Schroders

Designing a post-retirement solution for South Africa

Lesley-Ann Morgan, Global Head of DC and Retirement

September 2017

Solving post-retirement around the world

Same problem but the solutions differ

The problem

- Under-saved and underfunded
- Increasing life expectancy
- Lower returns tha
- Desire for certaint requirement for fle


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The government's planned public annuity scheme giving the elderly a fixed monthly income is step towards universal pension, but not yet the full deal

Deep and thoughtful retirement research

Global papers:

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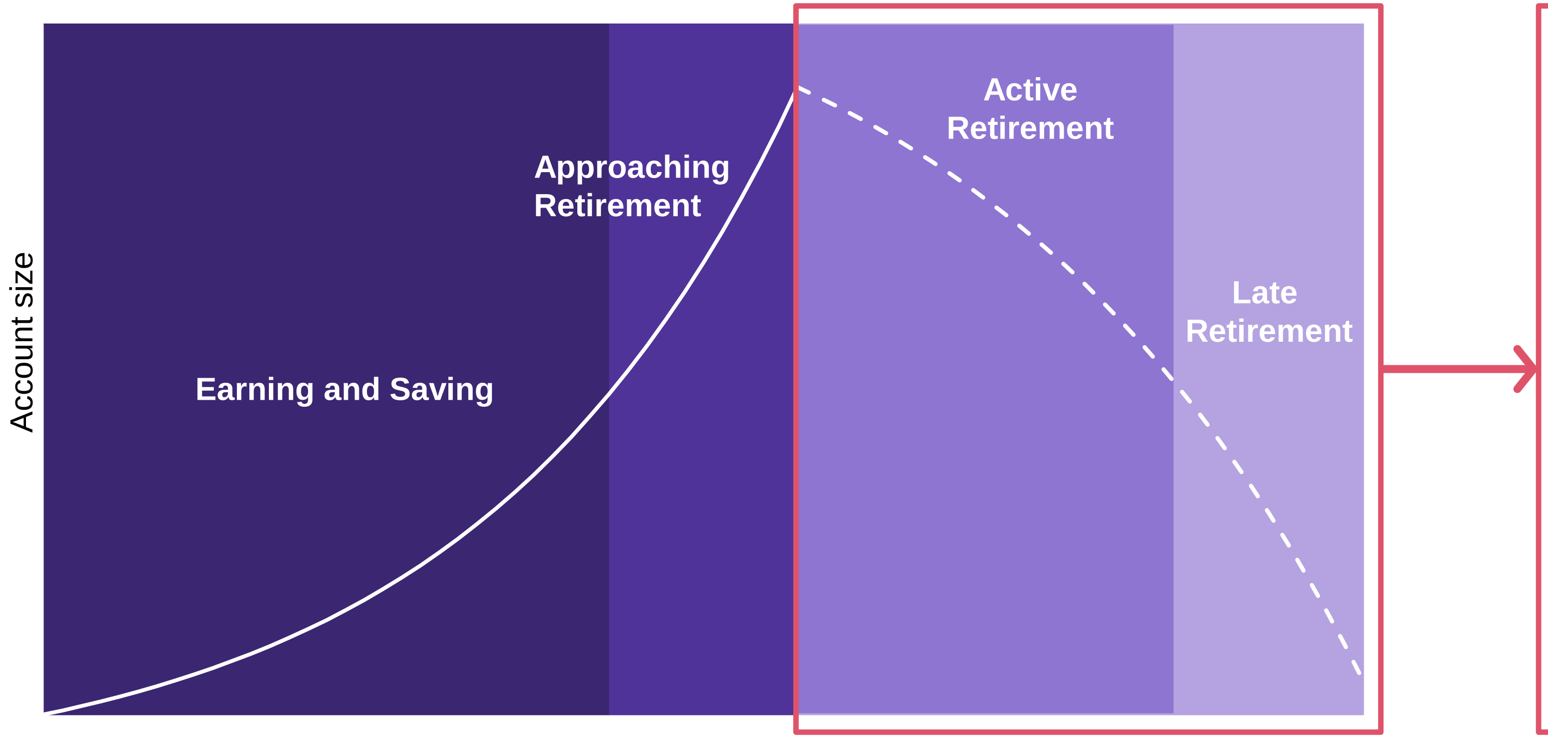
post-retirement, 2016 and 2017

Sources: Financial Times, October 2016. Institute for Health Metrics and Evaluation, 2014. Financial Review, February 2016. South China Morning Post, April 2017

Retirement is full of uncertainty

Knowing what to do with your savings is the hard part



4 key areas of uncertainty

Longevity – How long will I live?

Inflation – What will things cost in the future? Will this be a gradual increase, big spikes or both?

Investment – Will my assets return enough? Will a market crash wipe them out? Will high fees erode my returns?

Consumption – What goods and services will I need? Which ones have I forgotten?

Understanding the risks helps in designing a successful post-retirement investment solution

Source: Schroders. For illustration only.

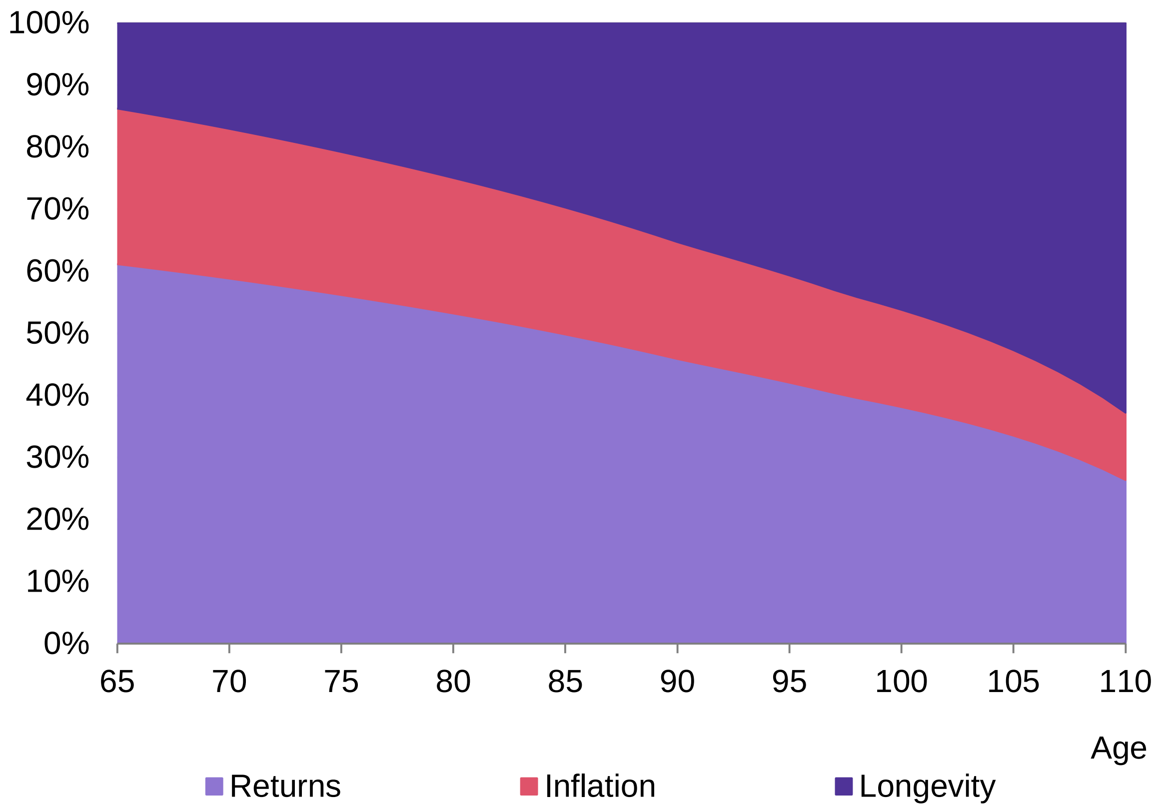
The importance of these risks changes over time

Longevity risk increases the older a retiree becomes

- Prior to and in early-retirement the DC plan's value will be at its largest
  - Significant market falls are, therefore, the biggest risk
- Inflation is also largest when the retiree has the longest expected life remaining
  - High inflation will erode real-values over time
- Longevity risk grows through retirement
  - The older an individual gets, the higher their probability of surviving i.e. the likelihood of an 89-year old reaching 90 is far higher than for a 60-year old

The significance of risks change over time

Factor sensitivity, proportional



Source: Schroders. For illustration only. February 2015.

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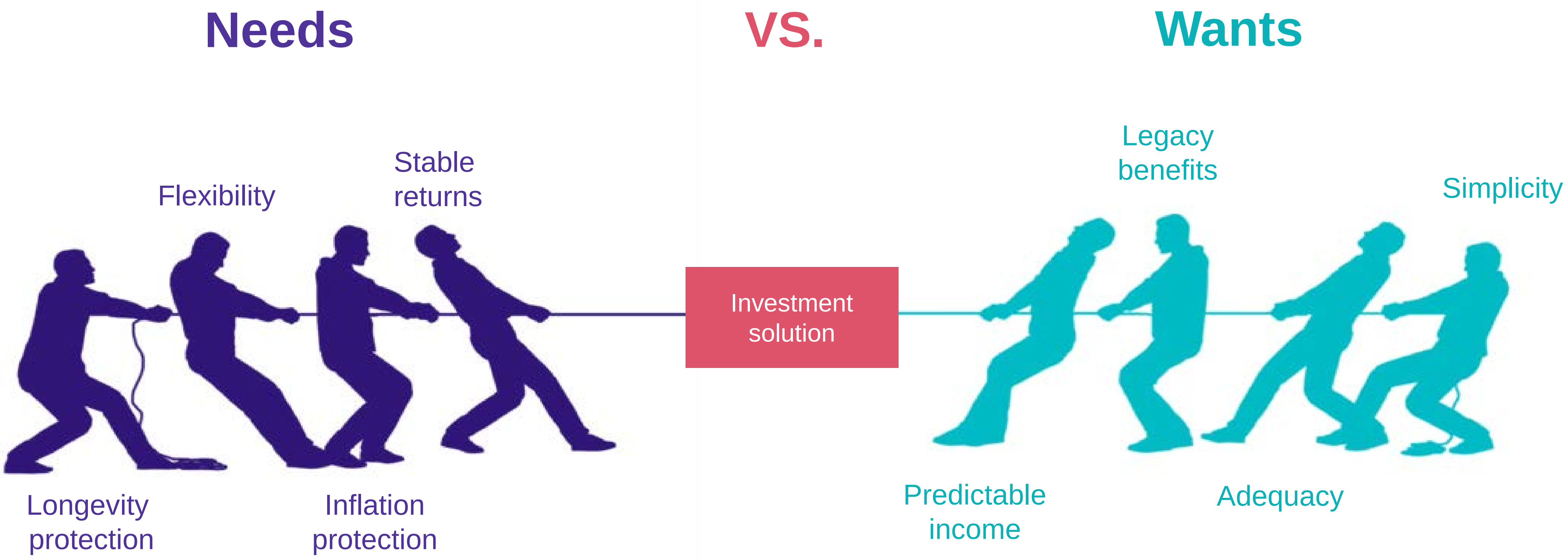
A post-retirement investment solution is challenging

The ‘needs’ and the ‘wants’ pull in opposite directions

There are many variants but the main components are:



Source: Global Lessons in Developing Post-Retirement Solutions. Schroders, May 2015.

