

Tax Working Group Public Submissions Information Release

Release Document

September 2018

taxworkinggroup.govt.nz/key-documents

Key to sections of the Official Information Act 1982 under which information has been withheld.

Certain information in this document has been withheld under one or more of the following sections of the Official Information Act, as applicable:

- [1] 9(2)(a) - to protect the privacy of natural persons, including deceased people;
- [2] 9(2)(k) - to prevent the disclosure of official information for improper gain or improper advantage.

Where information has been withheld, a numbered reference to the applicable section of the Official Information Act has been made, as listed above. For example, a [1] appearing where information has been withheld in a release document refers to section 9(2)(a).

In preparing this Information Release, the Treasury has considered the public interest considerations in section 9(1) of the Official Information Act.

Submission to the Tax Working Group by Retirement Income Group Limited

April 2018

Ralph Stewart is the founder and Managing Director of the Retirement Income Group Limited. He is a former CEO of AXA Insurance (New Zealand) and ACC. He has over 30 years' experience in the New Zealand financial services sector. Ralph Stewart introduced variable annuities to the New Zealand market and the Retirement Income Group Limited provides a series of managed investment schemes, superannuation schemes and insurance products for post-retirement savers.

Introduction

Retirement Income Group Limited (**Lifetime**) welcomes the opportunity to contribute a submission on the future tax treatment of pre and post retirement savings.

Since 2013 Lifetime has pioneered variable annuities and other post-retirement savings products in New Zealand through the Lifetime Income Fund (**Fund**).

Retirement income options are limited in New Zealand, the fundamental market and longevity risks ever present in retirement continue to be borne by the retirees not the providers of retirement savings products.

Variable annuities cover the need of many retirees for a regular, reliable income providing longevity and volatility insurance to ensure a given level of income is guaranteed in retirement. On premature death the beneficiaries of the estate receive the residual investment balance.

In seeking the regulatory approvals to establish variable annuities in New Zealand Lifetime obtained a binding ruling from Inland Revenue that it can provide investors with tax-paid income under current law with tax paid (at PIE rates) by the Fund. Lifetime investors however still face the impact of non-concessional PIE rates which over time create effective tax rates for investors well in excess of what they would pay on if their savings were made untaxed capital appreciating assets such as residential rental property.

At the moment the market for variable annuities is relatively small when compared to KiwiSaver (2.7 million members) and bank term deposits (650,000 accounts held by adults) but it is growing fast. Back in 2015 Infometrics projected that in the years between 2021 and 2060 some 1.2 million KiwiSavers will reach age 65 with balances of \$100,000 or more.

Over that period the balances maturing as KiwiSavers reach age 65 will be worth \$468 billion.

We ask the Tax Working Group to address what we see as four major failings in today's retirement income landscape.

- **Locked-in post-retirement savings are overtaxed in New Zealand;**
- **The income needs of retired New Zealanders are not adequately provided for;**
- **There is insufficient recognition for the risks to retirement income faced by retired New Zealanders;**
- **There is a lack of willingness by KiwiSavers providers to protect retired investors from market and longevity risk;**

Executive Summary

1. Locked-in post-retirement savings are overtaxed in New Zealand.

- A retirement savings plan covers not just the 40 or so years of workforce retirement savings but also the 30 years or so the average person can expect to be living post-60. At 2% per annum inflation the real value of a dollar saving halves every 36 years. Thus, over a full retirement savings period an initial dollar invested is worth only 25 cents in real terms but this 75% fall in value is ignored under our income tax rules.
- The inflation impact over time is one of the ways retirement savers are penalised under current tax rules. The other is that progressive income tax rates are levied on annual income. Current PIE rates are 10.5%, 17.5% and 28% depending on the investor's annual level of income.
- Given New Zealand Superannuation (**NZ Super**) and modest other income, most retirees are on a 17.5% rate. This better reflects their lifetime income level but for a number of years they are taxed at the 28% even though retirement income is by definition spread over an investors retirement period when the 17.5% rate is more appropriate. A reasonable investment return on retirement savings is 6% per annum – 4% nominal and 2% inflation. That means only 2/3rds of the return is real income.

