

22 March 2017

Cath Halbert
Group Manager
Payments Policy Group
Department of Social Services
GPO Box 9820
Canberra ACT 2601

Dear Ms Halbert

Re: Discussion Paper: Social security means testing of retirement income streams

This supplementary submission by Challenger Limited to the Discussion Paper: Social security means testing of retirement income streams focuses on the treatment of DLAs (deferred lifetime annuities).

Challenger's first submission focussed on how pooled longevity products share the costs and benefits of income streams amongst members of these pools and how the current reduced purchase price and deduction amount methodologies effectively replicate that sharing for the costs and benefits of the social security treatment amongst retirees using pooled products. It showed that there is broad neutrality between the social security treatment of the pool and the social security treatment of account based pensions.

That submission used analysis from Ernst & Young (EY) on the costs to the retiree, in terms of age pension foregone, to determine the relative neutrality of different approaches to means testing. EY considered three different product types:

1. a lifetime annuity;
2. an account-based pension (ABP); and
3. a "longevity pooling" product (Replicating Portfolio or RP) under which capital from those leaving the pool remains for the benefit of other members (mortality credits).

Challenger subsequently asked EY to extend its analysis to include a deferred lifetime annuity (DLA). Similar to the lifetime annuity in the previous analysis, the deferred lifetime annuity payment amount is determined as the amount that a life company would offer, taking into account the returns on the underlying assets and its cost of capital. In this case, the payment amounts are assumed to commence at life expectancy (85 years) and will continue for the pensioner's entire life thereafter. Due to the deferral period, the amounts payable under the DLA are substantially higher than those for a lifetime annuity for the same purchase price, offset by the shorter payment period and fewer retirees surviving to receive the payments.

EY modelled two general approaches to sharing the costs and benefits of the social security treatment of DLAs. The EY analysis compares the neutrality of these alternative treatments by showing the age pension foregone as a result of the assets test across the whole projection period.

For asset testing a DLA, the two approaches taken are:

- Option 1: It is assumed that a DLA will be exempt during the deferral period. The asset value at commencement of payments will be set equal to the present value of future payments at that time, and the asset value will then reduce to zero in a straight line over the remaining life expectancy at that time (ie. for this example the age cohort life expectancy at 85).

Melbourne Level 19, 31 Queen Street PO Box 297, Flinders Lane, Melbourne VIC 3000 Telephone 02 9994 7000 Facsimile 02 9994 7777
Brisbane Level 9, 241 Adelaide Street GPO Box 3234, Brisbane QLD 4001 Telephone 07 3136 5400 Facsimile 07 3136 5407
Perth Level 5, 50 St Georges Terrace, Perth WA 6000 Telephone 08 9261 7412 Facsimile 08 9321 5277
Adelaide Level 7, Suite 714, 147 Pirie Street Adelaide SA 5000 Telephone 08 7071 7042 Facsimile 08 8227 0395

- Option 2: It is assumed that the same assessable assets will be used as the current assets test for an immediate lifetime annuity at the date of purchase and will reduce to zero in a straight line over the life expectancy at date of purchase (ie. for this example the age cohort life expectancy at 65).

Chart 1: Assets test – Age Pension foregone

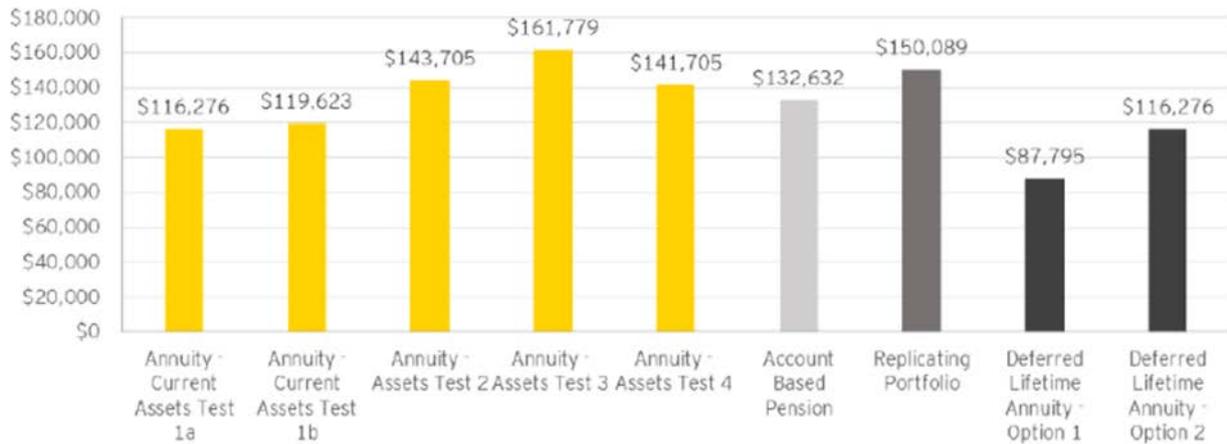


Chart 1 shows that the age pension foregone under Option 1 of the assets test is somewhat lower than for an immediate lifetime annuity under the existing assets test (1a) and Challenger’s proposed assets test (1b), under which the relevant number is based on Australian population mortality with allowance for mortality improvements using the Australian Government Actuary 25 year average improvement rates.

The age pension foregone under Option 2 of the assets test is the same as for an immediate lifetime annuity under the existing assets test. This arises because the same asset value is assumed for both the lifetime annuity and the deferred lifetime annuity. It should be noted that in this example the retiree does not have access to the funds during the deferral period.

For income testing the DLA, the two approaches taken are:

- Option 1: The deduction amount is determined as the value of the deferred annuity (set equal to the present value of future payments at that time) divided by the remaining life expectancy at that time (ie. for this example the age cohort life expectancy at 85).
- Option 2: The deduction amount is determined as initial purchase price divided by life expectancy at the time of purchase (ie. for this example the age cohort life expectancy at 65).