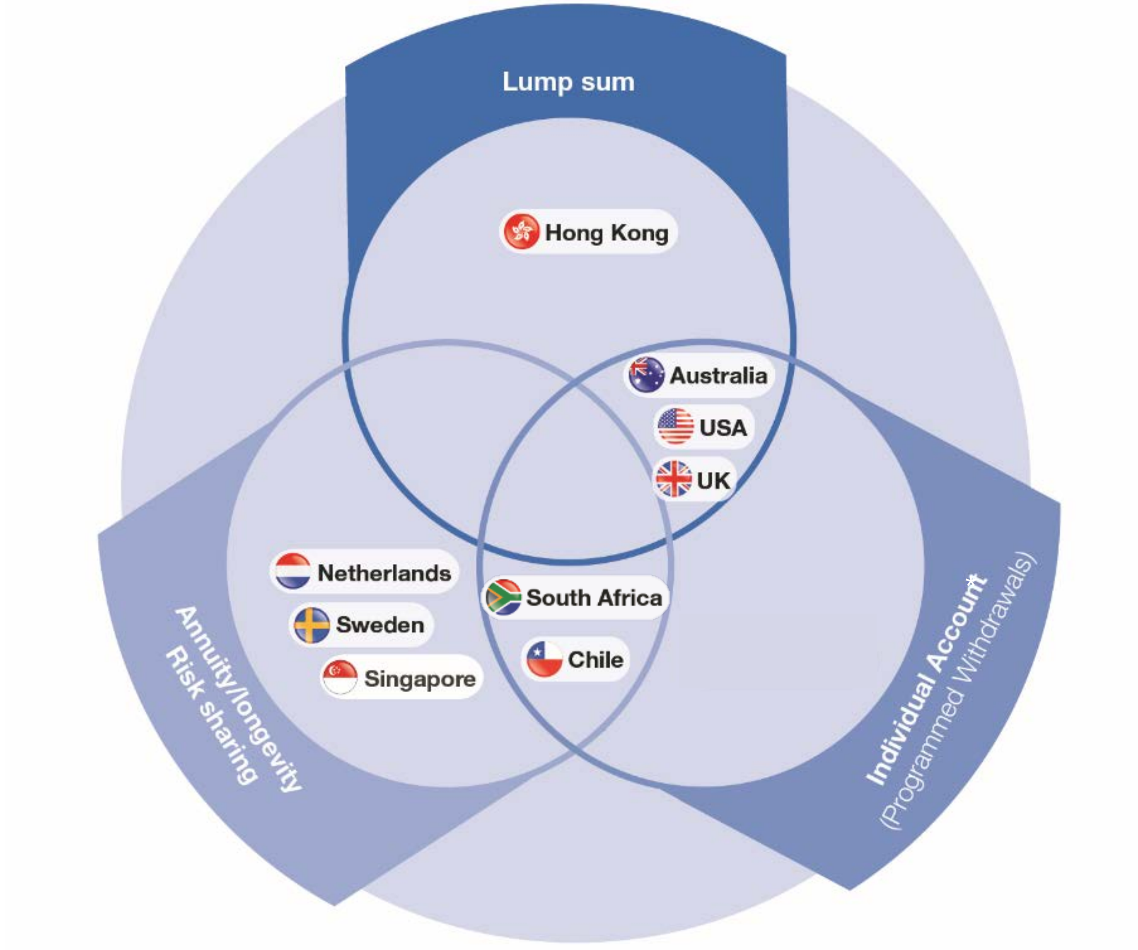
The options available to create a solution

There are many variants but the main components are:

Cash lump sum	Living annuities	Guaranteed annuities
– Most simple option – Comfort of controlling own funds – All responsibility and risks with retiree	– Draw variable[1] level of income – Flexibility to choose underlying investments – Possible to also take lump sums or annuities[2]	– Insurer manages pooled risks, provides certain income – Level or escalating payments can start immediately or after a pre-set deferred period – Features like spouse benefits also available

[1]Retiree usually has a range to select from within set regulatory limits.
[2]Depending on the market.

There’s no ‘killer’ answer



Moving in different directions

- Many Continental European retirees expect a guarantee
- While the appetite for guaranteed funds has declined
- UK and US retirees have a full choice menu with little advice taken/paid for
- Australia is considering a post-retirement default

* Known as living annuities in South Africa
Source: Schroders, for illustration only.

Testing the options against our criteria

Does anything offer everything a retiree needs? (Primary criteria)

Primary criteria	1. Longevity protection	2a. Growth net of fees	2b. Protect against significant loss	3a. Inflation protection (increases in costs)	3a. Inflation protection (inflation spikes)	4. Flexibility
Cash lump sum						
Living annuities						
Guaranteed annuities						

Likely to satisfy   Unlikely to satisfy   Mixtures depend on product, investments and market environment

Source: Schroders. For illustration only.

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Testing the options against our criteria

How about everything the retiree wants? (Secondary criteria)

Secondary criteria	1. Predictability of income	2. Legacy benefits	3. Simplicity	4. Sufficiency?
Cash lump sum				
Living annuities				
Guaranteed annuities				

Likely to satisfy   Unlikely to satisfy   Mixtures depend on product, investments and market environment

Source: Schroders. For illustration only.

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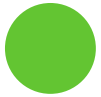
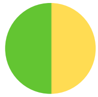
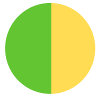
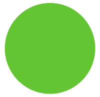
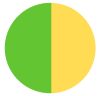
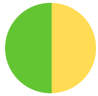
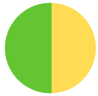
Designing a default post-retirement solution

Have hybrids met our criteria for the default?

Hybrids give retirees more of what they 'need' without completely sacrificing the flexibility to offer them what they 'want'

Primary criteria	1. Longevity protection	2a. Growth net of fees	2b. Protect against significant loss	3a. Inflation protection (increases in costs)	3a. Inflation protection (inflation spikes)	4. Flexibility
Hybrid of living and guaranteed annuities						

Secondary criteria	1. Predictability of income	2. Legacy benefits	3. Simplicity	4. Sufficiency?
Hybrid of living and guaranteed annuities				

Likely to satisfy   Unlikely to satisfy   Mixtures depend on product, investments and market environment

Source: Schroders.

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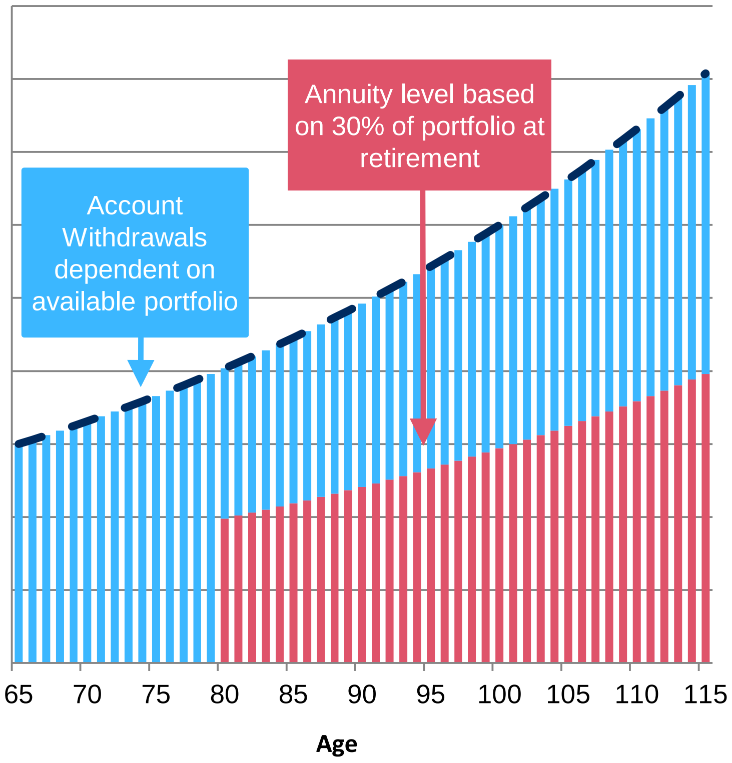
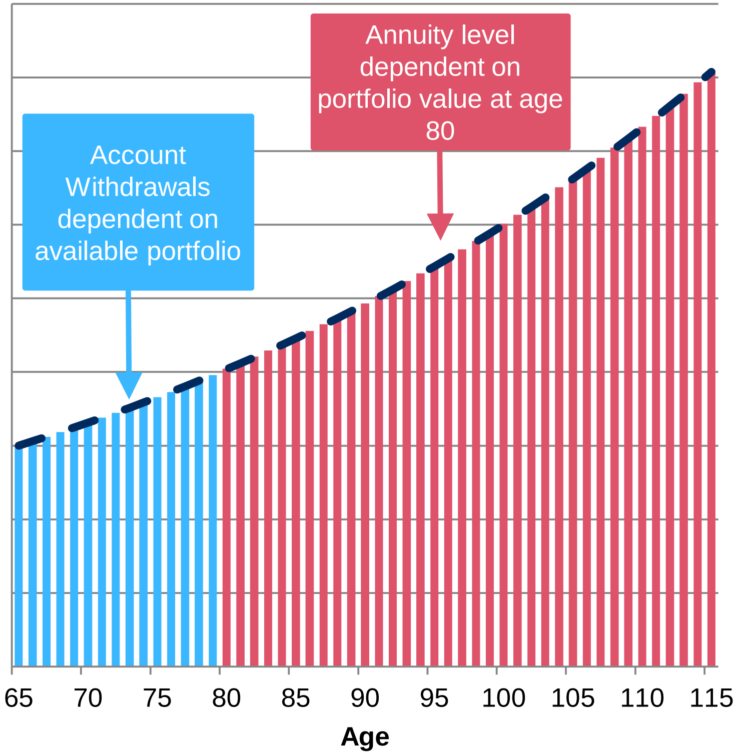
Designing a default post-retirement solution