We contend:

- To reduce the tax rates on locked in retirement savings (KiwiSaver, superannuation schemes and workplace saving schemes) and products with annuity benefits to 2/3rds of the nominal tax rates. This would mean dropping the PIE rates from 10.5%, 17.5% and 28% and the annuity fund rate from 28% to 7%, 11.67% and 18.67%.
- Given, as argued above, that the 17.5% is the correct top nominal tax rate for retirement savings we suggest the rates be set at 7% and 11.67%

Please refer to the detailed analysis in appendix 1.

2. The income needs of retired New Zealanders is not adequately provided for

- A 65 year old female with a family home, \$150,000 of retirement savings, drawing down her capital at 5% a year (\$625 per month or \$7,500 per annum) to supplement NZ super faces limited practical choices:

Options for a 65 year old female with retirement savings of \$150K drawing down a net income of 5% p.a.							
Investment option	Net monthly income	Able to protect income from inflation?	Income paid monthly?	How long will income last (age)	Life expectancy	Probability income will last until life expectancy	Income guaranteed for life?
Bank Deposit	\$625	No	No	93	89	95%	No
Finance Company Deposit (UDC)	\$625	No	Yes	97	89	80%	No
Managed Fund (Balanced)	\$625	No	Yes	102	89	80%	No
KiwiSaver (Balanced)	\$625	No	Yes	102	89	80%	No
Variable Annuity (Lifetime)	\$625	Yes	Yes	For Life	89	100%	Yes

- Bank deposits are not designed to pay monthly or fortnightly income, provide no inflation or longevity protection and penalise early withdrawal if personal circumstances change.
- Some finance companies offer regular income payments but without inflation or longevity protection and with higher levels of risk (and return).
- KiwiSaver, superannuation schemes, workplace savings schemes and managed funds offer 'naked' regular drawdowns of capital without any longevity protection.
- Variable annuities provide KiwiSaver, superannuation schemes, workplace savings schemes and managed funds type returns profiles with longevity protection supported by regulatory capital.

We contend:

- a. The financial services industry should be encouraged to accept more risk, make more use of shareholder capital to provide greater security to retirees and increase the number of retirement income options available.
- b. Investors actively seeking to supplement their NZ Super to support their retirement living expenses are currently penalised by tax rules because they are taxed on fictitious inflation gains that significantly impact retirement savings even at low rates of inflation and they are often taxed on their return from retirement savings at the top tax rate when on a lifetime basis the middle tax rate is more appropriate.
- c. If more radical reform options (such as moving to a ETT system) are not viable then we support dropping the PIE rates from 10.5%, 17.5% and 28% and the annuity fund rate from 28% to 7% 11.67%

Supporting analysis for this proposal is set out in appendix 2.

3. The is insufficient recognition for the risks faced by retired New Zealanders;

- Investing in retirement carries unique and specific risks which are not present when saving for retirement.
- Dollar cost averaging works in reverse, while regular savers will benefit from buying assets at lower prices during market volatility. Retirees drawing on their capital to generate additional income are forced to sell into volatile markets and suffer from lower asset prices.
- A negative market event at or with 15 years of retirement reduces capital and income with little opportunity to recover.
- Volatile markets make the practical provision of a regular retirement income challenging.

- Market risk combined with longevity risk makes the process of identifying an appropriate level of capital drawdown impossible.
- Inflation risk is ever present.

We contend:

- a. The local financial services industry should be challenged to introduce modern risk management products to support the retirement challenge. Risk management products to manage retirement risks are offered freely throughout the OECD. The only provider of comprehensive retirement risk management tools in New Zealand is Lifetime.
- b. Development of modern risk management products should not be penalised by the tax rules as they are now and fairer rules be introduced for those who actively seek to manage their retirement income

Please refer a detailed analysis in appendix 3.