Chart 2: Income test - Age Pension foregone

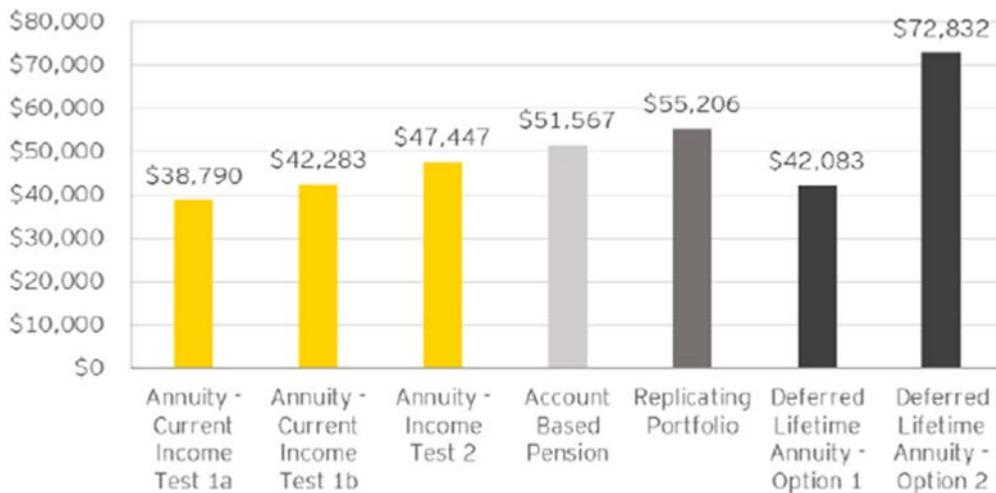


Chart 2 shows that the age pension foregone for Option 1 is in line with that of a lifetime annuity under the existing assets test (1a) and Challenger's proposed assets test (1b). This is driven by a combination of reduced Age Pension foregone during the deferral period (because no income is received) and increased Age Pension foregone following commencement of payments (because the payments received are higher).

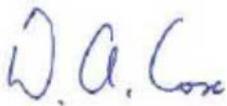
The Age Pension foregone under Option 2 is substantially higher, driven by the lower deduction amount. The deduction amount is lower under Option 2 because the starting value is lower (purchase price rather than the present value of future payments at the end of the deferral period) and the remaining life of the retiree is higher at outset.

Challenger has drawn a number of conclusions from the EY analysis of these two approaches to the social security treatment of DLAs:

1. In terms of neutrality over the term of the product Option 1 is treated more favourably than an immediate lifetime annuity under the assets test and neutrally under the income test.
2. In terms of distributional effects Option 1 favours retirees with more assets.
3. In terms of neutrality over the term of the product Option 2 is treated neutrally with an immediate lifetime annuity under the assets test and unfavourably under the income test.
4. There are no grounds for suggesting that Option 2 provides concessional treatment and for a retiree subject to the income test the treatment is unfavourable over the life of the product.
5. There are no grounds for imposing harsher social security treatment than Option 2 on DLAs.
6. The Option 2 income test would produce significant savings to government as the population ages.
7. Non-neutral social security treatment will impact take-up of DLAs.
8. Both Options 1 and 2 have the benefit of providing income test arrangements which relate to the actual income received by the retiree, which is important for the income security of the retiree.
9. Retirees who choose to take longevity insurance by buying DLAs will, under either Option 1 or 2, receive significant guaranteed income streams late in life.

We would be pleased to assist by having EY model any other means test options for deferred products which DSS may be contemplating.

Yours faithfully

A handwritten signature in blue ink that reads "D. A. Cox".