Example solutions that blend account-based income/living annuity with an annuity

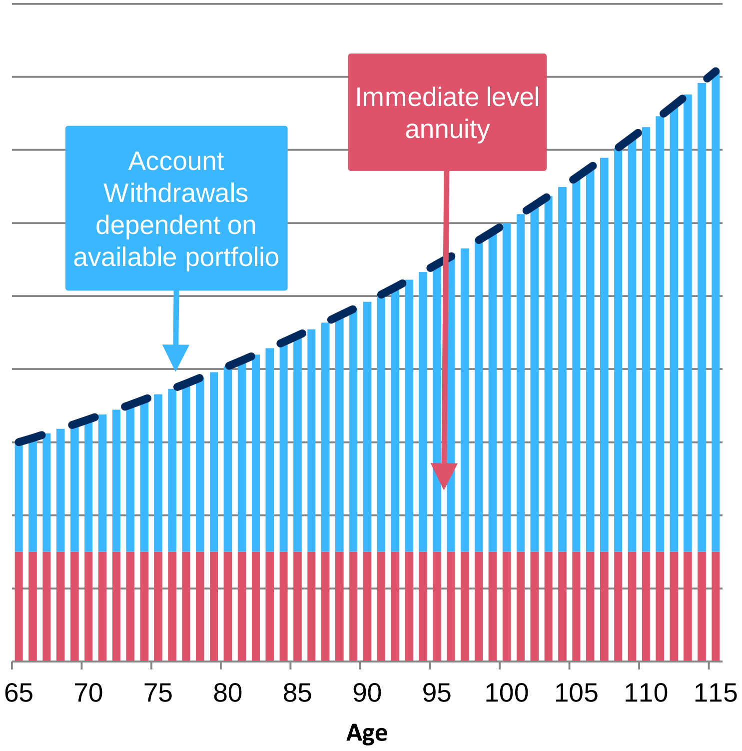
Living annuity & deferred guaranteed annuity



Living annuity & delayed guaranteed annuity



Combined strategy from outset



Guaranteed annuity
Living annuity
Income required

Source: Schroders. For illustration only

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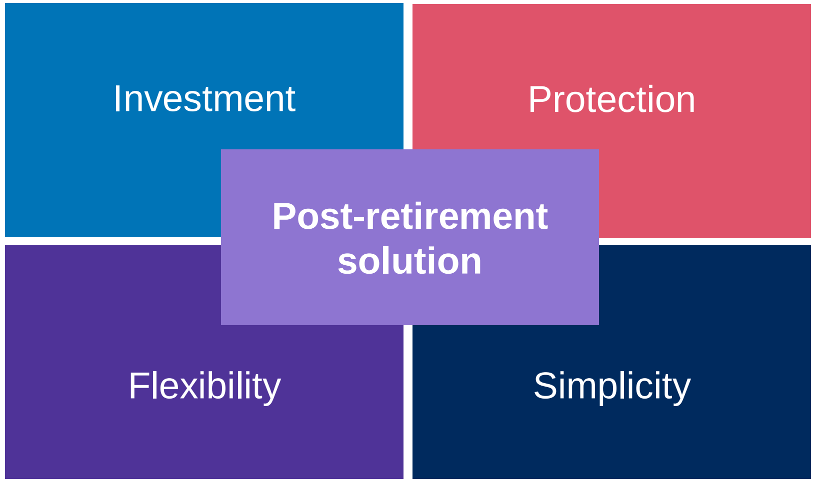
Defining success for a post-retirement solution

The features needed in addition to sufficient savings

A successful post-retirement solution will comprise components that meet the needs of retirees, namely:

- Stable, real investment returns, net of costs
- Reliable protection against longevity risk, particularly later in life
- Flexibility to adapt to changing requirements
- Simplicity in implementation and communication of outcomes



Source: Schroders. For illustration only.

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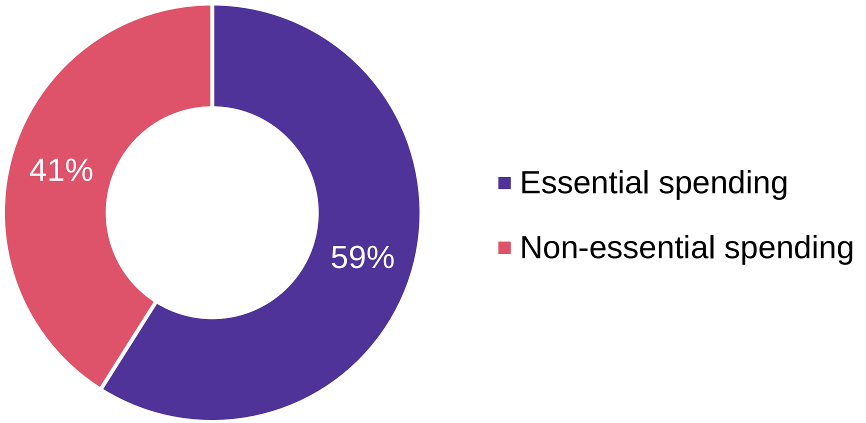
Understanding South African consumption in retirement

What do people spend their income on?

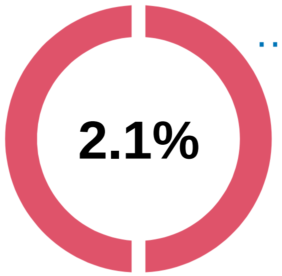
Essentials basket (59%)

- Food and non-alcoholic beverages (17.2%)
- Clothing and footwear (3.8%)
- Housing and utilities (24.6%)
- Furnishings, household equipment (4.4%)
- Health (inc. insurance) (8.9%)

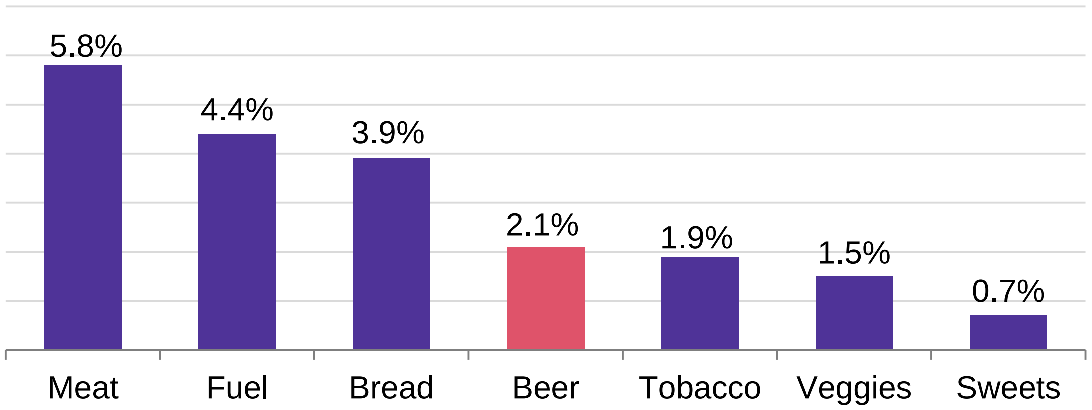


Non-essentials basket (41%)

- Alcoholic beverages and tobacco (5.8%)
- Transportation (14.3%)
- Communication (2.6%)
- Recreation and culture (5.2%)
- Education (2.5%)
- Restaurants and hotels (3.1%)
- Miscellaneous goods and services (7.5%)



…of total household spending in South Africa goes to beer



Source: Statistics South Africa. August 2017

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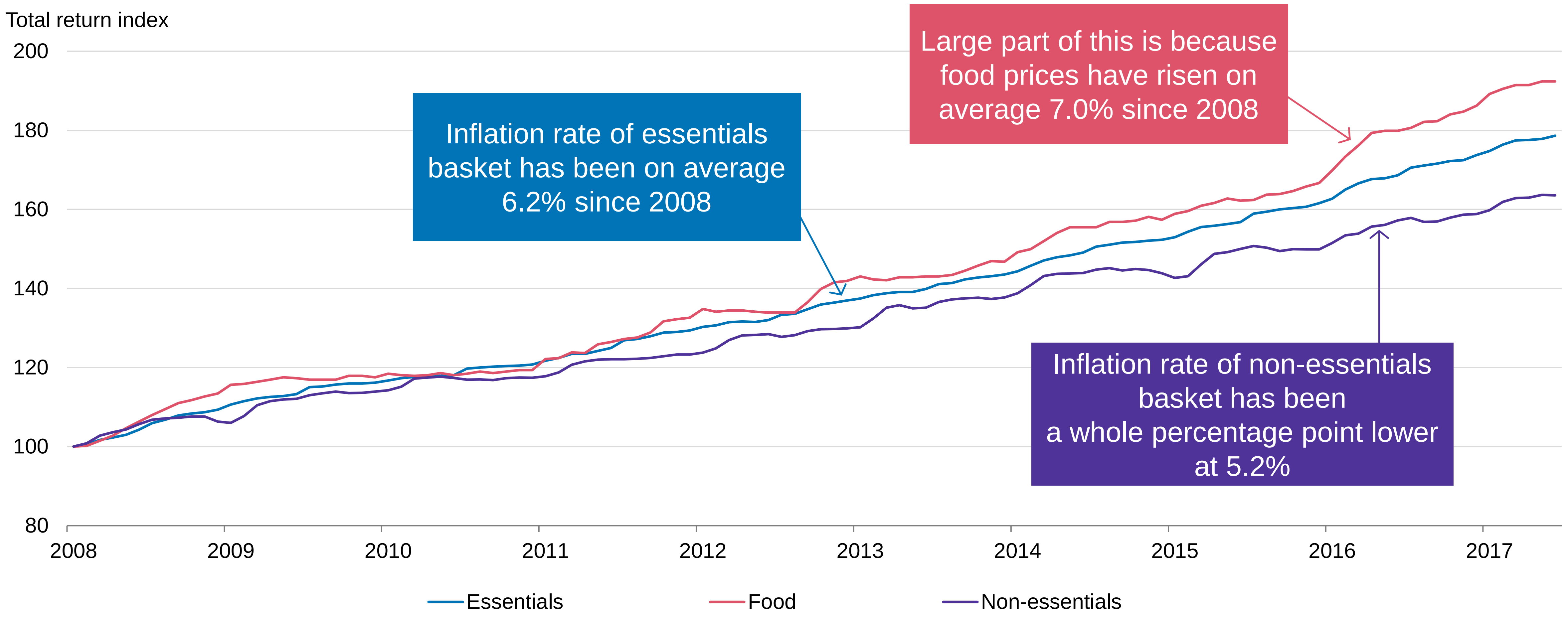
Inflation of essentials is relatively high

