

# Innovation in Retirement Investing

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November 23, 2021

## Abstract

*The Australian superannuation system is one of the largest and most sophisticated in the world. But despite the maturity and scale of the system, the development of investment solutions in the retirement phase of superannuation in the last two decades has been lacking. More recently, the commercial opportunity combined with guidance on future obligations of trustees of super funds have led to the development of several retirement income products in the Australian market.*

*In this paper we outline the thinking behind one of the recently launched retirement products, Magellan FuturePay. The product seeks to balance the competing goals of a regular, predictable income; capital growth to ensure investors' money lasts; and some flexible access to savings during retirement. It utilises several new and not-so-new investment technologies – pooling; mutualisation of risk; risk management through reserving; active exchange traded funds; and the ability to trade the same asset on-and off-exchange. We describe how these technologies come together in a single product, and how they can work together to improve outcomes in retirement*

## I. INTRODUCTION

The Australian superannuation system is one of the largest and most sophisticated in the world. For example, the Australian pool of pension assets alone is the fifth largest in the world and exceeds 170% of gross domestic product [41].

Despite the maturity and scale of the system, products aimed at delivering outcomes for the retirement phase of superannuation remain underdeveloped. Indeed, the recently published Retirement Income Covenant states that most retirees are not currently supported to effectively manage their superannuation when they retire [43]. Thus, Federal Treasury [43], industry bodies [8, 4], academics and practitioners [39] alike have called for significant innovation in retirement products.

This call for innovation reflects the complexity and conflict inherent in the goals of retirement investing; the perception that the current products are inadequate in meeting these goals;

and the challenge in providing effective advice.

What would constitute “significant innovation” in retirement focused products? One view of innovation is that it is a means to fulfill a human purpose, through a novel assemblage of extant technologies and practices [3]. In this case, the purpose is to create better investment outcomes for retirees, and the technologies include, but are not limited to, investment strategies, product structures, modes of access and risk management techniques.

In this paper we outline the thinking behind one recently launched retirement focused product, Magellan FuturePay [22]. We describe the goals underlying the purpose; the underlying of investment technologies; and how these technologies combine in a novel way to meet the goals.

## II. INNOVATION AND TECHNOLOGY

Innovation and technology are inextricably linked to the creation of wealth. John Rae was arguably the first economist to put innovation

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at the centre of wealth creation [40, 29]. Nearly a century later, Schumpeter also considered innovation as critical to real economic development as he described the view of progress as “creative destruction” [28].

Whilst the importance of technology and innovation for aggregate wealth creation is uncontroversial, our interest lies more in the nature of innovation and how it is applied. Indeed, W. Brian Arthur’s view that technology advances through a novel assemblage of extant technologies and practices [3], is directly applicable as we review the development of Magellan FuturePay.

That technology serves to fulfil a human purpose has been well-studied. Indeed, through detailed analysis of US patent records since 1800, Jacob Schmookler argued that it is precisely fulfilment of human demand that is the ultimate driver of innovation [34]. This view came to be known as the demand-pull view of technology. While several alternatives to this view have been posited [48, 21], it remains a cornerstone of the literature on innovation.

The combinatorial nature of technology was posited by Joseph Schumpeter in 1912, who argued that change in the economy grew from “new combination of productive means” [35, 3]. This view was echoed by many other historians and economists, including Usher who considered technology to be “the constructive assimilation of pre-existing elements in new combinations” [47, 3].

W. Brian Arthur provides several examples of technologies that draw out the key features of this definition. One example is the F35-C Lightning II aircraft [3]. In this case, the human purpose is to develop a single vehicle that can provide close air support, intercept enemy aircraft, suppress enemy radar defences, and take out ground targets. To meet this purpose, the craft then has several design objectives: as a fighter aircraft it must be structurally strong to withstand the high forces of carrier launches and landings; yet be able to preserve high manoeuvrability, and have long range fuel performance; it must also perform well at low speed for carrier landings able to fly greater than at

the speed of sound. Additionally, it must be almost undetectable to radar. That new technologies must be brought to bear to meet these objectives is driven by the fact that these goals are in acute conflict.

The construction of this aircraft, however, is an assemblage of extant technologies. Powered flight had been available for at least a century following the Wright Flyer [1]. The modern means of propulsion is the jet engine, which was patented in 1931 by Frank Whittle and first took flight in 1941 [30]. Stealth technology providing low levels of radar detection had been available in some form since 1959 [46]. Combining these and other technologies took additional innovations, each of which may be considered a new application of an old idea.