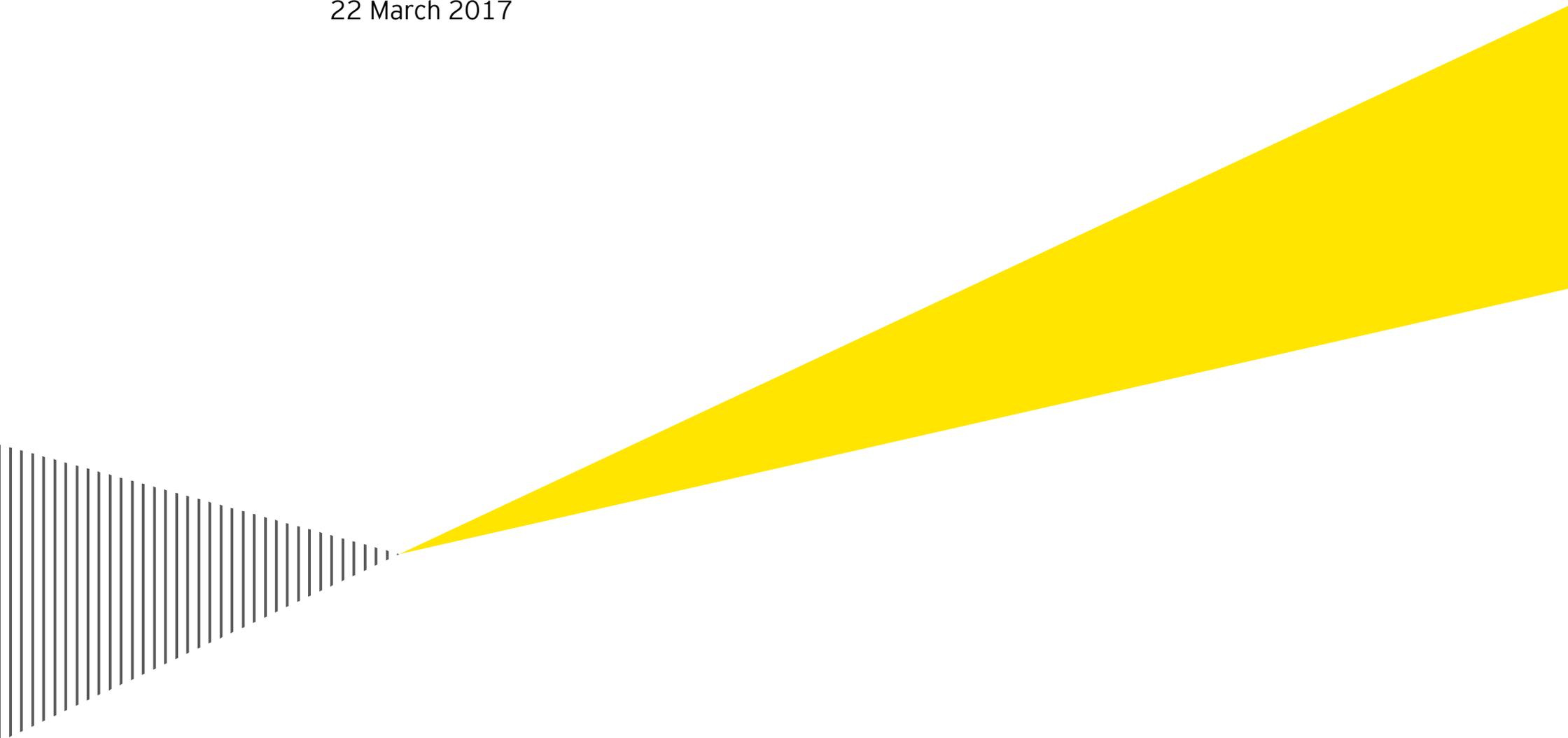
David Cox
Head of Government Relations

Challenger Limited

DSS Discussion Paper

Social security means testing for retirement income streams

22 March 2017



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David Cox
Head of Government Relations
Challenger Limited
Level 2, 5 Martin Place
Sydney, NSW 2000

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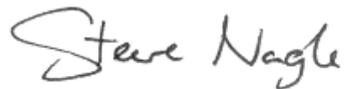
Discussion paper support

Dear David

Ernst & Young ('EY', 'we', or 'us') has been engaged by Challenger Limited ('Challenger' or 'you'), to prepare a report (the 'Report') in which we present the results of our quantitative analysis addressing certain aspects of the Australian Government "Social security means testing of retirement income streams" discussion paper. This report is subject to the release notice in Appendix C.

We are pleased to provide our Report in which we present the results of our model validation. If you have any questions in relation to the report, please do not hesitate to contact me on (02) 9276 9010.

Yours sincerely



Steve Nagle

Ernst & Young

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1. Executive Summary

1.1 Introduction

In December 2016, the Australian Government Department of Social Services released a discussion paper on "Social security means testing of retirement income streams" ('the Paper') in light of the Government's announcement in the 2016-17 Budget that it will review current superannuation rules and regulations that may be restricting the development of new retirement income products. Challenger has engaged EY to assist with Challenger's response to the Paper, by performing a quantitative analysis and preparing a report in relation to the current means testing impact on lifetime annuities, when compared to account-based pensions.

1.2 Scope

As per our Statement of Work dated 24 January 2017, we agreed to perform the following as part of our quantitative analysis:

- i. An independent actuarial investigation, through the use of deterministic case studies, into the current means testing impacts on lifetime annuities, when compared to account-based pensions. This analysis will also consider mortality credits under a replicating portfolio in an attempt to make fair comparisons between the income derived and capital returned by each product.
- ii. Extending this analysis to the proposed means testing approaches mentioned in the Paper.
- iii. Incorporating a deferred lifetime annuity into the analysis, with certain means testing treatment that you have specified.

1.3 Limitations on scope

This report is not designed to, and will not, provide any opinion. Specifically, this report is based on factual and unbiased outcomes, and does not include any viewpoints on the Paper or on Challenger's view on the Paper.

2. Model Overview

As per our agreed scope, we built an independent model to examine the impact of various means testing approaches on four retirement income stream products:

- i. Immediate non-indexed lifetime annuity with 0% residual capital value
- ii. Account-based pension (ABP)
- iii. Replicating portfolio (RP) of account-based pensions designed to imitate the features of the annuity. This is a pooled account-based product designed to provide longevity protection.
- iv. Deferred lifetime annuity (DLA)

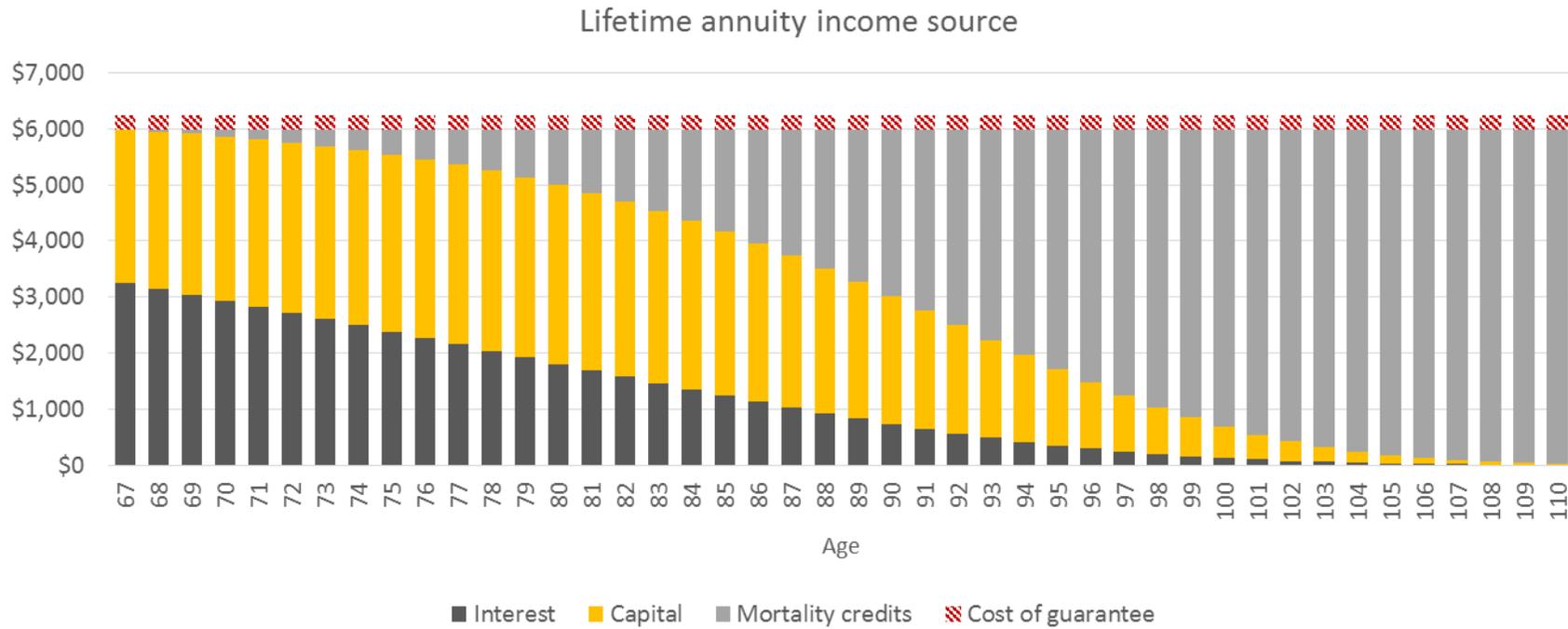
To aid the comparison between the products, we have designed them such that the payment rates¹, underlying earning rates and any management fees are equivalent. To achieve this, we have ignored some regulatory and/or behavioural barriers. Also, in order to investigate the impact of each means test analysed, we have applied each test individually, even though this is not the case in practice. For example, when considering the assets test, we do not also consider the income test in the same projection.