Complicates the task of maintaining real purchasing power



Source: Schroders, Statistics South Africa. Essential and non-essential consumption baskets are calculated using official CPI weights. August 2017

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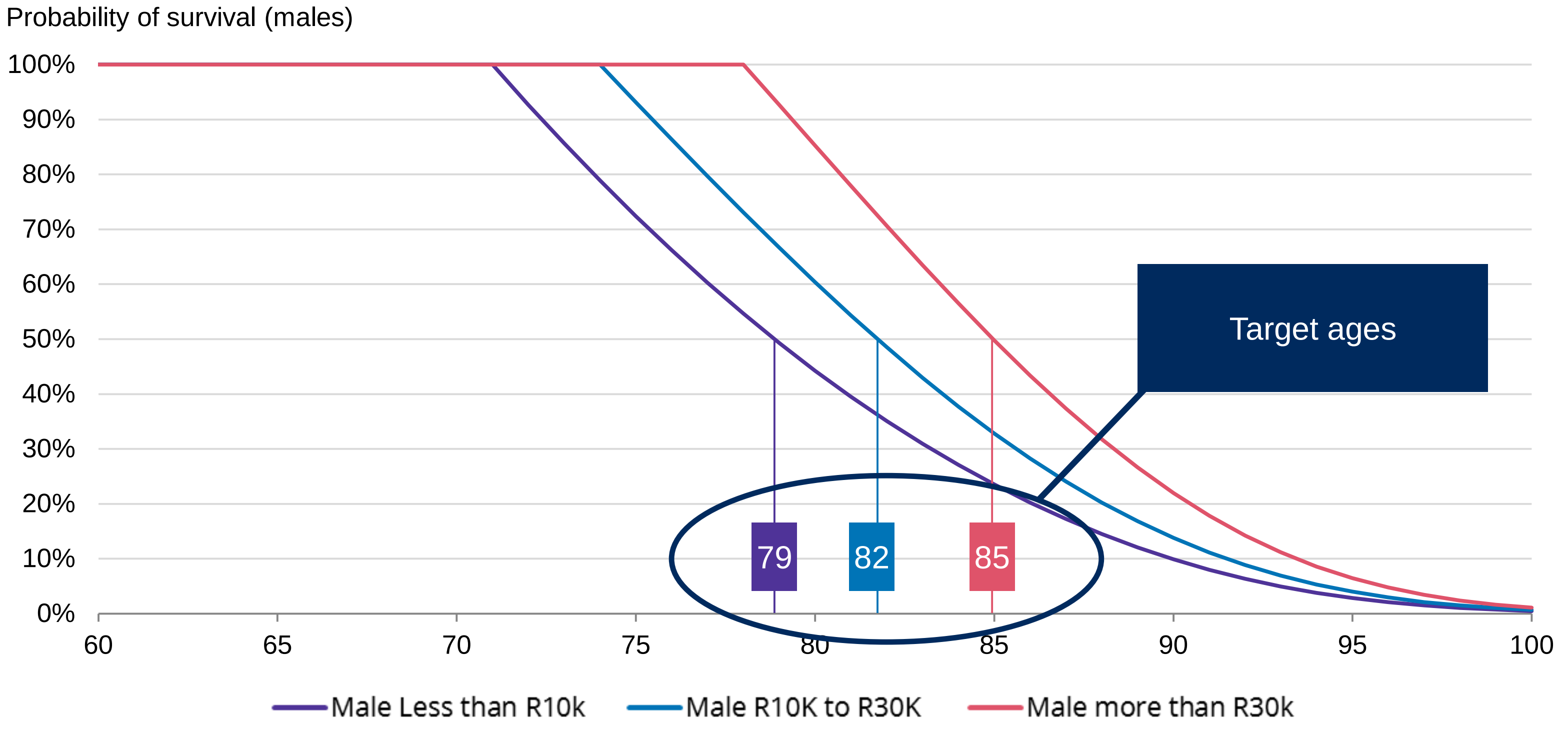
Applying the theory to South Africa

Challenges for building a default solution

Individuals have very different needs

- A long-term study of DB plans showed their participants had very different life expectancies[1]
- Life expectancy and wealth showed a link, with higher earners expected to live longer
- Individuals in retirement can't base their expectations on the average as that's a 50% chance of being alive and running out of money!
- A more conservative estimate is needed. Consider funding to the target ages for each wealth cohort.

Life expectancy by wealth cohorts



A default solution needs the potential to fund retirement to a target age well past average mortality

Source: [1] and Chart Report On Pensioner Mortality 2005–2010. Actuarial Society of South Africa. February 2017.

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How much do you need to save?

Depends on wealth and life expectancy

- If DC plans are going to come close to DB levels of income provision what savings are required?
- We have estimated the monthly income required in retirement based on the bands provided in the study
- Uses the target ages individuals need to consider for funding retirement on an individual basis

Nominal Savings required at retirement (age 60)

Income category	Target age	Monthly income funded (ZAR)	Savings required for nominal income (ZAR)
Male, <10k p.m.	79	7,500	985,310
Male, 10–30k p.m.	82	15,000	2,093,069
Male, >30k p.m.	85	30,000	4,420,244

Sources: Report On Pensioner Mortality 2005–2010. Actuarial Society of South Africa. February 2017.
Asset returns post=retirement based on nominal bond yields. Schroders, Sanlam.

Designing a solution to meet nominal consumption needs

Assuming 1m ZAR account size at retirement and it's all invested in bonds

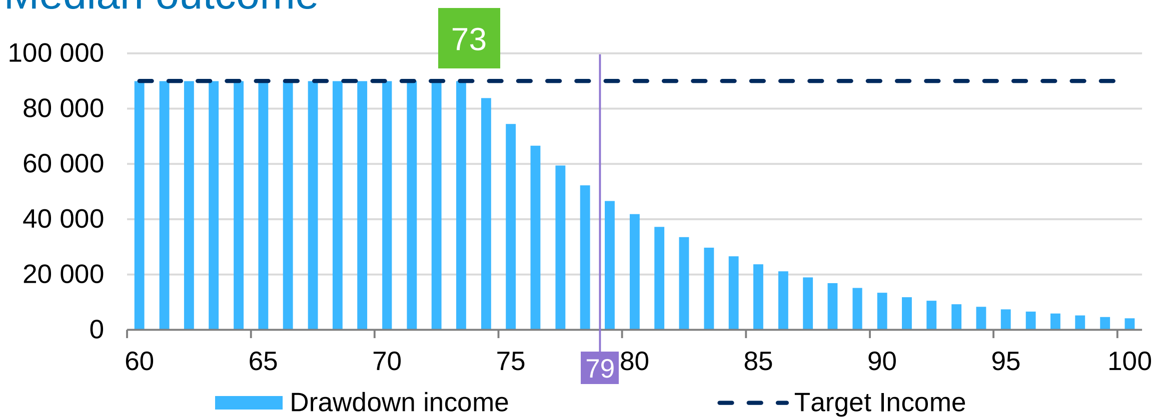
- Based on the least wealthy cohort, we assume that someone withdraws 90,000 ZAR p.a. (7,500p.m.)

- The median chart tells us how long the money will last for the 'averagely lucky' people

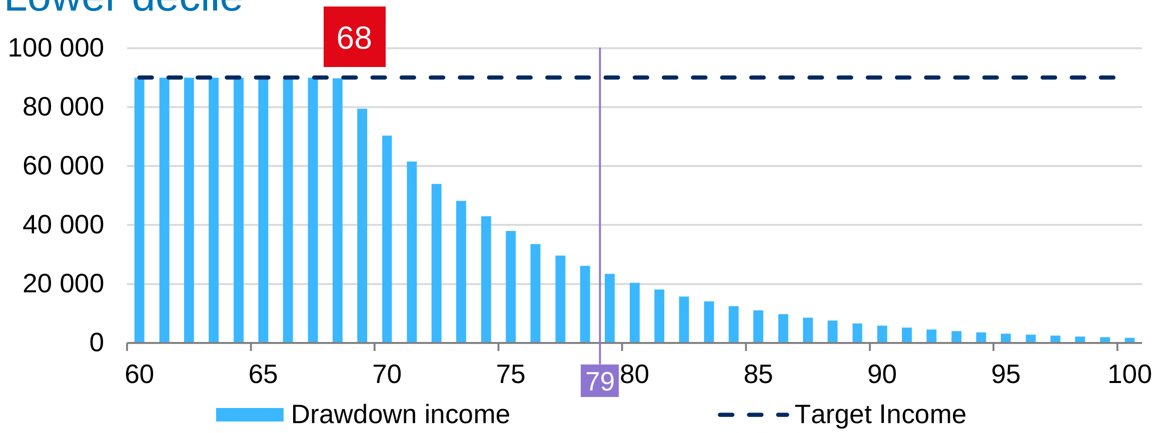
- But we should be concerned about those who experience poor asset returns in retirement as there are limited ways to rectify this

Bonds are too cautious even for a nominal target

Median outcome



Lower decile



Source: Schroders, Datastream, Bloomberg. Asset return assumptions provided by Sanlam. Portfolio contains 100% allocation to South Africa government bonds.