A more recent example includes the ride-hailing service Uber. In this case, the human purpose was the transport of goods or humans in an efficient manner. The technologies include hire cars, GPS tracking, mobile phones, online payments, the sharing economy, and social network ranking - all of which existed prior to the establishment of the service. It is the novel combination of these technologies that provides the discrete change in utility to the consumer.

New assemblages of existing technologies to resolve conflicting goals is a common theme across innovation, and with this in mind, we now turn to the purpose underpinning retirement investing<sup>1</sup>.

### III. THE PURPOSE OF RETIREMENT INVESTING

Australia’s superannuation system exists to deliver private income to enhance the living standards of retired Australians [6, page 15].

Retirement investing, whether within or outside the superannuation systems seeks to meet this purpose. This purpose is then typically decomposed into distinct goals or design objectives. Merton highlights the need to shift

<sup>1</sup>For clarity, we define retirement investing to be investing during retirement, rather than the accumulation of assets prior to retirement.

the metrics for success from the traditional investment value and asset volatility towards those that focus on the income for life [33]. To be more comprehensive, the focus on income has been expanded to include a risk-averse preference for bequest wishes [11]. More recently, the Retirement Income Covenant provided clear guidance to trustees of super funds on investment objectives in retirement: to maximise retirement income; to manage the risks to the sustainability of their income; and have some flexible access to savings during retirement [44].

In practice, the goals of retirement investment boil down to effectively establishing a form of salary replacement to meet everyday costs of living; which is sustainable in order to manage sequencing and longevity risk; and is liquid to retain access to capital for large or unexpected expenses and/or to meet a bequest wish. Furthermore, these investment goals must be met in a low-friction, efficient package that investors and their advisers can easily use.

Like the goals of the F35-C aircraft, the goals of retirement investing conflict with each other, resulting in compromise. For example, using fixed income and cash instruments as a liquid salary replacement falls short, as nominal and real rates are low and life expectancy is long and increasing [5], which leaves the investor in an unsustainable position. Pension and annuity products provide a sustainable salary replacement, but are generally illiquid and expensive, so retirees tend to invest less in these products [37]. Consequently, retirees and their advisers are rationally turning to growth assets in retirement. However, growth assets also create conflicts in retirement investing. With volatile income and capital values, the benefits of higher returns must be considered in the light of the inherent risks and the unwanted variability in outcomes.

Magellan FuturePay is a managed fund that is purpose-built to meet the conflicting goals of retirement investing in a single, low-friction product. To do this, Magellan FuturePay combines several new, and not-so-new, investment

technologies – pooling; mutualisation of risk; risk management through reserving; active exchange traded funds; and the ability to trade the same asset on-and off-exchange. In the remainder of this paper, we outline these technologies, and describe how they combine to provide an effective solution.

#### IV. POOLING

Investing wisely requires significant resources. There are considerable search costs in determining appropriate investments to meet investment goals [20]. From this universe of potential investments, a portfolio must be constructed that weighs and balances the expected returns, risks and correlations of those investments [17]. As investments are inherently dynamic, further resources are required to reassess, reinvest and rebalance, taking into account not only forward-looking return and risk expectations, but also the costs of trading [17]. In addition, there are scale barriers to investing wisely [2]. For example, some investments require minimum size holdings. The fixed costs of trading and custody also tend to limit the efficacy of smaller investments. Given the resources required and the benefits of scale, it is no surprise that pooling of investment capital in a single investment vehicle is now an ubiquitous approach.

Pooling of capital is a very old technology. Adriaan van Ketwich launched the Eendragt Maakt Magt (“Unity Creates Strength”) trust in 1774, with the intention to provide small investors an opportunity to diversify their investments [12]. Over the intervening centuries, pooled investment funds continued to develop, providing small investors not only with a means of diversification, but also access to skilled asset management, along with additional investor protections [26].

In Australia the modern framework for pooled investment vehicles commenced in 1936, when Hugh Walton publicly offered units in the first Australian unit trust [24].

Pooling of investments, however, introduces additional considerations through taxation. In-

vestors share not only in the investment returns, but also the tax consequences. Trust deeds confer trustees with the power to decide if the income or capital of the trust will be accumulated or distributed. There are two elements to this discretion: the attributed taxable income and the cash distributions.

In terms of taxable income, Division 6 of Part III of the Income Tax Assessment Act [42], and trust deeds provide that unitholders become presently entitled to the taxable income at the end of an income year. In the case that present entitlement is not conferred on some or all of the taxable income to unitholders, then the trustee is required to pay tax at the highest marginal tax rate on that portion of the income not conferred. As the beneficiaries of the trust will have marginal tax rates that are less than or equal to that rate, they are no worse off by becoming presently entitled to that income. It follows that trustees would typically confer present entitlement of all taxable income to their beneficiaries.