2.1 Lifetime annuity

The lifetime annuity modelled is a vanilla immediate annuity product that provides income payments for the retiree's lifetime after purchase. There is no residual capital value; that is, no capital is accessible upon death. We have assumed a constant payment rate determined by our pricing model. The details of this pricing are explained in the following section. The figure below shows an example of lifetime annuity payments, splitting the payments into their various income sources. Since the lifetime annuity is a pooled product, as members of the pool die, they lose their claim on any of the pool's remaining assets and these are effectively transferred to the surviving members. These capital transfers are referred to in this report as mortality credits and these are expected to increase over time for surviving members as the number of survivors reduces.

¹ With the exception of the replicating portfolio and the deferred lifetime annuity as described in Section 3.

Figure 1: The income sources associated with lifetime annuity payments²



2.1.1 Assets test

As per your instruction, we modelled the lifetime annuity under the alternative assets test scenarios described in Table 1 below.

² The cost of guarantee is shown for comparison in this chart but is not part of the annuity payments. See Section 3 for more detail.

Table 1: Assets test scenarios for the lifetime annuity	
Assets test option	Assessable capital
Current assets test 1a	Current relevant number ³ methodology which is based on life expectancy using Australian population mortality with no allowance for mortality improvements.
Current assets test 1b	An alternative approach under which the relevant number is based on life expectancy using Australian population mortality with allowance for mortality improvements using the Australian Government Actuary 25 year average improvement rates.
Assets test 2	Initial purchase price is reduced over a period of 35 years on a straight-line basis as per the Paper's example.
Assets test 3	Initial purchase price is reduced over a period of 35 years on an increasing scale basis as per the Paper's example.
Assets test 4	Net present value of the expected future annuity payments ⁴ .

To determine an individual's eligibility for the Age Pension in each projection year, the individual's assessable capital is tested against the assets test limits and taper rate as outlined in Appendix B.

2.1.2 Income test

We modelled the lifetime annuity product under the three income test scenarios described in Table 2 below.

Table 2: Income test scenarios for the lifetime annuity	
Income Test	Deductible amount
Current income test 1a	Current relevant number methodology which is based on life expectancy using Australian population mortality with no allowance for mortality improvements.
Current income test 1b	An alternative approach under which the relevant number is based on life expectancy using Australian population mortality with allowance for mortality improvements using the Australian Government Actuary 25 year average improvement rates.
Income test 2	Deductible amount equal to that of the current income test (1a), however only applying until a person reaches life expectancy.

To determine an individual's eligibility for the Age Pension in each projection year, the annuity payment less the deductible amount (if any) is tested against the income test limits outlined in Appendix A.

³ The relevant number is used by Centrelink to determine the deductible amount which feeds into the Age Pension calculation

⁴ To avoid immediate materialisation of future fees (which the other tests do not suffer from), the discount rate used for this test is net of fees

2.2 Account-based pension (ABP)

An ABP is an individual investment account set up with superannuation benefits from which a retiree draws a regular income⁵. For the purpose of means testing, the ABP balance for each projection year is calculated using the following formula, where t represents years and earnings and fees are annual amounts:

$$ABP\ Balance_t = ABP\ Balance_{t-1} + Earnings - Fees - Annual\ drawdown$$

We have modelled the ABP by assuming a constant annual drawdown equivalent to the payment rate of the lifetime annuity, ignoring any minimum drawdowns specified in the SIS Regulations. Once the ABP balance runs out, the individual will rely solely on income from the Age Pension. In the case of our example retiree detailed in Section 4, this occurs at approximately age 90.

2.2.1 Assets test

To determine an individual's eligibility for the Age Pension in each projection year, the individual's assessable capital under the assets test is simply their account balance at the start of each projection year. This is then tested against the assets test limits and taper rate outlined in Appendix B.

2.2.2 Income test

To determine an individual's eligibility for the Age Pension in each projection year, the individual's deemed income is calculated by applying the account balance to the deeming rates and income test limits outlined in Appendix B.