4. There is a lack of willingness by KiwiSavers to protect retired investors from risk

- Future retirees are in danger of KiwiSaver providers continuing to profit maximise from both saving in retirement and living in retirement. The only KiwiSaver offering retirement income options available in New Zealand today is Simplicity KiwiSaver, also New Zealand's only not for profit KiwiSaver.
- Some other providers offer what is referred to as 'naked' draw down or in simple terms the investor can elect a given level of annual draw down paid as regular monthly income. The market risk and the longevity risk are pushed to the retiree.
- Alternatively the provider can share or remove the risk by investing shareholder capital into providing insurance against market volatility and living a long life.
- The application of capital and the impact on KiwiSaver profitability, is respectfully contended as the primary reason why a disproportionate amount of risk is carried by the retiree when in practise it should be shared with the KiwiSaver provider.
- Internationally capital requirement for providers offering protection against market and longevity risk are as follows;

<u>Country</u>	<u>Capital Requirement (% of FUM)</u>
USA	1%
Japan	4%
Australia	10%
Ireland/UK	3.5%
Europe	2.5%
New Zealand	8.0%

We contend:

- a. If KiwiSaver providers seek to profit maximise both when providing savings products and then providing decumulation options they should be encouraged to do so equitably, by offering practical solutions to market and longevity risk.
- b. Such intention should be recognised by tax rates for long term capital draw down so as to reflect the social capital benefits to New Zealand of people being in a position to build retirement savings to supplement their NZ Super.

Please refer a detailed analysis in appendix 4.

Appendix 1

[Locked-in, both pre and post-retirement savings are overtaxed in New Zealand.]

What is the Tax Problem for Long Term Locked-in Savings?

The TWG first report sums up the current bias in investment which is particularly relevant for our industry of providing income security for retirees. Figure 21 on page 40 outlines the effective tax rates on various forms of investment. This can be summarised as follows in preferential order:

- 1 The taxpayer's owner occupied residential home – effectively no tax and as such incentives over investment in this investment category which will be compounded if a capital gain tax is introduced exempting this asset
- 2 Residential rental homes – effectively tax subsidised as investors claim revenue losses against other income and all their returns are tax free capital appreciation. Add to this tax preference the current imbalances with the supply and demand curve, then this simply results in this form of investment looks the most attractive of all options.
- 3 PIE investments/international shares and corporate investments all are similarly taxed.
- 4 Interest bearing securities – this is the most stable form of investment however it is the most taxed of all investments as the inflation components is taxed on a unrealised real time basis.

We hold regular seminars throughout the country explaining what variable annuities are. One of the most common themes of investment that comes out of these seminars is the number of retirees that have over invested in residential rental homes. This is far from the optimal investment that these people need. It is generally an asset rich, income low investment, it is illiquid and in times when there is no tenant or major repairs are required it can place significant stress on retirees as the low yielding income dries up. When we ask why such people have made these investments, the general response is that this is the most tax advantageous investment.

As you are aware, the differences in the effective tax rates between residential rental properties and compound interest financial products (standard annuities, bank term deposits and KiwiSaver) are a result of capital gains being included as annual income in compound interest products but not residential rental properties.

For rental properties any capital gains would only be taxed on realisation and only if sold before the brightline test eligibility deadline had passed. True investors avoid the brightline test by simply holding the asset pass two (or five) years.

Paying tax on interest as it is earned cuts the after-tax earnings that can be reinvested to earn compound returns (interest on interest).

Rental property investors are able deduct any tax losses created by their interest and other costs exceeding their rental income from their other wage and salary income.

These differences create a situation where for someone in the 33% marginal income tax bracket, can pay an effective tax rate over 50% on their KiwiSaver, standard annuity or bank term deposit, earnings and only 0-10% on their residential rental property over 30 years of saving.

(Source Financial Services Council 2013 "The tax barrier to retirement prosperity in New Zealand".)

These perfectly legal arrangements encourage over investment in residential rental property by higher income earners which makes it difficult for first home buyers to buy as they are in competition with investors with a major tax advantage. This discourages investment in new productive capacity even when equally profitable on a pre-tax basis.

How should we fix this problem?

Economists such as Dr Andrew Coleman have suggested that the best remedy for retirement savings, if we are not prepared to remove the tax advantages for residential rental property investments is to move from the current TTE regime for retirement savings back to the EET regime that operated prior to 1989 in New Zealand. The EET approach is the standard treatment in most OECD countries and is consistent with what Optimal Tax Theory would recommend. An alternative would be to move to a TEE regime – a 10% tax rate on retirement savings.

If we are not prepared to remove all the tax advantages for residential rental property then the next best option would be to create an even playing field with compound return financial products by reducing the taxable portion of interest to the real interest rate excluding the inflation portion. We understand this raises a number of complex issues. There appears to be little appetite for the complexities of full indexation for the income tax base at low (2% or less) rates of inflation.

