

# Why decumulation is different

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The investment goal of an accumulation portfolio is straight forward – return maximisation. Investing in a decumulation environment or investing in retirement is different. Decumulation investing, for the purpose of funding retirement income, is more complex than that required for accumulating assets. The need to provide a regular stream of payments impacts the investment choices that can be made for the assets supporting that income stream. Unlike the accumulation phase, when regular contributions support the ongoing purchase of assets, a decumulating fund needs to have a clear strategy around which assets it needs to sell to fund the benefit payments. This paper highlights the philosophical and practical challenges of managing a decumulating investment strategy. It also explores how a decumulation investment strategy is different from the approach typically applied in the accumulation phase.

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## Investing 101: the case of no cash flows

Most investment strategies are based on the concept of Modern Portfolio Theory (MPT), with appropriate adjustments. In MPT, there are no cash flows, and the aim is to select investments to maximise the terminal value of a portfolio over a specified horizon. As Markowitz and others demonstrated, the investment decisions boil down to a series of risk-return trade-offs. This is a well-known path, both in theory and practice that requires an estimation of both sides of this balance, the expected return and the risk. The solution is to find the investment with the highest risk-adjusted return which will maximise the final value of the investment portfolio.

### Expected return

While the outcome is determined by the actual return, investment decisions are implemented before the investment returns are known. Consequently a portfolio manager needs to estimate the expected return over the target investment horizon. There is not necessarily a link between the recent historical performance and the expected returns in a future period. Indeed, historical returns can affect the valuation of some investments, which can impact expectations of future returns. For example, a dramatic fall in bond yields will provide high returns for fixed interest investments, but also lower expected future returns (because of the lower starting yield). Selecting assets will also require a comparison across assets, so a portfolio manager will usually develop a measure of the relative value across those assets.

### Risk

Chasing the highest expected return is not always the best idea. Sometimes, the risk of an adverse outcome is too large. What MPT demonstrated, which has been backed up by decades of investment experience, is that a consideration of risk is also essential to generating the optimal investment outcome.

Portfolio managers therefore seek the highest return, per unit of risk, to maximise their investment outcome. This does not just depend on the volatility of each asset class, but also the correlations across different assets. The overall risk-return trade-off maximises the expected investment outcome.



## Accumulating wealth: the benefit of positive cash flows

Australia's superannuation system has been growing for nearly three decades, aided by the fact that most people are still contributing to their super savings. That is, super funds are in aggregate receiving cash flows that they need to invest. For some funds, managing inflows from multiple sources can add complexity to their operations. This is usually solved through improving administration systems, but regular inflows makes the investment decision easier, for two specific reasons:

1. **Dollar-cost averaging.** When a portfolio has positive cash flows and markets are volatile, dollar-cost averaging can reduce the entry price to an investment. The goal of dollar-cost averaging is to reduce the overall impact of volatility of the price. As market prices fall below the average, the portfolio can invest fixed cash flows at a lower price, receiving more units of the investment. When prices spike above the average, fewer units are purchased for each fixed cash flow. Over time, more investment units are purchased at lower prices, reducing the average entry point and increasing the final investment outcome.
2. **Liquidity management.** When cash flows are positive, the portfolio manager of an asset pool can focus on the best risk-adjusted returns and doesn't need to ensure liquidity for the whole portfolio. This enables longer-term investments and the ability to capture an additional premium on illiquid investments. Examples include: infrastructure, unlisted property and some credit-based fixed interest investments, which other investors might avoid because of the need for liquidity.

The net result of the positive cash flows and low need for liquidity in the accumulation phase is that a portfolio manager can focus on maximising risk-adjusted returns.



## Decumulation phase: staying invested when the cash flows go against you

When a portfolio is more heavily decumulation-oriented, the requirement to provide cash flows from the portfolio makes the job of the investment manager more difficult. It is not enough simply to target the highest risk-adjusted return, because the need for cash flows can shorten the investment horizon dramatically. If not managed, the need to sell assets to meet cash flow requirements could jeopardise the implemented long-term investment strategy. The additional problems to solve in a decumulating pool include:

1. **Dollar-cost ravaging.** The flip side of negative cash flows is that there can be a need to sell more units when prices are low and sell fewer when prices are high. In a volatile environment, this can prematurely erode the value of the portfolio. This is sometimes referred to as 'sequencing risk' because a sequence of returns, where the market dips before a recovery, can be the worst sequence of returns. However, a portfolio manager can do little about the market movements, so they need to manage the impact of the swings on their portfolio.