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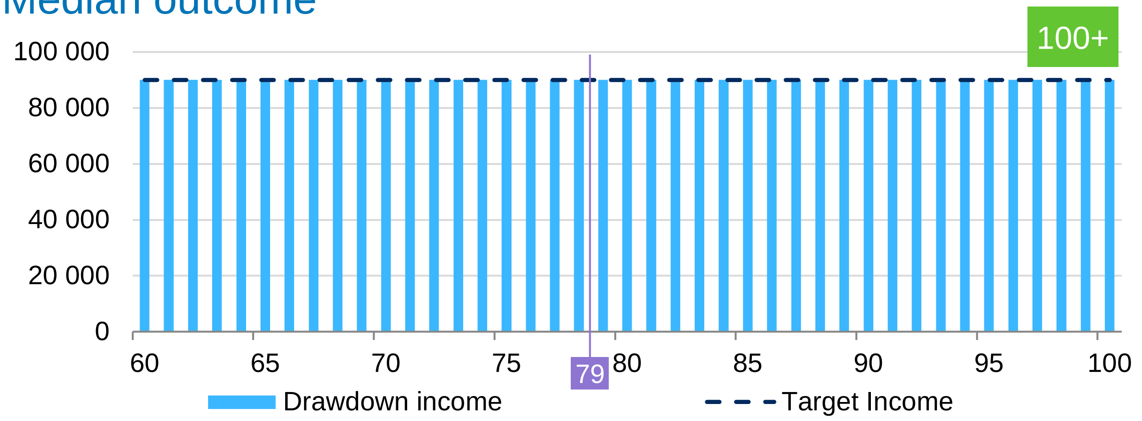
Designing a solution to meet nominal consumption needs

Assuming 1m ZAR account size and it's invested in 75% equity, 25% bonds

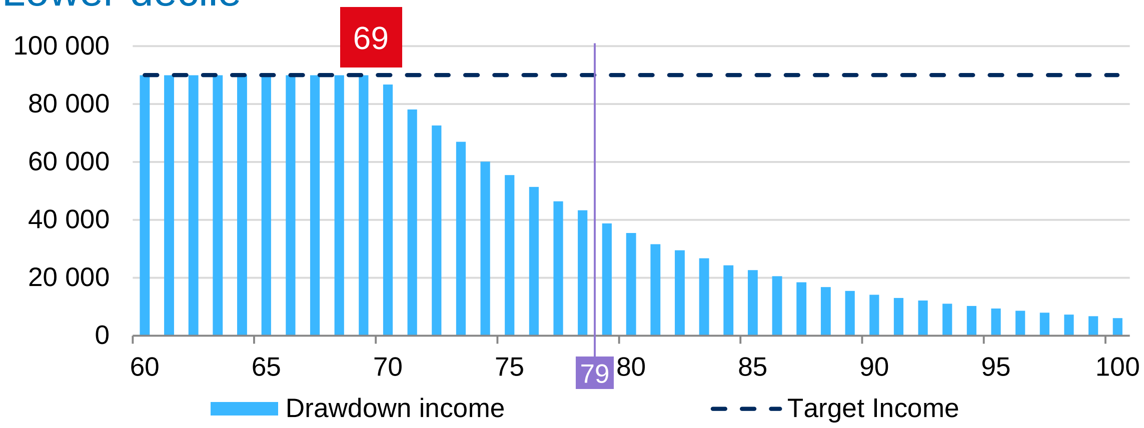
- Individuals seeking maximum growth could expect to fully fund their retirement
- Strong growth appears to provide a certain income

Median outcome



- However, higher potential return results in more volatility that could lead to significant losses
- The lower decile appears to be an improvement over bonds but the journey is likely to be much more bumpy

Lower decile



Equity provides more upside but falls could be more severe than bonds

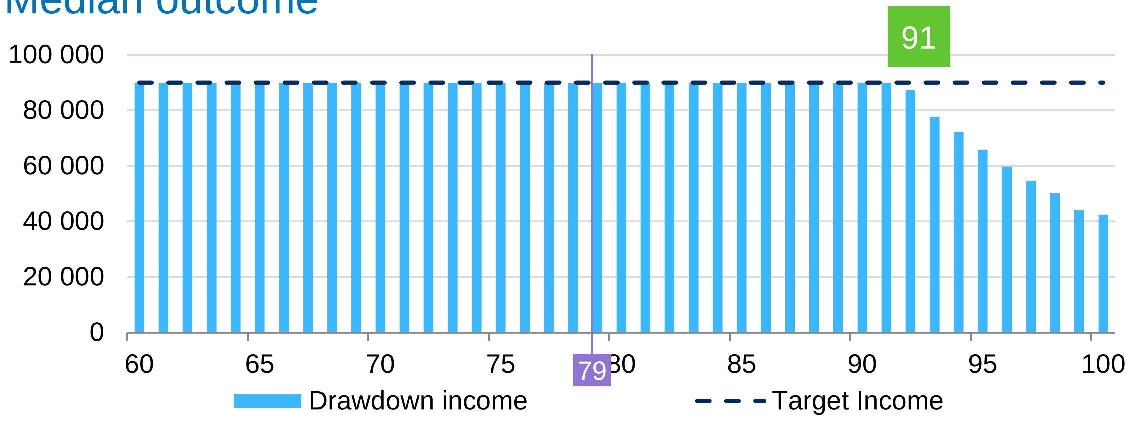
Source: Schroders, Datastream, Bloomberg. Asset return assumptions provided by Sanlam.
Portfolio contains 75% allocation to South African equities and 25% to South African nominal bonds.

Designing a solution to meet nominal consumption needs

Assuming 1m ZAR account size and it's invested in a diversified portfolio

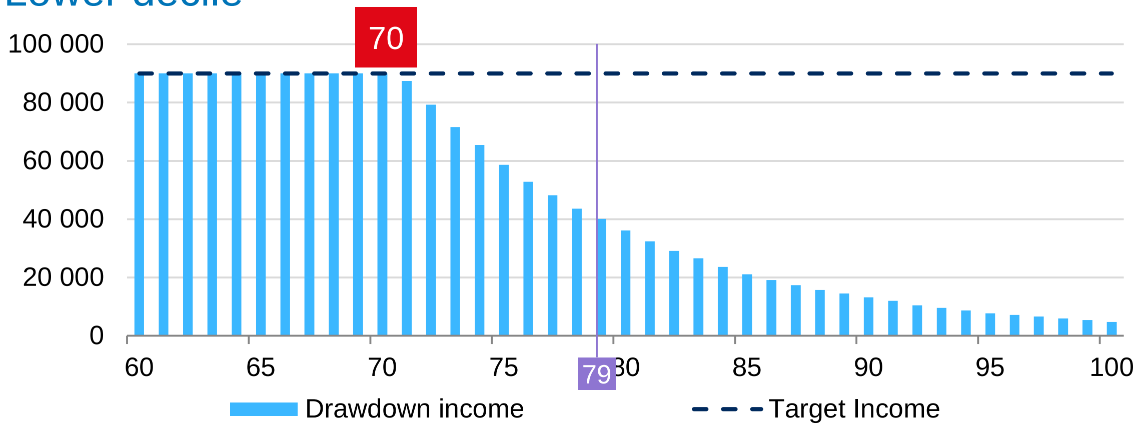
- Combining investments in nominal and index-linked bonds with domestic and foreign equity can help balance the equation
- The median outcome is still well above the target age we've set for this cohort

Median outcome



- The lower decile outperforms both the bond and maximum equity portfolios
- However, in all of these portfolios the individual always runs out of money in the worst case scenarios

Lower decile



Diversification can help balance growth and downside needs

Source: Schroders, Datastream, Bloomberg. Asset return assumptions provided by Sanlam.
Portfolio contains 40% South African equities, 10% global equities, 35% South African nominal bonds, 15% South African index-linked bonds.

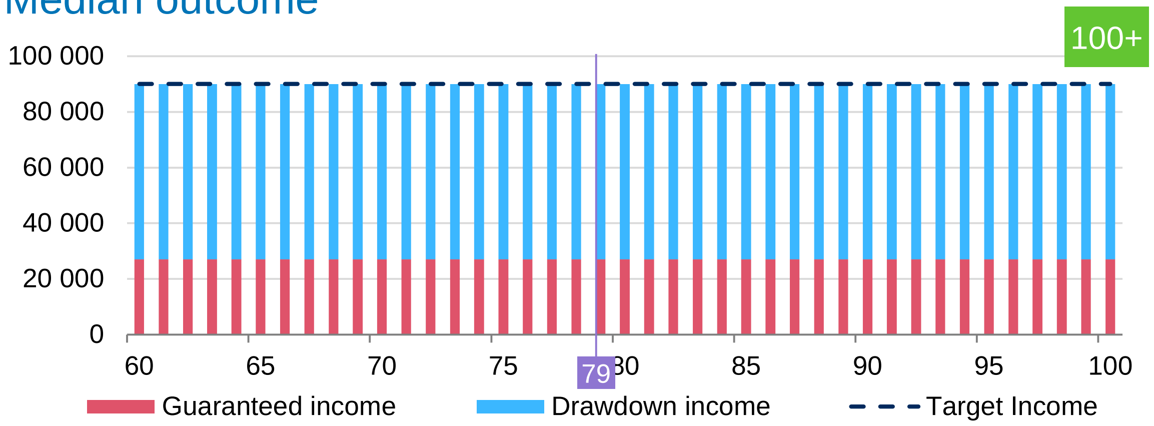
Designing a solution to meet nominal consumption needs

