opinion that:

- The product design, including any mortality pool, is sound and supports the delivery of the expected outcomes.
- The proposed investment strategy is reasonable.
- The best estimate assumptions provided are reasonable.

5. Certification

The final step is to provide the certificate.

The certificate should state:

- the name of the provider and the 'name' or a description of the proposed CIPR
- the certification, covering the three technical tests and the review of the reasonableness of the assumptions.
- the effective date of certification.
- the expiry date of the certificate
- any circumstances that would result in earlier expiry
- any requirements (for example, around investment strategy, product management) that are needed to ensure the certificate remains current
- the name and professional actuarial qualification of the actuary
- a statement attesting to the independence of the actuary

Note that the certificate does not need to state the efficiency score of the product. The efficiency score is not intended to be used as a comparison tool for consumers or product providers. The certificate is only intended as recognition that the product meets the minimum requirements of a CIPR.

FURTHER CONSIDERATIONS IN RESPECT OF THE TEST

The consultation with the ATEG discussed a number of topics. The key topics discussed are set out in this section.

THE CERTIFYING ACTUARY

In the context of the potential third-party certification approach to regulating CIPRs, some members of the ATEG raised the question of whether the certifying actuary needs to be independent. This reflects the relatively objective nature of the calculations within the proposed certification test.

Whilst some aspects of the test are objective, professional judgement is still required to assess the appropriateness of the assumptions used by the product provider in developing their product. The test also considers the integrity of the product design, which goes to the ability of the CIPR to deliver the outcomes proposed by the product provider. Use of an actuary who is independent of the product development process is a form of independent peer review that would provide an additional level of confidence to all stakeholders that the product will deliver on the policy intent.

Should the third-party certification approach ultimately be the preferred approach, it is expected that guidance on independence would need to be developed so that the certifying actuary could act in their role with confidence.

BROADLY CONSTANT REAL INCOME

Indexation

In developing the certification test, constant real income is assumed to be indexed with CPI.

Whilst the AGA acknowledges that there is scope for a range of views regarding indexation, the AGA is of the view that CPI is a broad measure of inflation that is appropriate for incorporating into this test.

Age Pension

During the consultation, the ATEG noted that some retirees in receipt of income from a CIPR will also receive some income through the Aged Pension provided by the Department of Social Services (DSS). When assessing constant real income in the certification test, we have ignored interactions with the Age Pension.

It is the AGA's view that in developing a certification test for CIPRs, any interactions with the Age Pension should not dictate the structure of the test. The current means testing rules implemented by DSS to determine Age Pension entitlements are not static and can be subject to changes in the future. As such, any CIPR test should be able to stand alone and not be reliant on interactions with other sources of retirement income.

Interpretation of Broadly Constant

As noted earlier, the ATEG also raised that fact that the term ‘broadly constant’ can leave room for interpretation. For CIPRs that provide a fully guaranteed, indexed income for life, this is not a question. However, for CIPRs that combine a flexible account-based structure and longevity component, this is a relevant consideration.

The AGA is of the view that a modest level of flexibility around the strict mathematical interpretation of an expectation of constant real income for life could accommodate a wider range of products and in turn improve outcomes for retirees by providing a higher level of income for the majority of an individual’s retirement. Any flexibility would need to be limited in order to protect retirees in the years where expected income may reduce slightly. This could include a limit on the number of years where the expected income is below the constant real income and a limit on the size of any shortfall. Whether introducing flexibility of this nature is ultimately practical is still to be determined. Further consideration could be given to input on where flexibility in the test may provide a material benefit to retirees in this context.

PRESCRIBED ASSUMPTIONS

Discount Rates

The AGA proposes the earnings rate used in the efficiency calculations, R , should be representative of a long term investment outcome and propose a real rate of 2.8% for R and 3.3% for R^* , thus allowing for fees of 0.5% for the baseline account-based pension.

The same R^* is utilised for discounting guaranteed income payments. Guaranteed products have specified payments that are not dependent on investment outcomes or mortality experience of the participants. In times of low interest rates, these products will be relatively more expensive. This could be described as a type of timing risk. Using a prescribed, long term discount assumption can help to assess the value of these products in such environments.

There is a choice being made in the design of the test around whether a product should be assessed only within its own pricing environment or whether a longer term view should be used in the assessment. Either approach is expected to have its advantages and disadvantages. Whilst the proposed approach will have regard for the timing risk noted above, it may also mean that some products may pass the efficiency test at some points in the interest rate cycle and fail at others, resulting in funds needing to reconfigure their CIPR more frequently. On the other hand, adopting the proposed approach is likely to be more consistent with ensuring CIPRs meet their objective of providing a higher level of product income over a retiree’s lifetime, compared to an account-based pension drawn down at minimum rates.

Maximum Efficiency

The AGA believes a reasonable assumption for the maximum efficiency, E_{MAX} , is 92%. This is based on a pure GSA with zero death or withdrawal benefits and an allowance for fees.