However, for retirement savings taxing the fictional inflationary return has very significant adverse effects even at low inflation rates. This is because of the impact of compounding interest. A retirement savings plan covers not just the 40 or so years of workforce retirement savings but also the 30 years or so the average person can expect to be living post-60. At 2% per annum inflation the real value of a dollar saving halves every 36 years. Thus, over a full retirement savings period an initial dollar invested is worth only about 25 cents in real terms but this 75% fall in value is ignored under our income tax rules.

The inflation impact over time is one of the ways retirement savers are penalised under current tax rules. The other is that progressive income tax rates are levied on annual income. Current PIE rates are 10.5%, 17.5% and 28% depending on the investor's annual level of income. A fixed term annuity fund is taxed on its income at 28%. Given New Zealand Superannuation and modest other income, most retirees are on a 17.5% rate. This better reflects their lifetime income level but for a number of years they are taxed at the 28% even though retirement income is by definition spread over an investors retirement period when the 17.5% rate is more appropriate.

A reasonable investment return on retirement savings is 6% per annum – 4% nominal and 2% inflation. That means only 2/3rds of the return is real income. The suggested approach is to reduce the tax rates on locked in retirement savings (KiwiSaver) and products with annuity benefits to 2/3rds of the nominal tax rates. This would mean dropping the PIE rates from 10.5%, 17.5% and 28% and the annuity fund rate from 28% to 7%, 11.67% and 18.67%. Given, as argued above, that the 17.5% is the correct top nominal tax rate for retirement savings we suggest the rates be set at 7% and 11.67%

The most important “T” to reduce is the middle one, the tax rate applied to earnings in the fund as it has the most impact on the final balances achieved for KiwiSaver investors and the returns for annuity and bank term deposit investors.

The aim of KiwiSaver was to help those middle and lower income New Zealanders previously unable to save sufficient to achieve a comfortable retirement. At the present time these investors face the highest effective tax rates of any investors in New Zealand. Higher income earners who usually already own their own home are able to invest in residential rental property and pay effective tax rates well below the tax rates they pay on their other wage and salary income. Meanwhile annuity, bank term deposit and KiwiSaver investors pay effective tax rates much above the marginal tax rates they pay on their other income.

This is not only unfair but it has also distorted investment patterns, helped make home ownership more difficult to achieve while increasing interest rates and our currency to make us less competitive.

We would ask that post-retirement locked-in savings like annuities be extended the same tax treatment as KiwiSaver and bank term deposits used to save, pre-retirement.

We would also suggest that if we want KiwiSaver to enable more low and middle income New Zealanders to achieve a comfortable retirement then there should be an incentive not to spend up all your KiwiSaver nest egg at age 65. This could be done by having a withholding tax of 15% on any balance either not kept in KiwiSaver or transferred to an approved annuity or other product providing a regular income in retirement.

Surveys have shown people typically underestimate the period they will live post retirement which leaves the risk they will run out of savings before they run out of life.

If retirement balances are not spent wisely such as to pay down any residual mortgage we face the prospect that despite KiwiSaver many people are unable to maintain a comfortable income above NZ Super in retirement. If this happens, pressure will mount to raise the level of the age benefit. Given the ageing population this will increase the fiscal pressure on future Governments at the point where the capacity to raise tax revenue will be constrained by slower growth in the working age population.

Appendix 2

[The income needs of retired New Zealanders is not adequately provided for]

How can I improve my retirement Income?

Combine financial services jargon with uncertain investment returns, longevity of life and individual spending preferences and before long a simple question soon becomes a complex challenge.

Ralph Stewart, the Managing Director of Lifetime a specialist provider of retirement income says, “We have been presenting retirement income seminars over the last 3 years with 5,000 attending. The key points of interest have always been the same, how much of my savings can I safely spend each year? Will my savings last my lifetime and how can I convert savings into a fortnightly or monthly tax paid income.”

How much of my savings can I safely spend each year?

Stewart says many people don't have large amounts of retirement savings and need to draw both capital and interest to bridge the gap between New Zealand Superannuation and the cost of living in retirement. He uses a rule of thumb of a withdrawal rate of between 4 and 6% of savings for those aged 65+.