Using a hybrid solution to meet some essential spending needs

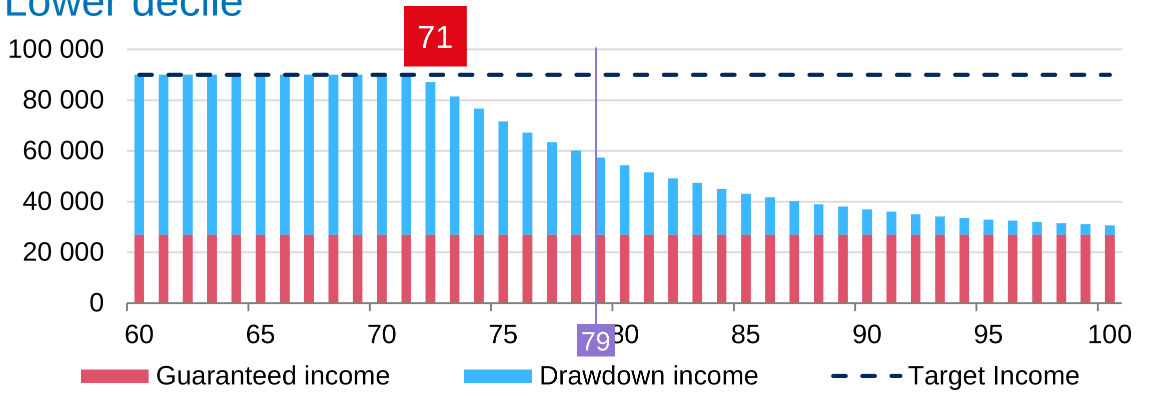
- Adding a partial allocation to a lifetime annuity can avoid the possibility of running out of income

- For our lower wealth cohort example we now have a solution that is expected to reach average life expectancy (although not our target age) in the worst case scenario
- Lower wealth individuals are more likely to need immediate access to guarantees
- Higher wealth individuals could defer and still experience benefits

Median outcome



Lower decile



Source: Schroders, Datastream, Bloomberg. Asset return assumptions provided by Sanlam. Portfolio contains 40% South African equities, 10% global equities, 35% South African nominal bonds, 15% South African index-linked bonds. 30% is allocated to a level guaranteed annuity at retirement.

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BUT consumption needs are inflation-linked not nominal

And inflation in South Africa makes it a painful equation to solve

- Although maintaining a nominal income would be an improvement over current provision, it doesn’t account for increased costs retirees experience
- With annual inflation expected to be around 5%, protecting your income can require an increase in savings of 50% or more

Savings required at retirement (age 60)

Income category	Monthly income funded (ZAR)	Savings required for nominal income (ZAR)		Savings required for inflation protected income (ZAR)
Male, <10k p.m.	7,500	985,310	+54%	1,527,117
Male, 10-30k p.m.	15,000	2,093,069	+61%	3,372,059
Male, >30k p.m.	30,000	4,420,244	+68%	7,453,728

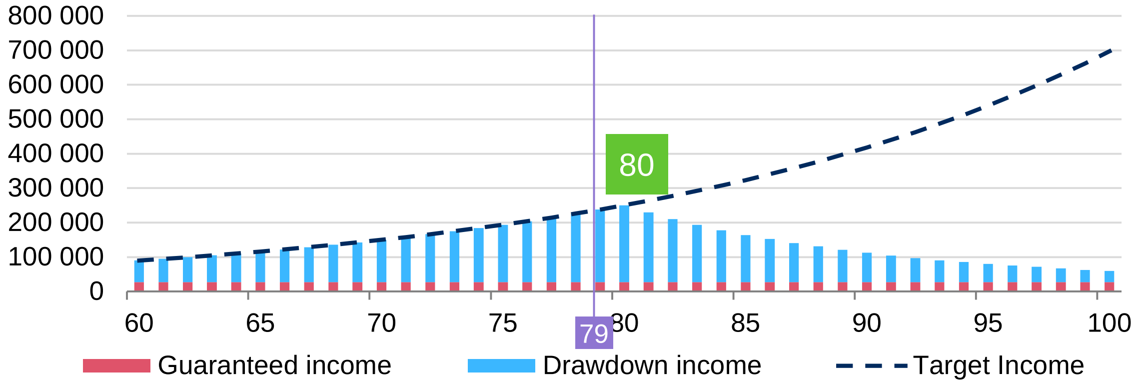
Sources: Report On Pensioner Mortality 2005-2010. Actuarial Society of South Africa. February 2017.
Asset returns post=retirement based on nominal bond yields. Schroders, Sanlam.

Increased savings help match inflation increases

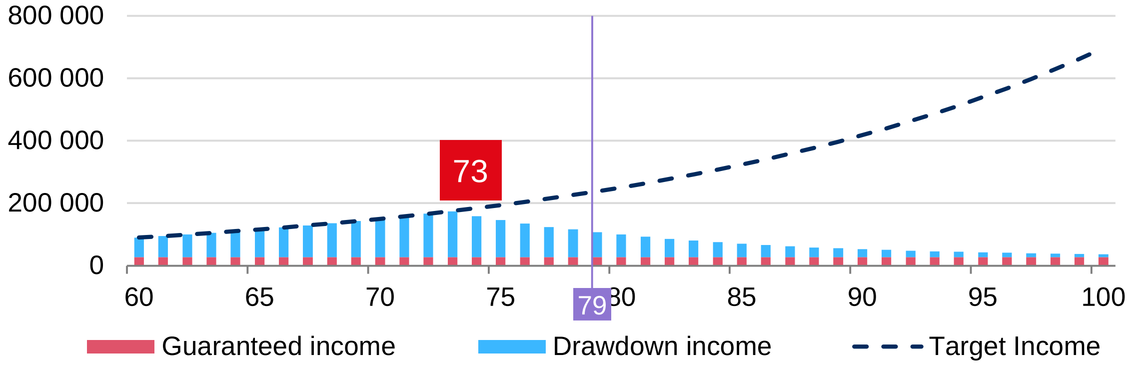
But the gap in late life is significantly higher

- If the account at retirement is 1.5 times bigger (ZAR1.5 million), the median outcome funds until age 80
- But problems start to get significant after age 80 because of the impact of inflation
- For this cohort, the solution is expected to exceed average life expectancy in the worst case scenario

Median outcome



Lower decile



Keeping pace with inflation is a significant challenge

Source: Schroders, Datastream, Bloomberg. Asset return assumptions provided by Sanlam.
Portfolio contains 40% South African equities, 10% global equities, 35% South African nominal bonds, 15% South African index-linked bonds. 30% is allocated to a level guaranteed annuity at retirement.

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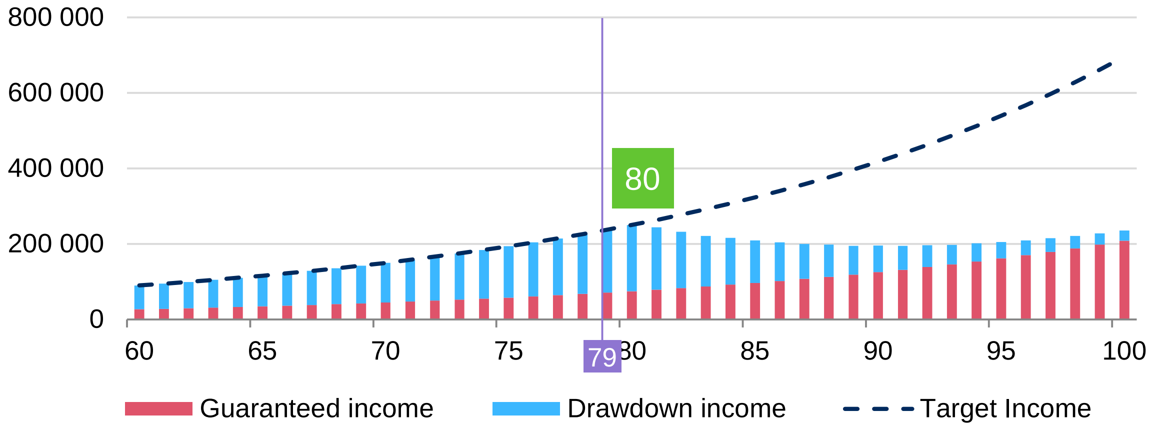
Using inflation-linked guarantees to fill the gap

Changing the profile of guaranteed payments

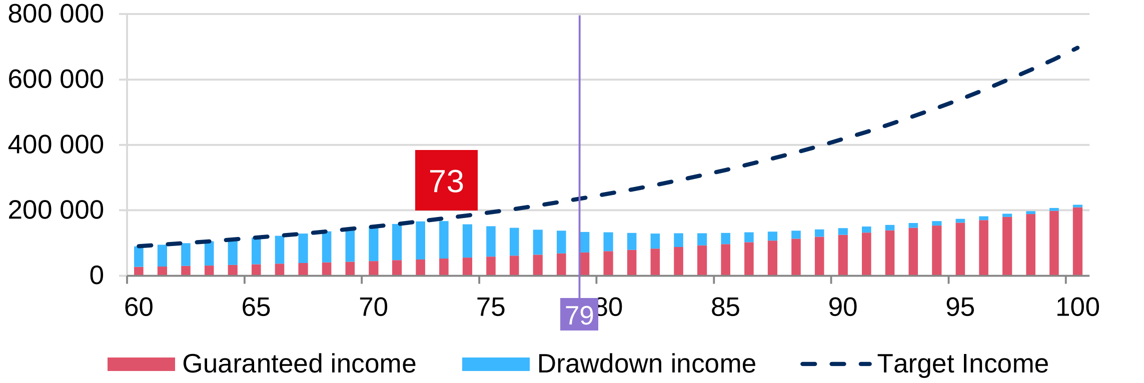
- By generating 30% of income from an inflation-linked guaranteed annuity we can improve the income profile in later life
- Full funding still only lasts to the same age (80) but the shortfall is less significant after this age compared to the previous solution
- The lower decile still experiences a reduction earlier than the target age but the fall is cushioned by increasing guaranteed payments
- The inflation-linked annuity may be more attractive for the cohorts with higher wealth and life expectancy

Longer life expectancy increases the importance of inflation-linked guarantees

Median outcome



Lower decile



Source: Schroders, Datastream, Bloomberg. Asset return assumptions provided by Sanlam.
Portfolio contains 40% South African equities, 10% global equities, 35% South African nominal bonds, 15% South African index-linked bonds. 30% is allocated to an inflation-linked guaranteed annuity at retirement.