Distribution of cash, however, is a separate question. A trustee may elect to retain or distribute some or all of the taxable income to its investors. Whilst it is traditional to make cash distributions equal to the taxable income of the trust, there is no legislative requirement to do so. Rather, it was driven by the spectre of double taxation.

Consider a simple example where a single investor owns a trust with asset value of \$100. Let us suppose that those assets generate taxable income of \$10, and these gains are attributed to the investor who pays the required tax. Now suppose that the trust made no cash distribution, leaving the asset value at \$110. If the investor sold their stake in the trust for the value of its assets, the investor would also be liable for tax on the \$10 capital gain. In effect, a trust that does not make a cash distribution of at least as much as the taxable income will impose double taxation of the gains on its beneficiaries.

Note, however, that cash distributions that exceed the taxable income are treated as a return of capital, for which there is a correspond-

ing reduction to the investor's cost base for tax purposes. Until recently there were no equivalent provisions to increase an investor's cost base if cash distributions were less than taxable income. It follows that most trusts historically have made cash distributions greater than or equal to their taxable income.

The implicit constraint for cash distributions to exceed taxable income has long been recognized as an impediment for the effective use of trusts as pooled investment vehicles. For example, in 2015 The Australian Federal Treasury stated that the "arrangements applying to trusts create a level of complexity and uncertainty for managed investment trusts that is unacceptable for an industry of its significance to the economy. These provisions were largely developed in a time before trusts were used in Australia as widely-held, commercially operated, collective investment vehicles" [13, Paragraph 1.5].

The Attribution Managed Investment Trust (AMIT) regime was developed enabling trustees to break the undesirable nexus between taxable income and distributed cash [15]. Federal Treasury stated that the "new tax system for managed investment trusts will ensure that the managed funds industry is able to continue to operate through trust structures having regard to: the commercial needs of the industry; and the *needs of investors* [emphasis added]" [13, Paragraph 1.7].

As many investors seek certainty of cash-flows from their investments, which is unlikely to dissipate with an ageing population, the AMIT regime can meet the investment objective seamlessly by enabling trustees to set a distribution policy that provides stable and consistent cash distributions to investors. That retirement income is to be considered broadly as total cash distributions, and not simply taxable income, is now set to become enshrined in legislation through the Retirement Income Covenant [44].

Since the passage of the AMIT legislation, eligible managed investment trusts may irrevocably elect to become an AMIT, and consequently their cash distributions need not be driven by

the taxable income of the fund. When the cash distribution is below (above) the taxable income, the taxation cost base of the unit holder is increased (decreased) by the difference [14], thereby eliminating the prospect of double taxation.

To take advantage of the evident benefits and protections of pooling, FuturePay has been established as a managed investment scheme, the flagship regulated pooled investment vehicle in Australia. To meet the goal of delivering a fixed cash distribution to investors, FuturePay has elected to become an AMIT. These two technologies, one old and one new, are essential in enabling FuturePay to deliver on its goals to investors.

## V. BUCKETING

Many retirement investors prefer the certainty of a fixed dollar amount of income from their investments to meet their everyday expenses, rather than the variability of a percentage income. When the underlying investments are risky, this preference leads to an additional risk, known as sequencing risk [27]. This is the increase in range of potential outcomes caused by the re-ordering of returns.

An example of the surprising large impact of sequencing risk is provided in *The ABC of Sequencing Risk* [10]. The authors consider a 65-year-old investor who invested \$600,000 in a balanced portfolio in 1979, and who withdraws \$40,391 per year (indexed to inflation) until 2011. They show that if the investor experienced the same returns as between 1979 and 2011 they would have had over \$700,000 remaining 32 years into retirement. Had they experienced the same returns, but in reverse order, they would have run out of capital 22 years into retirement, giving them least 10 years in retirement with no capital.

It's interesting to consider what advisers and investors are currently doing to manage this risk. Many are using a bucketing approach where they effectively reserve a certain amount in a "cash bucket" and invest the residual in growth or income generating assets [27]. Im-

portantly, the size of the cash investment tends to be measured in time - a number of years of income required - rather than a just a percentage of the overall portfolio. A period of 1 to 3 years is not uncommon. Whether explicitly acknowledged or not, this duration is an expression of market volatility and sequencing risk and represents enough time for the cash to fund income, allowing markets to recover if a downturn were to occur. This approach does reduce overall portfolio volatility, but more importantly, it enables investors to avoid selling assets to fund income in bad times and gives them the confidence to consider a longer investment horizon on their growth assets. As stated in [36], liquidating risky positions realises losses and creates poor retirement outcomes.