The New Zealand Society of Actuaries recommends¹ 6% each year or 4% plus inflation.

Charles Schwab² a leading provider of retirement income in the United States also recommends 4% before inflation but notes the assumption is based on historical investment returns and an expected investment term of 30 years.

Rob Williams from Schwab “the biggest mistake you can make with the 4% rule is thinking you have to follow it to the letter. It's a basic guideline for how much to save for retirement, but after that, we suggest adopting a personalised spending rate, based on your situation, investments, and risk tolerance.”

Stewart, supports this view, noting that while a retirement income plan must be simple and straight forward, spending patterns change throughout retirement and flexibility is essential. For example it may be prudent to have a draw down rate of 10% for an 85 year old

Kiwi Wealth, owned by Kiwi Bank, recently released their view³ of the cost of living in retirement, drawing from a Massey University study in 2015⁴. Instead of a percentage of savings as a guide they have estimated an actual cost of living in retirement. Kiwi Wealth have concluded a “no frills”

¹ <https://actuaries.org.nz/new-rules-of-thumb-to-help-kiwis-spend-their-retirement-savings/>

² <https://www.schwab.com/resource-center/insights/content/beyond-4-rule-how-much-can-you-safely-spend-retirement>

³ <https://www.stuff.co.nz/business/money/90904082/Many-Kiwis-have-no-idea-how-much-income-they-need-to-retire-Kiwi-Wealth>

⁴ <https://www.massey.ac.nz/massey/fms/Colleges/College%20of%20Business/School%20of%20Economics%20&%20Finance/FinEd/documents/177653%20Report%20Final%202015b.pdf>

life style will cost \$744 per week, a “flexible” lifestyle \$1,075 per week and a “deluxe” lifestyle \$1,114 per week.

Stewart, notes the KiwiBank/Massey University work is helpful and reinforces the need to save as much as possible for retirement. The gap between NZ superannuation and the suggested living costs are significant: \$1,416

Monthly superannuation after tax (m tax code)	\$1,560
No “frills” retirement living costs	<u>\$2,976</u>
Monthly Gap	\$1,416

To generate a regular monthly income of \$1,416 a retiree will need approximately \$350,000 in savings and draw this down by 5% per year. In Stewart’s experience this is a considerable sum for most people close to or already in retirement.

“In New Zealand today there are over 600,000 people aged 65 or older⁵. The majority of these people have modest savings and are faced with supplementing their NZ Super now. Saving more without a working wage or simply trying to live on interest earnings alone is not a workable plan”

Stewart, suggests a drawdown rate of 4-5% will suit most current retirees in their sixties.

Will my savings last my lifetime and how in practice can I convert savings into a fortnightly or monthly tax paid income?

Stewart says there are a number of good and diverse options available, albeit they are quite different. To illustrate their differences he has assumed a female aged 65 living alone with \$150,000 of retirement savings drawn down by 5% p.a.

Monthly superannuation after tax (m tax code)	\$1,560
\$150,000 drawn down at 5% p.a. (paid monthly)	<u>\$ 625</u>
Monthly Income	\$2,185

Banks, finance companies, fund Managers, KiwiSaver providers and insurers all have sensible options to convert savings into a regular income.

They all offer Portfolio Investment Entities (PIE’s) to manage tax and all provide access to capital after the deduction of regular withdrawals.

⁵http://archive.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalPopulationEstimates_HOTPA30Jun13/Commentary.aspx

Options for a 65 year old female with retirement savings of \$150K drawing down a net income of 5% p.a.

Investment option	Net monthly income	Able to protect income from inflation?	Income paid monthly?	How long will income last (age)	Life expectancy	Probability income will last until life expectancy	Income guaranteed for life?
Bank Deposit	\$625	No	No	93	89	95%	No
Finance Company Deposit (UDC)	\$625	No	Yes	97	89	80%	No
Managed Fund (Balanced)	\$625	No	Yes	102	89	80%	No
KiwiSaver (Balanced)	\$625	No	Yes	102	89	80%	No
Lifetime Income (Balanced)	\$625	Yes	Yes	For Life	89	100%	Yes

The difference between these providers is the how the capital drawdowns are paid, the investment approach and earnings rates and how long the savings are expected to last.