What does this analysis tell us?

1. Not everyone is lucky with their investment returns. We need a design that works for as many as possible.
2. The less wealthy need income certainty to provide for spending on essentials
3. A hybrid approach is needed to also provide growth
4. Consider investing the living annuity in a diversified, growth-oriented mix of investments

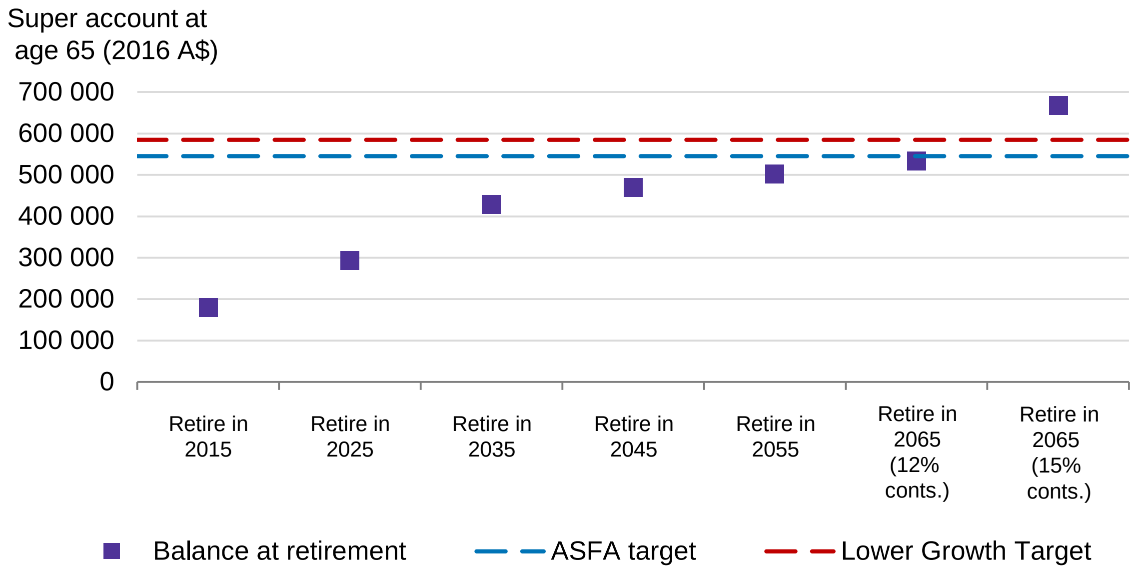
Source: Schroders

Irrespective of country, underfunding is the biggest issue

Investment design pre- and post-retirement can solve only part of the problem

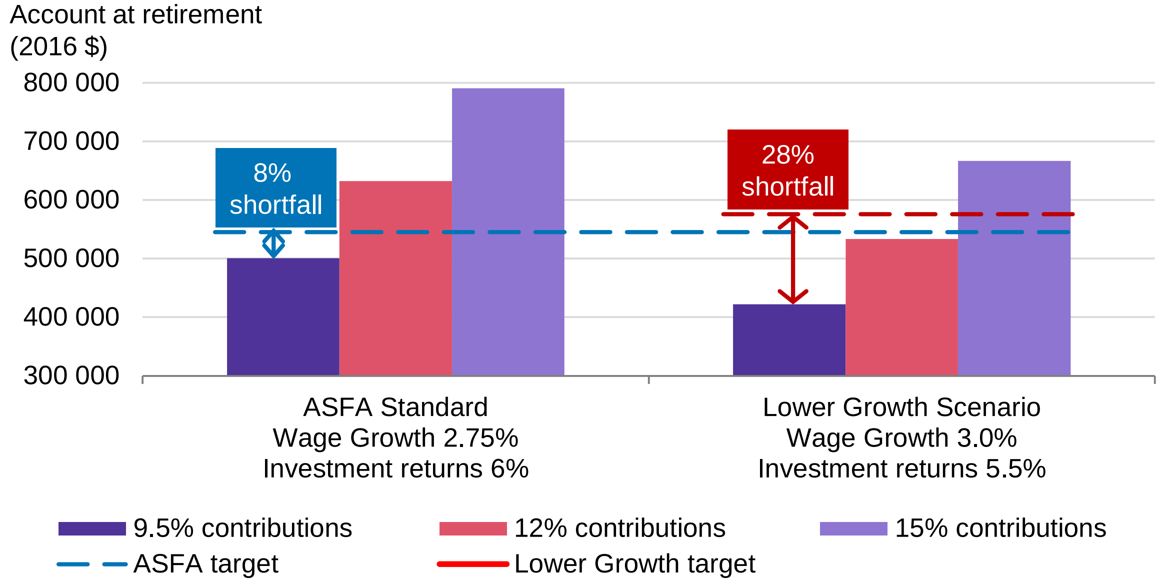
Australia is the poster child

- Australia started mandatory contributions in 1992
- Contributions started at 4% and have been raised over the years to the current level of 9.5%
- Gradual increases from 2021 will take this up to 12% by 2025



Attaining full funding is harder with lower returns

- If we assume future returns are likely to be the same as the past, people will not be fully funded in Australia until date 2065
- If returns are lower than the past, people will be underfunded by a further 20% and will need to increase contribution rates further



Investment returns based on a diversified balanced portfolio containing 70% equities, 30% bonds
Source: Mind the (ever-increasing) personal funding gap. Schroders. Published in Australia. January 2017. For illustration only.

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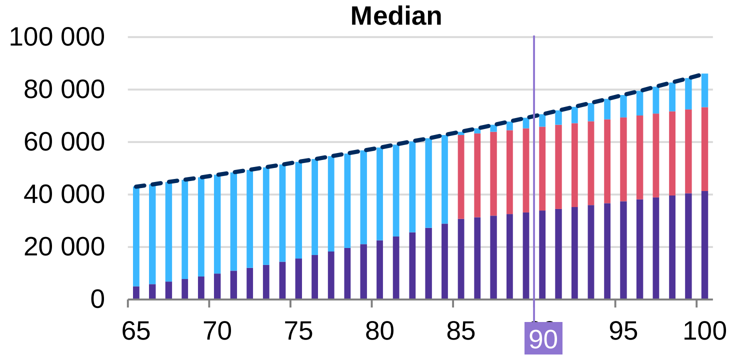
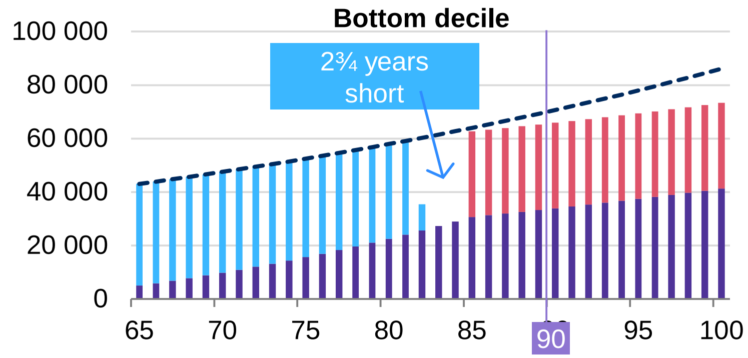
Australia: deferred longevity solutions and outcome oriented

Take more efficient risk and (some) more skill

- As good as the 100% equity strategy at meeting income requirements for the average retiree
- Better than 100% bonds, 100% equity and balanced for the 'unlucky' retirees

A dynamic CPI+ strategy could deliver for the average and unlucky





Outcome-oriented approach could strike the right balance in mitigating sufficiency, longevity and sequencing risks

A dynamic CPI+ strategy might leave the unlucky in less pain

	Probability of ABI meeting target income before annuity payment starts	Shortfall before age 85 (bottom decile)
Bonds	29%	6 years
Equity	64%	7¼ years
Balanced	65%	5½ years
CPI+	70%	2¾ years

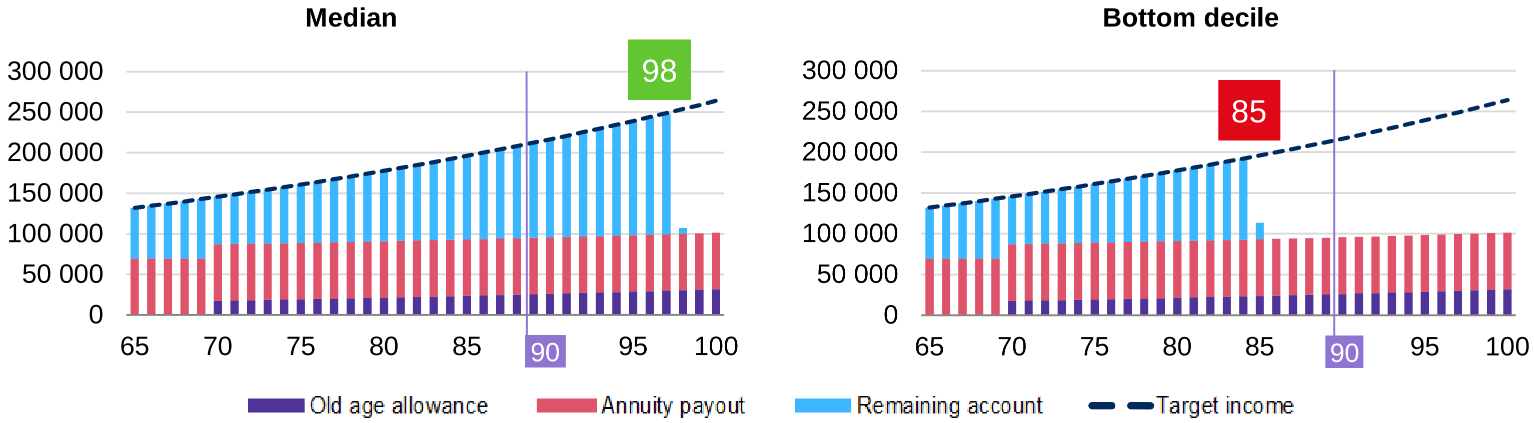
Source: Schroders. For illustration only.