This approach has other analogues in retirement investing. For example, when purchasing an annuity, the investor is receiving a guarantee or promise and as such the provider of the annuity is required collateralise that promise by making a capital contribution into a statutory fund [16]. When the returns of the underlying assets exceed the required rate of return, the provider may redeem from the statutory fund as profits. When, on the other hand the underlying assets generate insufficient returns, the provider is required to contribute additional funds. This approach, and the pooling via a statutory fund, does provide some benefits including the mutualisation of risk, which we will consider in Section VI. However, the promise behind an annuity comes at a cost, which invariably leads to a lower rate of return to the investor, illiquidity, and a limited ability to benefit from residual value on death.

We can place these approaches on a spectrum for managing the impact of volatility. At one end of the spectrum, the annuity approach passes the impact of volatility onto the provider. At the other, a direct investment in a risky asset with a fixed income burdens the investor with the full impact of the volatility. The bucketing approach can be seen as a solution somewhere between these extremes.

The potential benefits of bucketing for re-

retirement investing are analysed in Building a Dynamic Retirement Plan: Time-Segmented Bucketing Revisited [36]. The authors state that the approach reduces the probability and magnitude of lifetime shortfall; improves transparency to the client and reduces behavioural tendencies that lead to selling at inopportune times; supports higher sustainable withdrawal rates than traditional approaches; reduces variability of planning outcomes; and best offsets the risk associated with the sequencing of returns.

The benefits of bucketing were also examined in The Utility of Reserving in Retirement Investing [23]. In that paper, the authors showed that the systematic use of bucketing in an open-ended fund can materially improve investor utility on average, and also reduce sequencing risk.

Magellan FuturePay has adopted and refined the bucketing process in a way that seeks to optimise the goals of the retirement investor. This process builds on the traditional reserving approach through a disciplined and effective algorithm, whilst also drawing on the benefits of mutualisation, which we consider in the next section.

## VI. MUTUALISATION

Provisioning capital for potential adverse future events is costly. Seeking to reduce this cost through risk sharing or mutualisation is an ancient and profound investment technology.

One early example of such mutualisation of risk may be found in the military societies of ancient Rome [45]. In this case, the participants of the society sought to manage the financial risks of future events arising from their military occupation. To join the society, an initial contribution was made, to be subsequently supplemented by an ongoing payment. Once a member of the society, the member would obtain a cash benefit in the case of death, dismissal, transferral to another legion, being obliged to cross the sea, or promotion to a superior rank. This arrangement provided considerable utility to the members as they did not need to pro-

vision a large capital amount for the adverse events.

Mutualisation of risk in retirement is widely employed. The defined benefit fund, for example, typically provides the member with an inflation-adjusted fixed income upon retirement until death. These schemes provide mutualisation of risk along two distinct dimensions: investment period, and longevity. Since the beneficiaries receive the benefits over distinct periods, the fund typically seeks to provide the average return of the underlying investments to each member rather than the return over the periods for which they receive benefits. Similarly, since the beneficiaries receive their benefits over their varied remaining lifetimes, longevity risk may also be mutualised. Note, that in the case that the benefits paid to members exceed that which the assets can support, then the plan sponsor (or future beneficiaries in extreme cases) will bear the cost.

While defined benefits schemes provide excellent characteristics in terms of income for retirement investors, they fall short in providing any access to capital, thus only provide a partial solution for retirement investors. Furthermore, the risk and costs to the plan sponsor have resulted in a marked reduction in their availability in recent years [7]. In the US, corporations like General Electric, IBM and Lockheed Martin have frozen their defined benefit pension schemes and announced plans to shift employees into defined contribution plans. Other corporations have not only closed their defined benefit plans but transferred them to other entities – over US \$600 billion of such transfers have taken place since 2007 [7]. This reduction in defined benefit product availability is a direct reflection of the true value of the promises made exceeding the capacity of the sponsor to fulfill them.

The life annuity is another common investment product that brings the benefits of mutualisation to members in retirement. The life annuity provides mutualisation not unlike a defined benefits fund, but is supported by an external for-profit entity, rather than a plan sponsor. Despite their benefits, annuities are

surprisingly unpopular, a conundrum known as the annuity puzzle [25]. One explanation for this puzzle is the lack of access to capital that an annuity often affords, conflicting with one of the goals in retirement [9]. Irrespective of the precise reason, the low take up of annuities effectively means that the costs of providing an annuity guarantee are too much for investors when they weigh up their other alternatives.