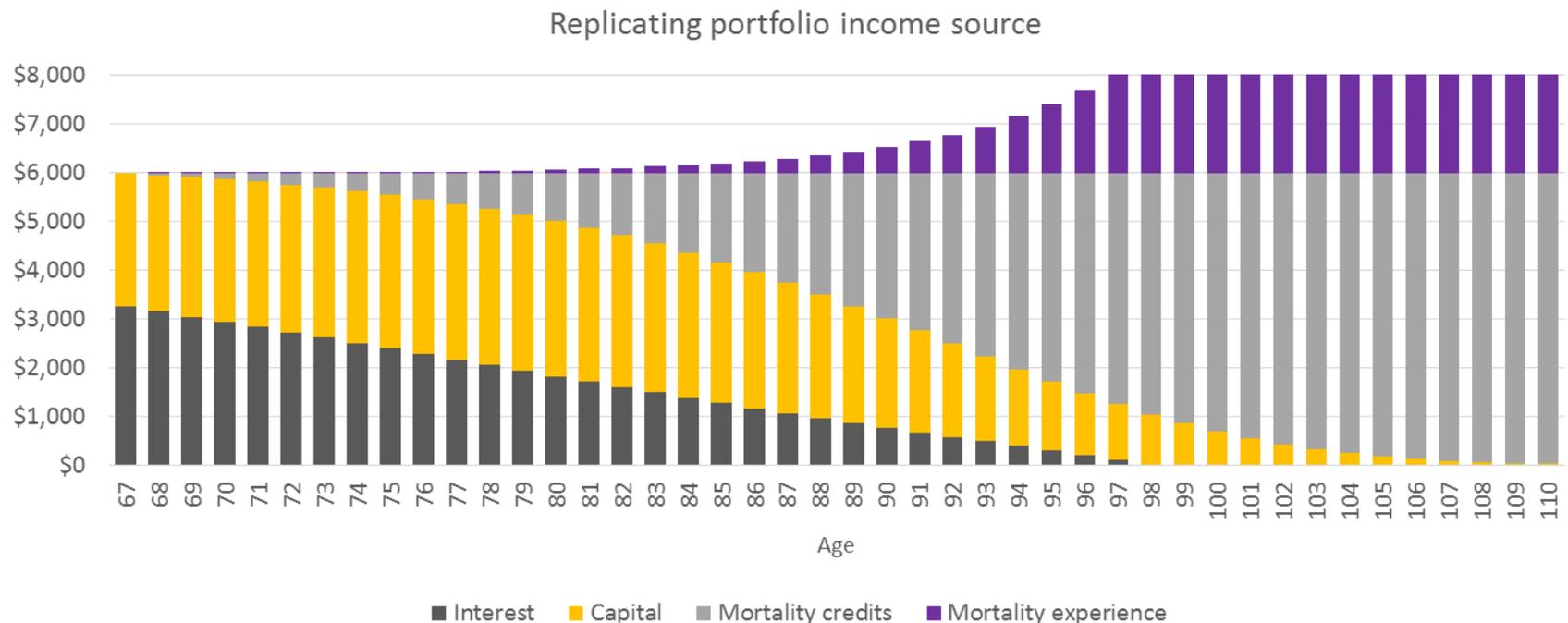
2.3 Replicating portfolio (RP)

The replicating portfolio modelled is a combination of account-based pensions belonging to a pool of individuals in equal proportion. As members of the pool die, they lose their claim on any of the pool's remaining assets and there is no residual capital for their estate. Surviving members of the pool will thus be entitled to larger account balances than if they had not entered into the pooling arrangement. The additional capital amounts contributed by deceased members are also mortality credits, similar to the lifetime annuity. The diagram below shows an example of the cash flows expected to be received by an individual with one of these hypothetical products. The cash flows received are split into their various sources and it can be seen that the proportion of income funded by mortality credits increases over time as members of the pool exit. Mortality experience represents the adjustment of the payment rate to reflect actual mortality deviating from the conservative pricing assumptions⁶.

⁵ Australian Government Department of Social Services: Social security means testing of retirement income streams

⁶ See Section 3.1

Figure 2: The income sources associated with replicating portfolio payments⁷



For the purposes of means testing, the RP account balance for each projection year is calculated using the following formula and is distributed equally among surviving members of the pool, where again t represents years and earnings, fees and mortality credits are annual amounts.

$$RP\ Balance_t = RP\ Balance_{t-1} + Earnings - Fees + Mortality\ credits - Annual\ drawdown$$

We have modelled the RP by assuming an annual drawdown payment equivalent to that produced by our annuity pricing model plus additional mortality credits expected to be received by an individual. The mechanism for calculating these credits is described in Section 3.1.

⁷ The mortality experience continues to increase past age 97 but we have truncated the chart for clarity

2.3.1 Assets test

To determine an individual's eligibility for the Age Pension in each projection year the individual's assessable capital under the assets test is simply the individual's share of the remaining account balance in the pool. This is then tested against the assets test limits and taper rate outlined in Appendix B.