Bank Term Deposit

Investment option	Net monthly income	Able to protect income from inflation?	Income paid monthly?	How long will income last (age)	Life expectancy	Probability income will last until life expectancy	Income guaranteed for life?
Bank Deposit	\$625	No	No	93	89	95%	No

Bank term deposits are tried and true, but they are not specifically designed for regular drawdowns of capital. In this example we have assumed investing in a 1-year term deposit and before reinvesting each year drawing down \$7,500 each year to fund a monthly income top up of \$625. Savings may be depleted by age 93 and against a life expectancy of 89. As future interest rates are unknown an estimate is made of the probability of the savings lasting to 89. The probability is based on the long-term variability in interest rates.⁶ The Probability of the savings lasting to age 93 is 95%.

Finance Company Deposit (UDC)

Investment option	Net monthly income	Able to protect income from inflation?	Income paid monthly?	How long will income last (age)	Life expectancy	Probability income will last until life expectancy	Income guaranteed for life?
Bank Deposit	\$625	No	Yes	97	89	80%	No

UDC offer a regular monthly capital drawdown from their term deposit facility, which is helpful and simple. The returns are higher than term deposits, so savings may last longer to age 97. The underlying investments (finance company advances) are not as secure as the banks so the probability of reaching 97 is lower (80%).

⁶ Lifetime Retirement Income Limited

Managed Fund (Balanced)							
Investment option	Net monthly income	Able to protect income from inflation?	Income paid monthly?	How long will income last (age)	Life expectancy	Probability income will last until life expectancy	Income guaranteed for life?
Bank Deposit	\$625	No	Yes	102	89	80%	No

KiwiSaver (Balanced)							
Investment option	Net monthly income	Able to protect income from inflation?	Income paid monthly?	How long will income last (age)	Life expectancy	Probability income will last until life expectancy	Income guaranteed for life?
KiwiSaver (Balanced)	\$576	No	Yes	102	89	80%	No

Both managed Funds and Kiwi Saver will allow investors to make regular withdrawals (monthly) which again is helpful and keeps the process simple. In this example, a balanced fund with expected returns over the longer term of 5.90% before fees and taxes has been used. The higher returns means savings may last until age 102, well above life expectancy, however the higher returns are more volatile which reduces the probability of reaching 102 to 80%.

Lifetime Income (Balanced)							
Investment option	Net monthly income	Able to protect income from inflation?	Income paid monthly?	How long will income last (age)	Life expectancy	Probability income will last until life expectancy	Income guaranteed for life?
Lifetime Income (Balanced)	\$625	Yes	Yes	For Life	89	100%	Yes

Lifetime is a licensed insurer like a bank and guarantees income for life. Lifetime also offers an inflation-indexed option albeit at a lower weekly income level to start.

If this option was selected the initial weekly income would drop from \$625 to \$468 and increase each year by the same amount as NZ Superannuation. As a licensed and regulated insurer the probability of the income lasting a lifetime should be 100%.

By applying a simple drawdown rate of between 4 and 5% to retirement savings and selecting a provider that offers the most confidence, securing an income to supplement NZ super should not be a complex challenge!

Ralph Stewart, January 2018

Appendix 3

[There is insufficient recognition for the risks to retirement income faced by retired New Zealanders]

Retirement – Timing Really Is Everything.

Protect your savings against sequencing risk

Some say that volatility is not a risk as long as you stay invested 'for the long term'. This is simply not true in the case of any portfolio that has volatility and cash flows. Portfolios with cash flows are exposed to a subset of market risk, called sequencing risk. It becomes more difficult to respond to sequencing risk in retirement, but the good news is that there are ways to protect against it.

Sequencing risk

Sequencing risk is the risk that the order and timing of your investment returns is unfavourable, resulting in less money for retirement. Two people about to retire might have made identical super contributions and experienced average returns of 8 per cent per annum over a 20-year period and yet have significantly different balances to retire on, all due to sequencing risk. Investment returns, good and bad, have more impact at some points in your superannuation lifecycle than at others. Negative investment returns early in retirement can be particularly damaging.

Retirement portfolios are exposed to sequencing risk

Your superannuation portfolio has cash flows if you are making contributions, or are withdrawing from it. Where there are no cash flows in a portfolio, there is no sequencing risk. Similarly, without volatility, all the return sequences are the same so there is no sequencing risk.