Given the profound benefits of mutualisation, it is worth asking if these benefits can be applied in the context of a bucketing strategy, as described in Section V. Provisioning capital in the cash bucket for potential adverse market considerations poses a difficult problem for practitioners. Over-provisioning cash results in the significant opportunity cost of holding cash, whilst under-provisioning will reduce the benefits of the strategy when adverse market conditions are realised.

To harness the benefits of mutualisation, FuturePay mutualises its cash reserves. The reserves are not the property of FuturePay, rather they are held in a separate trust whose objective is to support FuturePay in meeting its financial objective over the long term. These reserves are mutualised upon members exiting the fund (more on this in Section VII). This partial mutualisation is specifically designed to balance the trade-off between the benefits of mutualisation and investors preference for liquidity in their retirement investments. This approach of having a mutualised pool of reserves leads to a key benefit for investors of effectively having more invested in growth and less in cash than if they were to undertake a bucketing strategy on their own.

## VII. EXCHANGE TRADED FUNDS

A more recent investment technology, the exchange traded fund (ETF), has exploded in growth in recent decades. These are pooled investment vehicles that are open-ended and traded continuously on exchange, providing investors with a high degree of liquidity. The first ETF was launched in 1993 and tracked the S&P500 index [19]. Their use has grown expo-

nentially, and total assets traded in ETFs now exceeds \$5.4 trillion USD in the US alone [38].

The original structure of ETFs, with an external market maker, necessarily required daily transparency of the fund's underlying holdings, which is not the case for unlisted funds. This meant active managers who wished to protect the intellectual property of their holdings were effectively precluded from offering their products via exchange, and similarly investors wishing to take advantage of active management in open-ended funds were forced to invest in unlisted products.

In 2015, Magellan pioneered actively managed ETFs in Australia when it launched the Magellan Global Equities Fund<sup>2</sup>. This new investment technology combined the benefits of continuous exchange trading, with the choice of active investment. For retirement investing, where investments that have lower downside risk than the market are strongly preferred, active investment strategies represent an important option.

Magellan FuturePay has been launched as an active ETF, which provides easy access for investors and their advisers to an active investment strategy that has desired characteristics. Importantly, the active ETF also offers scope to reduce friction and costs for investors and their advisers as it allows existing brokerage accounts to be used rather than having to establish new account details for a direct off-market fund investment.

Furthermore, having Magellan FuturePay quoted on exchange also brings an important additional benefit. It provides investors with the potential to sell the benefits of mutualisation inherent in their holding to a third party at an agreed market price, something unavailable in traditional insurance-based products. Effectively, new investors can efficiently step into the shoes of an existing investor, who themselves are also not bound to just redeem their unit with the fund directly, whereby the mutualisation benefits would be fully retained by the fund. This brings significant additional

<sup>2</sup>Which is now the Magellan Global Fund (Open Class) (<https://www2.asx.com.au/markets/company/MGOC>)

utility to all investors.

### VIII. ONE UNIT

Until very recently, pooled investment vehicles were available exclusively either on-exchange or off-exchange [31]. Thus, investors who purchased their investment via one venue could only exit their investment via that venue.

In 2020, Magellan introduced the first “single unit structure”, whereby the unit in the fund could be accessed off-exchange via the traditional routes of direct application, redemption and via platform, and on exchange via trading in the usual manner [18].

This simplified structure has clear benefits to investors and their advisers as they may choose their preferred venue for access without constraining future liquidity choices; it enables a change of preferred trading venue without crystallising a taxable event; and it supports the continued use of sophisticated on-and off-market platforms for portfolio and tax analysis.

Magellan FuturePay was launched as a single unit, active ETF. The benefits are clear, particularly when compared to having separate funds or unit classes and the complexity of divergent performance that would occur due to the nature of partial mutualisation.

### IX. CONCLUSION

Nobel laureate William Sharpe has called the problem of investing in retirement “the nastiest, hardest problem in finance” [32]. This challenge is difficult in part due to the acute conflict inherent in the goals of retirement investing: to provide investors with an effective salary replacement to meet their everyday costs of living; which is sustainable in order manage sequencing and longevity risk; and liquid to retain access to their capital for large or unexpected expenses and/or to meet a bequest wish.

To meet this thorny challenge of investing for retirement, Magellan drew upon several new and not-so-new investment technologies.

FuturePay was launched in June 2021. To maximise the benefit to investors and their advisers, it combined:

- pooling;
- mutualisation of risk;
- risk management through reserving;
- active exchange traded funds; and
- the ability to trade the same asset on-and off-exchange.

When used individually, these technologies have provided significant benefit, but when applied collectively to meet the very real challenge of retirement investing, they may provide an excellent building block for both investors and advisers.

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