2.3.2 Income test

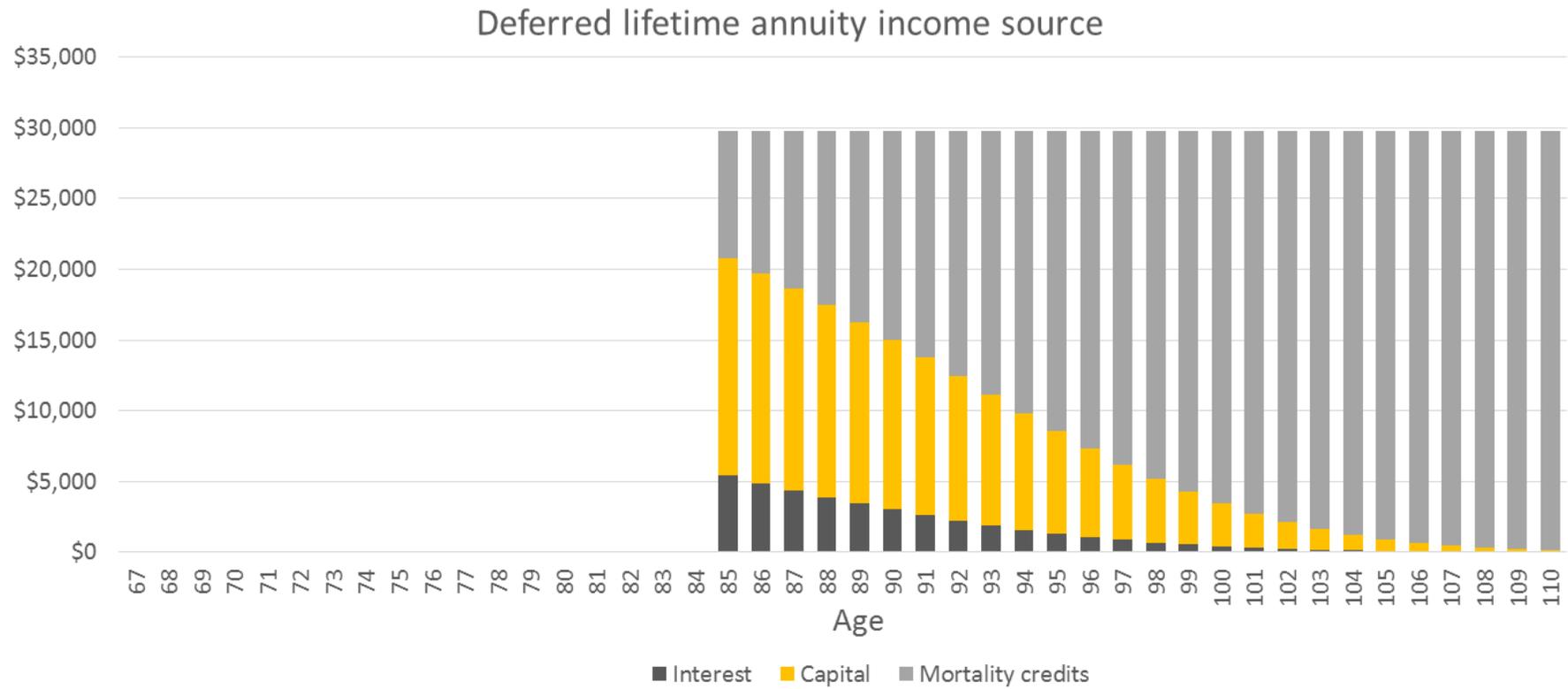
To determine an individual's eligibility for the Age Pension in each projection year, an individual's deemed income is calculated by applying their account balance to the deeming rates and income test limits outlined in Appendix B.

2.4 Deferred lifetime annuity (DLA)

The deferred lifetime annuity modelled is a vanilla deferred lifetime annuity product that provides income payments for the retiree's lifetime with the payments commencing after a deferment period - in this case, life expectancy. There is no residual capital value; that is, no capital is accessible upon death, even if this were to occur during the deferment period. You have asked us to assume a deferral period equal to the individual's expected life.

We have assumed a constant payment rate determined by the same pricing model used to price the immediate lifetime annuity. The figure below shows an example of deferred lifetime annuity payments, splitting the payments into their various income sources. Since payments only commence after the deferment period, mortality credits have already accrued and the capital drawn down can be greater than was the case for the immediate lifetime annuity, resulting in larger income payments for the same amount of initial capital.

Figure 3: The income sources associated with deferred lifetime annuity payments



2.4.1 Assets test

As per your instruction, we modelled the deferred lifetime annuity under the alternative assets test scenarios described in Table 3 below.

Table 3: Assets test scenarios for the deferred lifetime annuity	
Assets test option	Assessable capital
Option 1	Assume no assessed assets during the deferral period and then amortise the net present value at the commencement of the payment period in line with the remaining expected life at that time. This amount is then tested against the assets test limits and taper rate outlined in Appendix B every year.
Option 2	Assume the same assessable assets as the current assets test for the immediate lifetime annuity.

2.4.2 Income test

As per your instruction, we modelled the deferred lifetime annuity under the alternative income test scenarios described in Table 4 below.

Table 4: Income test scenarios for the deferred lifetime annuity	
Income test option	Deductible amount
Option 1	Assume no income during the deferral period and after this to assume the current income test applies, with the deductible amount calculated using the net present value ⁸ at the commencement of the payment period and the expected life at that time.
Option 2	Assume no income during the deferral period and after this to assume the current income test applies, with the deductible amount calculated using the initial purchase price and the expected life at the time of purchase.

⁸ Consistent with the net present value of the immediate lifetime annuity, to avoid immediate materialisation of future fees, the discount rate used for this test is net of fees.

3. Methodology

3.1 Pricing model

To determine an appropriate annual drawdown rate for each retirement income stream product described above, we started by calculating an annual, non-indexed payment rate for the lifetime annuity. We used an annuity pricing model to achieve this, making assumptions about mortality and management fees⁹. We also assumed that any profit margin is equal in value to the cost of capital calculated as follows:

$$\text{Capital margin} = \text{Capital held (\%)} \times \text{Expected annuity duration} \times \text{Cost of capital} \times \text{Initial pricing rate}$$

The replicating portfolio (RP) product does not have this cost of capital associated with it and can be expected, if mortality assumptions are borne out to provide greater payments. However as the mortality credit component of the payments are not guaranteed it would be prudent to set an initial payment rate based on conservative assumptions about mortality. We have therefore assumed that the RP has the same initial payment rate as the lifetime annuity, which is equivalent to assuming that future mortality would be 15% more conservative than our best estimate used to price the lifetime annuity. Then, after projecting out the number of survivors in the pool each year using the best estimate mortality, we calculated how this payment rate would be reset in future years, again assuming prospective mortality to be 15% more conservative than our best estimate. This results in a repayment rate that increases over time to reflect the releasing of the conservative mortality assumptions embedded into the calculation of the payment rate.

We assume that the account-based pension is drawn down at the same rate as the lifetime annuity until the account is exhausted.

Therefore the immediate lifetime annuity, account-based pension and replicating portfolio products are assumed to initially pay the same income rate. As described earlier, the deferred lifetime annuity uses the same annuity pricing model to determine the payment rate to commence after the deferment period.