Cash flows amplify market risk

Consider a hypothetical example. Joe has \$100,000 invested in superannuation. Table 1 shows the different outcomes for Joe's portfolio when the same set of annual returns occurs in reverse order over a nine-year period (using an 8 per cent arithmetic average annual return over the period).

The table shows that there is no impact on the portfolio, as long as Joe does not contribute to, or withdraw from, his super for the investment period. Joe's investment balance at the end of nine years would have been \$167,973 in both scenarios where there are no cash flows.

Now let's look at what happens if Joe makes super contributions of \$20,000 a year.

The combination of market volatility and cash flows results in quite different outcomes after nine years. Portfolio A would be worth \$378,656, while portfolio B would be worth \$452,125. This is a difference of \$73,469 (19.4 per cent), despite both portfolios having exactly the same 8 per cent average annual returns over the period and the same contributions made to them. Like many

people, Joe would be surprised to find that the end result could be so different when the portfolios looked so similar on the surface.

This is sequencing risk. It applies not only when making regular contributions to an investment, but also when withdrawing from super to pay for your retirement.

Table 1: Hypothetical example, value of Joe's portfolio with/without cash flows and with the same average annual return

Year	Portfolio A			Portfolio B		
	Return path	Investment without cash flow	Investment with annual \$20,000 contributions	Return path	Investment without cash flow	Investment with annual \$20,000 contributions
0		\$100,000	\$100,000		\$100,000	\$100,000
1	27%	\$127,000	\$152,400	-20%	\$80,000	\$96,000
2	17%	\$148,590	\$201,708	17%	\$93,600	\$135,720
3	-20%	\$118,872	\$177,366	27%	\$118,872	\$197,764
4	27%	\$150,967	\$250,655	-20%	\$95,098	\$174,212
5	17%	\$176,632	\$316,667	17%	\$111,264	\$227,227
6	-20%	\$141,306	\$269,333	27%	\$141,306	\$313,979
7	27%	\$179,458	\$367,453	-20%	\$113,044	\$267,183
8	17%	\$209,966	\$453,320	17%	\$132,262	\$336,004
9	-20%	\$167,973	\$378,656	27%	\$167,973	\$452,125
Average annual return	8%			8%		

Source: Milevsky, Moshe and Anna Abaimova (2009) 'Retirement income and the sensitive sequence of returns' Metlife, Challenger Life Company Limited estimates

Sequencing risk peaks at retirement

Sequencing risk is typically greatest at the point of retirement, when you switch from building up your nest egg to drawing down from it. This is because usually there is more money at risk if markets drop around the time of retirement. This is the concept of the retirement risk zone.

The zone actually starts a few years before retirement as your nest egg has been largely built. It continues post retirement until you have spent a reasonable chunk of your retirement savings.

How big is the risk? An example using recent Australian market performance data

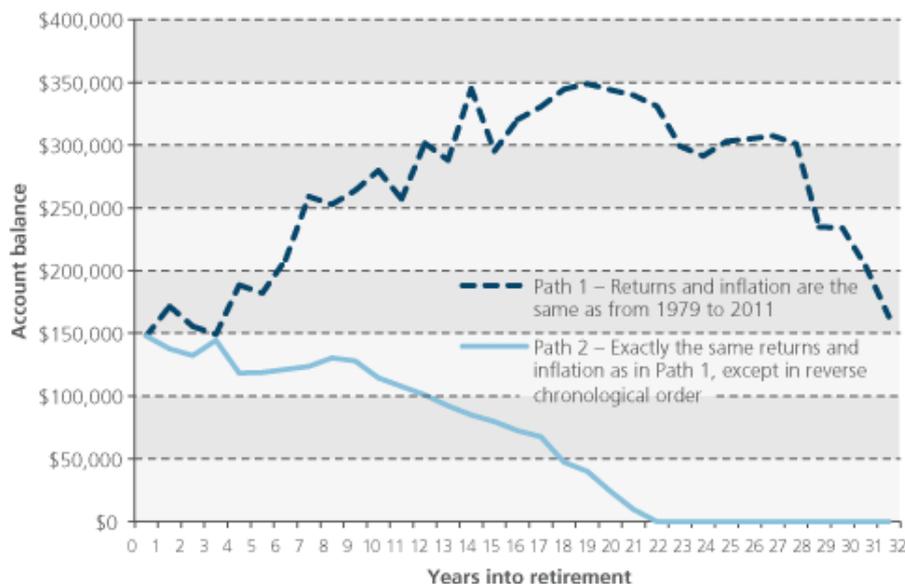
The simple example shown in Figure 1 uses a hypothetical investor and is based on historical Australian market performance data for the period 1979 to 2011. It illustrates how sequencing risk can impact retirement outcomes.