Minimum Improvement Level

The prescribed minimum improvement level, T , is a key component in determining the level of products which meet the CIPR requirements. For example, T could be set at 0.5. This would mean that, to be considered a CIPR, a product must have at least an efficiency score that is half way

between an ABP drawn down at minimum rates and the prescribed maximum efficiency of 92% for the same level of guarantee.

By way of example we have applied the test to the three CIPRs set out in the AGA's Financial Services Inquiry (FSI) paper Towards More Efficient Retirement Income Products.

Product	Efficiency Threshold	Product Efficiency
75%GSA/25% ABP	82.8%	84.8%
20%DGSA/80%ABP	82.8%	87.2%
21%DLA/79%ABP	82.1%	85.6%

The efficiency threshold in the above table is calculated using T of 0.5, a baseline ABP product with efficiency of 73.7% and a maximum efficiency value of 92%. A 5% discount was also applied with respect to any guaranteed income in the products. Under these assumptions, all three CIPRs from the AGA's FSI paper pass the efficiency hurdle. In addition, all three CIPRs also pass the income hurdle proposed in step three of the certification test.

Please note the deferred life annuity in the above example is based on pricing at the time of the FSI and provided by the FSI. Annuity pricing is updated frequently so the results for this product would be expected to vary if current pricing were used, however as there are no deferred lifetime annuities on the market at present it is not possible to obtain a current price.

Risk Adjustment for Guaranteed Products

Guaranteed payments should hold some additional value to a retiree over an equivalent payment that is not guaranteed. Equally, from the product provider's perspective, there are additional costs in the capital requirements of providing a guaranteed product. As a result, the certification formulae incorporate a prescribed value 'D' that reduces the minimum improvement level where payments are guaranteed.

By way of example, D could be set at a value of 5%. D could be broadly based on a reasonable estimate of the cost to the product provider in providing the guarantee, whilst retaining a transparent approach and not over complicating the calculation.

When referring to guaranteed payments, we are referring only to amounts that are fully guaranteed. Some products have been noted in literature, which provide a 'benefit promise' rather than an explicit guarantee. This includes products that provide a 'soft' guarantee, where payments may be varied downwards in the light of adverse experience. These types of income streams would not be eligible for the risk adjustment.

There are many potential types of 'guarantee' that could evolve. For example, a product may provide a partially guaranteed level of income where a base layer of 80% of the initial annual income is guaranteed, whilst a top layer of 20% is not guaranteed. If this guarantee is effectively being provided through the same member bearing increased risk on the other 20% of the income, such that the overall risk profile of the product is the same as though the product was not guaranteed, then it would seem logical that such a product would also not be eligible for the discount. This logic could reasonably be extended to smoothing accounts and other mechanisms where the members are effectively providing their own 'guarantee'.

It is the intention of this test that references to guarantees are references to full guarantees that are independent of other payments the retiree is receiving. Having said that, there are a the variety of

potential designs that funds may be considering that could warrant further examination of the treatment of guarantees within this test.

THE DURATION OF THE CERTIFICATE AND ONGOING CERTIFICATION

This test has been designed for the purpose of certifying that a product meets the requirements to be considered a CIPR at the point a member joins. Recertification would clearly be required in the event of material changes to the product, including fees, investment objectives and longevity pricing. It is also expected that there would be a maximum period for which a certificate remains current. It is proposed that this maximum period be set at three years. Recertification of the product for new members would be required after the expiry of the certificate, or on the earlier event of material changes.

Products will also require ongoing management, including actuarial management, to ensure that the product continues to meet its objectives for current members. This task, whilst important, is considered to be outside the scope of this specific certification test.

ONGOING REVIEW OF THE CERTIFICATION TEST

As investment environments change and product designs develop, the actuarial certification test will need to be reviewed periodically to remain relevant and effective. The AGA proposes the actuarial certification test be reviewed as part of a broader periodic review of the framework for retirement income streams.

Guy Thorburn
Australian Government Actuary
25 May 2017

ACKNOWLEDGEMENTS

The proposal for this test has been developed with input from the Actuarial Technical Expert Group (ATEG). The participants in the group brought wide expertise from across the life insurance and superannuation (including industry, retail, corporate and public) industries. The members have been asked to engage in a personal capacity, rather than represent an organisational view.

This group was chaired by Peter Martin, as Australian Government Actuary. Peter retired as this group drew to a conclusion. I would like to thank Peter for chairing this group.

The Actuarial Technical Expert Group met to discuss a range of aspects related to the development and application of the test. The proposed test and comments in this paper reflect the views of the Australian Government Actuary after considering the input from this group. The paper is not intended to reflect the views each individual member of the ATEG. Never the less, I would like to thank all members of the group for their time and contribution to this process.

The members of the group are Tony Bofinger, Nick Callil, Melinda Howes, David Knox, Catherine Nance, Brnic Van Wyk and Jeff Warner.