3.2 Projection model

We calculated the impact of various means testing approaches on social security by determining an 'Age Pension foregone' value over a retiree's lifetime, where:

$$\text{Age Pension foregone} = \sum_{\text{projection years}} (\text{Maximum Age Pension entitlement} - \text{Expected Age Pension entitlement}) \times (\text{discount factor}^{10})$$

⁹ See Appendix A

¹⁰ Each cash flow is discounted for the time value of money and survivorship

In this formula, projection years represents the period over which we calculate the Age Pension foregone, being the whole projection period (age 110) in our analysis.

4. Results

We have based our quantitative analysis on an individual with the following characteristics:

Gender	Male
Age	67
Expected life	22 years
Initial investment	\$100,000
Assets outside of superannuation	\$300,000 ¹¹
Homeowner	Yes
Family situation	Single

Please refer to Appendix A for our pricing assumptions and Appendix B for the inputs used to model Age Pension entitlements. We also assumed that:

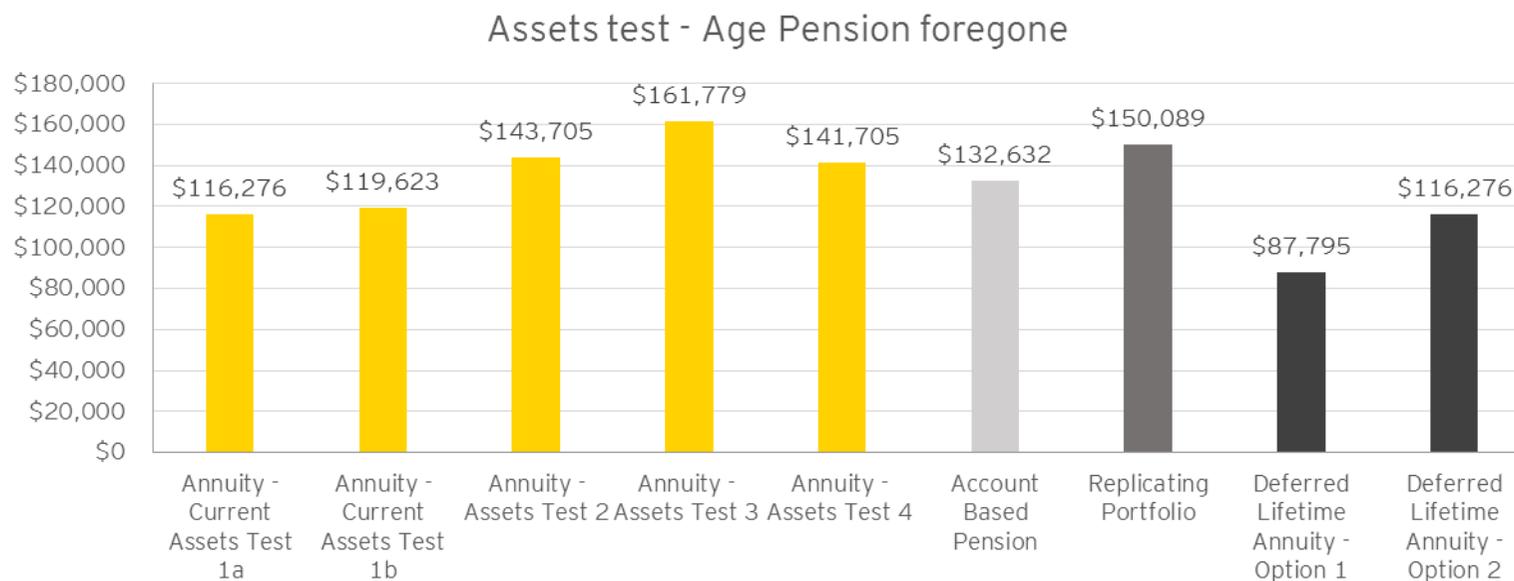
- i. An individual has fulfilled all Age Pension residency requirements
- ii. The minimum age requirement for the Age Pension is 67
- iii. The Age Pension amounts and associated means tests do not change over time

Below, we present the results of our quantitative analysis showing the value of all Age Pension payments foregone over the whole projection period discounted to reflect the time value of money and survivorship.

¹¹ To ensure that the means tests apply for this scenario, we have assumed there is a fixed amount of deposable assets sitting outside of the superannuation system

4.1 Assets test

Figure 4: Age Pension foregone for various assets tests and products across the whole projection period

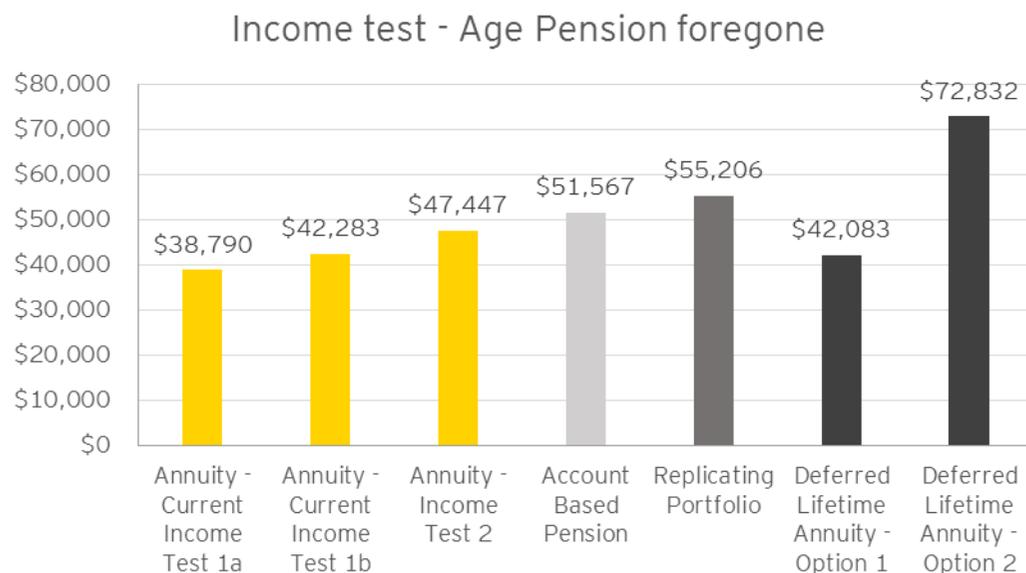


Observations:

- i) For the lifetime annuity, the differences in methodologies used for the assets test can result in significantly different amounts of foregone Age Pension.
- ii) The difference in Age Pension foregone between the Annuity under Assets Test 4 and the Replicating Portfolio is caused by the lower payments on the annuity which result from the cost of capital.
- iii) The difference in Age Pension foregone between the Account Based Pension and the Replicating Portfolio is due to the additional capital amounts being tested under the assets test for a Replicating Portfolio contributed by mortality credits.
- iv) The Deferred Lifetime Annuity, under Option 1, has the lowest Age Pension foregone due to no assets being assessable during the deferment period.

4.2 Income test

Figure 5: Age Pension foregone for various income tests and products across the whole projection period



Observations:

- i) For the lifetime annuity, there is a difference between Age Pension foregone between Current Income Test 1a and Income Test 2. This is due to the deductible amount for Current Income Test 1a applying indefinitely, whereas for Income Test 2, the deductible amount is only applied up to life expectancy and thereafter all annuity income is assessed.
- ii) Assuming a smaller “relevant number” (as in Current Income Test 1b) results in a smaller deductible amount and therefore more Age Pension foregone.
- iii) The differences in the Age Pension foregone between the various scenarios are smaller than the differences from the assets test approaches.
- iv) All tests for the annuities result in less foregone Age Pension than the other two products (with the exception of the Deferred Lifetime Annuity under Option 2, as a result of the relatively small size of the deductible compared to the payment amounts).

5. Reliances and limitations

In preparing this report, we have relied upon the data and information (written, verbal, qualitative, quantitative or otherwise) supplied by Challenger Limited. We have relied upon the general completeness and accuracy of this data and information without independent verification.

We have not independently verified or audited the information provided to us, but we have assessed it for general reasonableness and consistency. It should be noted that if any data or other information is inaccurate or incomplete, any advice we provide may need to be revised.

Our report has been prepared for the sole use of Challenger Limited for the purposes stated in our engagement agreement and statement of work dated 21 October 2016. Our report may not be provided to, used by or relied upon by any other party without our prior written consent.

We disclaim all liability to any other party for all costs, loss, damage and liability that the other party may suffer or incur arising from or relating to or in any way connected with the contents of our report, the provision of our report to the other party or the reliance upon our report by the other party.

The work that we have performed does not constitute an audit in accordance with Australian Auditing Standards or a review made in accordance with Australian Auditing Standards applicable to review engagements and, consequently, no assurance is expressed.

In preparing this report we have assumed that only those persons who are technically competent in the areas addressed will use it. The report is designed to be read in its entirety. We are available to answer any queries and the reader should seek that advice before drawing conclusions on any matter in question.

Appendix A Pricing assumptions

Earnings rate	3.25%
Discount rate	3.25%
Admin/management fee for all products	40 bps
Capital (economic) held to offer guaranteed	5%
Expected annuity duration	10 years
Cost of capital	8%
Mortality	Annuitant ¹²
Deferment period (DLA only)	Life expectancy

¹² You have provided us with the annuitant mortality tables to use for pricing purposes

Appendix B Means testing and Age Pension tables

Table 7: Assets test limit		
Family situation	Assets	Reduction in pension income
Single homeowner	Up to \$250,000	None
	Over \$250,000	\$3 for each \$1,000 over \$250,000 ¹³
Single non-homeowner	Up to \$450,000	None
	Over \$450,000	\$3 for each \$1,000 over \$450,000
Couple homeowner (each member)	Up to \$187,500	None
	Over \$187,500	\$3 for each \$1,000 over \$187,500
Couple non-homeowner (each member)	Up to \$287,500	None
	Over \$287,500	\$3 for each \$1,000 over \$287,500

Table 8: Income test limits		
Family situation	Fortnightly Income	Reduction in pension income
Single	Up to \$164	None
	Over \$164	50 cents for each dollar over \$164
Couple (each member)	Up to \$292	None
	Over \$292	50 cents for each dollar over \$292

¹³ Commonly referred to as the assets test "taper rate"

Table 9: Deeming of income under income test		
Family situation	Financial investments	Deeming rate
Single	Up to \$49,200	1.75%
	Over \$49,200	\$861 plus 3.25% for any amount over \$49,200
Couple (each member)	Up to \$40,800	1.75%
	Over \$40,800	\$714 plus 3.25% for any amount over \$49,200

Table 10: Age Pension rates per fortnight		
Family situation	Maximum basic rate	Supplement rate
Single	\$797.90	\$601.50
Couple (each member)	\$79.20	\$59.70

Appendix C Release notice

Ernst & Young ("**Consultant**") was engaged on the instructions of Challenger Limited ("**Client**") to present the results of our quantitative analysis addressing certain aspects of the Australian Government "Social security means testing of retirement income streams" discussion paper ("**Project**"), in accordance with the engagement agreement dated 24 January 2017 including the General Terms and Conditions ("the **Engagement Agreement**").

The results of the Consultant's work, including the assumptions and qualifications made in preparing the report, are set out in the Consultant's report dated 22 March 2017 ("**Report**"). You should read the Report in its entirety including any disclaimers and attachments. A reference to the Report includes any part of the Report. No further work has been undertaken by the Consultant since the date of the Report to update it.

Unless otherwise agreed in writing with the Consultant, access to the Report is made only on the following basis and in either accessing the Report or obtaining a copy of the Report the recipient agrees to the following terms.

1. Subject to the provisions of this notice, the Report has been prepared for the Client and may not be relied upon by any other party.
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