The investor illustrated in Path 1 in Figure 1 retired at the end of 1979 with an investment balance of \$148,000. His portfolio was 50 per cent invested in Australian equities and 50 per cent in Australian bonds. Following his retirement, he lived off his retirement savings, drawing \$10,000, indexed to inflation, each year. By 2011, the drawdown matches ASFA's¹ comfortable retirement standard of just over \$40,000 a year.

The retirement capital remaining at the end of each year is shown by the dotted blue line in the chart.

The light blue line (Path 2) shows what would have happened if exactly the same returns were achieved, but in reverse order (i.e. 2011 returns first). If this were the case, the investor's money would have run out 10 years earlier. As can be seen in the chart, after 22 years in retirement, the other sequence of returns had doubled the retiree's capital.

Figure 1: Example of the possible impact of sequencing risk in retirement using Australian market performance data



Source: Challenger Life Company Limited estimates based on data from Bloomberg.

Don't let sequencing risk spoil your retirement plan

The consequences of sequencing risk are potentially strongest around the point of retirement. If you have a run of poor market results close to retirement, it can ruin your retirement plan. Before you retire, you might be able to extend your working years to save a bit more. It is much harder to go back to work after you have retired.

The good news is that there are ways to protect against the effects of sequencing risk. It can be a good idea to structure your cash flow needs around the time of your retirement to limit the risk that a poor sequence of investment returns impacts on your retirement goals.

Challenger, January 2017

Appendix 4

[There is a lack of willingness by KiwiSavers providers to protect retired investors from market and longevity risk]

Sample Capital Requirements - Lifetime GMWB Contracts			
Country	Regime	Capital Requirement (%FUM)	Commentary
US	Statutory Capital - VA CARVM (CTE90)	Approx. 0.1% - 5% (average 1%) if credit in capital scenarios allowed for MMRS. Approx 1.75% - 7% (average 2.5%) if no credit for MMRS in capital scenarios.	Figures based on average estimated capital req's over period 2007 - 2012, using the US "CTE90" calculation methodology. With credit for MMRS in CTE scenarios, range seen of 0.1% - 5.0%, depending on market conditions - 5% was Dec2008/Jan 2009. Without credit for MMRS, range was 1.75% - 7.0% over same period.
Japan	Minimum Guarantee Reserve + Contingency Reserve	Approx 4.2% (assuming no reinsurance), 1% with asset reinsurance (hedge assets held via a reinsurance contract).	Contingency Reserve based on 1% assets (for longevity risk) + real-world scenario shocks, less diversification allowance. No credit given for asset hedging, but reinsurance is fully deductible (so typical practice is to reinsure 100% of business, reinsurer simply runs hedging program and thus avoid asset shock component of capital requirements).
Australia	Life Company Prudential Standard LPS110	5%-15%	Based on Milliman Interpretation of Australian Prudential Standards & current Australian insurer practices. For some firms some of these interpretations have been very conservative (e.g. applying zero credit for hedging) due to the relatively negligible importance of this type of business across their entire business.
Europe / Ireland / UK	Irish Central Bank's Requirements on Reserving for VA business	2%-5%	Currently all UK writers of VA's (and many European writers) are based in Ireland, using the Irish Central Bank's Requirements on Reserving for VA business. For business written after 2010, capital is calculated on a CTE95 basis, with credit provided for hedge effectiveness.
Europe	Solvency II	2%-3%, based on recent Milliman estimates of economic capital for UK GLWB business	Proposed Solvency II regime only. This is due to come into effect from 2016. Internal models are likely to be used for most firms writing this type of business, as standard methods make no allowance for hedging. This will result in lower capital requirements than under standard methods, assuming a broad "economic capital" basis is used within those models.

Lifetime Retirement Income 2015