In Hong Kong, guaranteed income can allow re-risking

Extending expected payments while not making poor outcomes worse

- The pre-retirement default derisks to 20% in equities prior to retirement
- If a retiree invests a portion of their assets with the government-backed annuity, the remaining assets could be re-risked at retirement
- Improves likelihood of growing savings to fund later years and match inflation increases

Taking more risk (60% equity) could improve outcomes further



Accepting more risk can increase the average outcome

Age reached with savings	Average outcome (median)	Poor outcome (lower decile)
Cash	86	86
Bonds	89	83
Balanced 20/80	92	86
Balanced 60/40	98	85

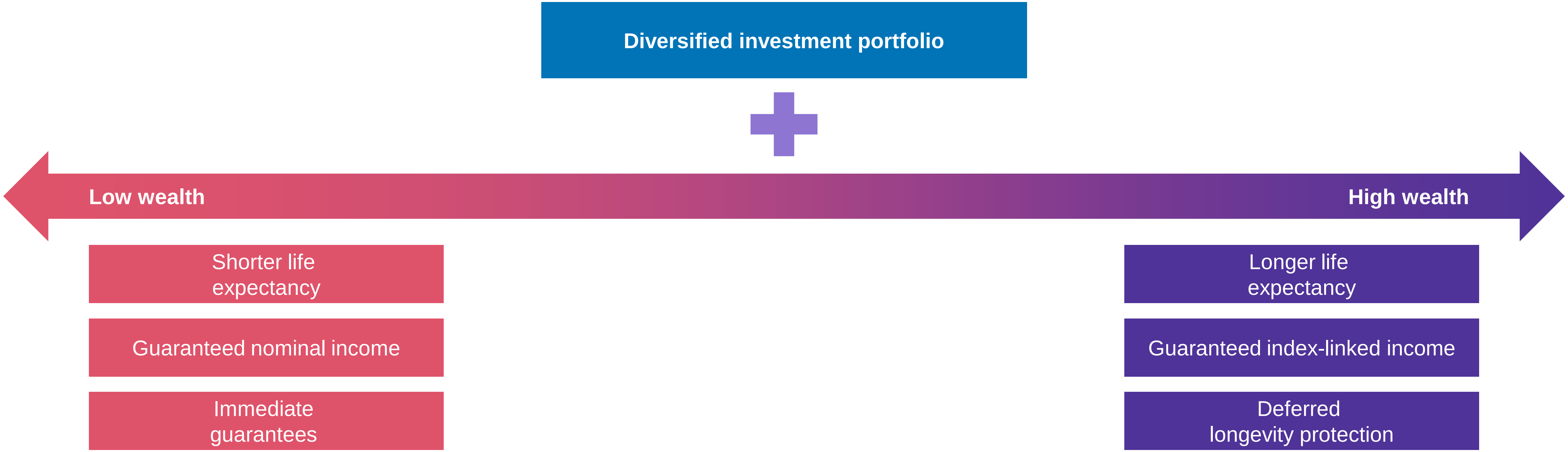
Based on a male retiree with $2.3 million in retirement savings at age 65 drawing an income of $132,000p.a. which increases with inflation of 2%p.a.. He receives the Old Age Allowance of $15,900p.a. from age 70. He purchases an annuity at age 65 for a premium of $1m and receives a level pay-out rate of 7%p.a. Bonds are based on US 10yr benchmark bonds. Equities are an equal split between Global and Asian indices. Return expectations based on forecasts by Schroders' Economics team. All figures in HKD. Source: Schroders, Datastream. For illustration only.

Schroders

South Africa: Some guarantees with diversified investments

Different 'defaults' for different people

- We've seen that a "one size fits all approach" is unlikely to suit everyone
- Similar components can be combined to create a more appropriate solution
- This will involve a combination of diversified investments and a guaranteed income appropriate for the individual



A default solution needs the potential to fund retirement well past average mortality

Source: Schroders. For illustration only.

Thank you

Appendix

Default design legislation

Latest rules aim to improve member outcomes

Annuity strategies:

– A default option should be selected by providers
– Member participation in decision should be active “opt in”
– Pre-selection by members is a “soft default”
– Members given access to benefits counselling to help decision making

Default may differ from member to member depending on:

– Age of likely date of retirement from service of each member;
– The value of the retirement savings of the member in that fund;
– The actual or expected retirement funding contributions of the member; or
– Any other factor reasonably considered by the board to be appropriate.

Features required:

– Appropriate
– Well communicated
– Good value for money

Implementation deadline for existing arrangements: 1 March 2019

national treasury
Department:
National Treasury
REPUBLIC OF SOUTH AFRICA

MEDIA STATEMENT

MINISTER ISSUES FINAL RETIREMENT FUNDS DEFAULT REGULATIONS TO IMPROVE MEMBER OUTCOMES

The Minister of Finance today issues for implementation the final retirement funds default regulations ("regulations"), made in terms of section 36 of the Pension Funds Act (No. 24 of 1956). These regulations, published in Notice 863 of Government Gazette No. 41064 and available on the National Treasury website, will take effect on 1 September 2017.

The final default regulations are the outcome of an extensive consultative process between National Treasury, industry, the Financial Services Board (FSB) and other interested stakeholders. The first draft of the default regulations was published for public comment on 22 July 2015, and revised after taking into account public comments. The second draft of the regulations was published for public comment on 9 December 2016.

These final regulations are meant to improve the outcomes for members of retirement funds by ensuring that they get good value for their savings and retire comfortably. The regulations require retirement funds' trustee boards to offer a default in-fund preservation arrangement to members who leave the services of the participating employer before retirement, and also a default investment portfolio to contributing members who do not exercise any choice regarding how their savings should be invested. For retiring members, a fund should have an annuity strategy with annuity options, either in-fund or out-of-fund, and can only "default" retiring members into a particular annuity product after a member has made a choice.

Member defaults should be relatively simple, cost-effective and transparent. The default regulations will require that fund trustee boards assist members during the accumulation and retirement phases.

Brief summary of the provisions in the regulations

Default investment portfolio: All retirement funds with a defined contribution category are required to have a default investment portfolio(s). The investment portfolio(s) that members are defaulted into should be appropriate, reasonably priced, well communicated to members, and offer good value for money. Trustees are required to monitor investment portfolios regularly to ensure continued compliance with these principles and rules. Performance fees will be allowed but subject to a standard to be issued by the FSB and a regulatory or policy review. Loyalty bonuses

1

Source: National Treasury of South Africa. August 2017

A default solution doesn't mean a single fund

Having a single default fund in post-retirement is not the approach we are advocating for several reasons:

Differing circumstances – Everyone's circumstances will differ so they should have the ability to select the appropriate individual investment fund and longevity protection that fits their needs.

Risk of being unsuitable – There is a risk that any one fund selected as a default will not be suitable for an individual's circumstances and this may result in a mis-buying/mis-selling risk.

Financial literacy – while low in many markets, it does appear to be improving in some. With greater access to information than ever before people may be more willing and able to research and make investment decisions in future.

Choice is attractive – While not always used well, it is certainly popular in a number of markets. To suggest that a default should be only one fund would reduce the attractiveness.

Modelling assumptions

The modelling in this presentation uses a Monte Carlo simulator to project a range of possible outcomes for retirement portfolios based on asset return projections. Sanlam kindly provided their house view of long-term forecasts across a range of assets used in this analysis. The model uses volatility and correlation data over a 15-year history based on the indices stated below.

Domestic asset class	Real return	Nominal return	Volatility	Reference index
Equity	7.0%	12.25%	15.6%	JSE All share
Nominal Bonds	2.0%	7.25%	6.7%	BOAML SA Government
Inflation Linked Bonds	1.5%	6.75%	4.9%	Barclays SA Index Linked all maturities
Cash	1.0%	6.25%	0.6%	SA 3m deposit rate

Domestic asset class	USD return	Domestic return	Volatility	Reference index
Foreign Equity	6.0%	9.25%	14.7%	MSCI World All Country
Foreign Bonds (hedged)	1.0%	6.25%	6.7%	Barclays Global Aggregate Government

Annuity calculations were based on market reference rates available on www.masthead.co.za/annuity-investment-rates/

Source: L Sanlam, Schroders. As at 30 June 2017.

Biographies – Lesley-Ann Morgan

Global Head of Defined Contribution

Lesley-Ann Morgan

Global Head of
Defined Contribution

- Lesley-Ann has over 20 years of experience of providing investment solutions to global institutional clients
- Lesley-Ann is Global Head of Defined Contribution at Schroders. In this role she is responsible for Schroders view on DC best practice and ensuring that there is a global strategy to deliver the best outcomes for DC members/participants. Previous to this, Lesley-Ann was the Head of the Global Strategic Solutions team, which is responsible for designing solutions for complex global clients
- Lesley-Ann joined Schroders from Towers Watson in July 2011 (previously named Watson Wyatt and R Watson and Sons), where she was a partner. At Towers Watson, she was Head of the Client Delivery Group, responsible for the delivery of investment solutions to clients and the lead consultant to a number of large pension schemes
- Previous roles at Watson Wyatt included manager research (Head of Pacific Basin equities and Head of Japanese equities) and Investment Head of Defined Contribution (North East US)
- Since she has been at Schroders, Lesley-Ann has worked with pension funds in North America, Mexico, Brazil and Asia.
- She has also worked with regulators and industry bodies, written and co-authored a wide range of papers, quoted in the press on significant issues facing the pensions industry, and she also speaks at conferences covering the appropriate investment approaches for institutions. Winner of the Funds Europe Thought Leadership award in 2015 for ‘Global Lessons in Developing Post-Retirement Solutions’. Published in the British Actuarial Journal in March 2017 ‘Designing successful post-retirement solutions by blending growth, income and protection’
- Fellow of the Institute of Actuaries
- BSc. (Hons) in Mathematics, Operational Research, Statistics and Economics from Warwick University

Important information

For professional investors and advisers only. The material is not suitable for retail clients. We define "Professional Investors" as those who have the appropriate expertise and knowledge e.g. asset managers, distributors and financial intermediaries.

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