This best way to see this is to consider an example. The years after the establishment of superannuation corresponded to several years of high returns, representing a good sequence of returns. Someone who retired at the end of 1992 might still have a large proportion of their capital intact at the end of 2019. See Figure 1, where the upper line demonstrates this for someone who started with \$500,000 and was spending \$36,000 a year, increasing with inflation. However, if the returns were in the reverse order, the outcome would have been completely different, even though their average return was also the same.

**Figure 1: Outcomes for different sequences of returns  
(with regular spending from the portfolio)**



The lower line shows what would have happened if the actual returns occurred in the reverse order. With the GFC occurring 10 years into retirement, in the reversed sequence, the money would have run out by year 22 and the strong returns at the end of the period would have been missed. It would have been even worse to start with the GFC (not shown in Figure 1) which would have seen the money run out by year 17.

2. **Liquidity management.** When assets are being decumulated, the need for greater liquidity limits the range of investments available to a portfolio manager. Liquidity in the portfolio will prevent the forced sale of an investment to generate cash for payment. Liquid assets include cash, government bonds and listed shares. Selling shares on market might not always be ideal, but the transaction costs would be lower than having to sell direct property, for example. Generating high returns is made more difficult for the portfolio manager by the need for liquidity.
3. **Income management.** Often the cash flows out of the portfolio are used as income for members to spend. People typically prefer stable income so the cash flows available should reflect this desired stability.<sup>1</sup> To generate this income a portfolio manager will generally have three possible strategies. One source is the traditional income provided by interest, dividends or rent from the investment assets. Another way to generate cash flows is to time the maturity of a fixed investment such that it is available when required. This is possible for fixed term investments, such as corporate bonds or term deposits. The third source is to sell down assets and use the capital from the sale for the income payments. Ideally, the portfolio manager will be able to realise the assets in a planned and orderly manner. If not, required cash flows could cause the sale of an investment at a time when it is not fully valued, crystallising a loss.

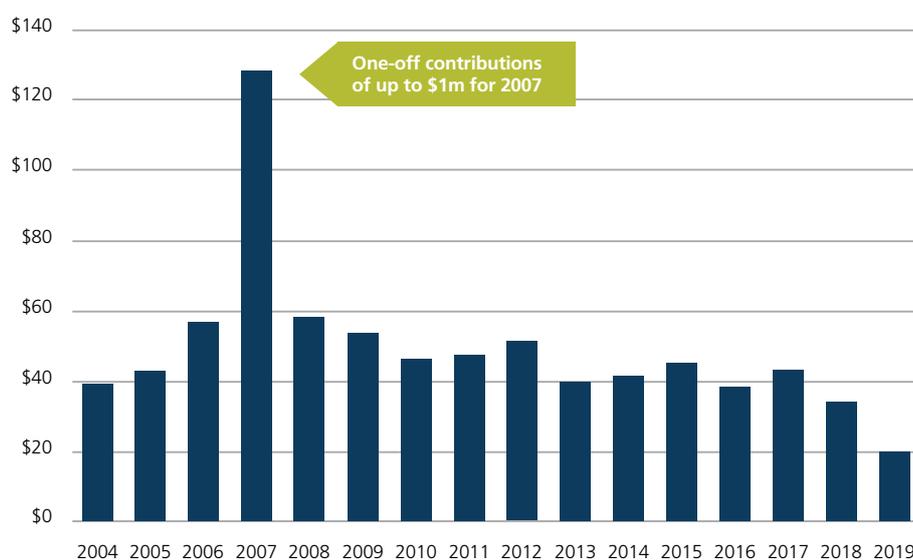
<sup>1</sup> The preference for stable income is incorporated into the Member's Default Utility Function (MDUF) <http://membersdefaultutilityfunction.com.au/>

Success in the decumulation phase requires a combination of meeting all the required cash flow payments, while at the same time maximising those payments. The capital available in a decumulation portfolio is often limited, so a portfolio manager will need to get the balance right across these cash flow strategies to maximise the income from the portfolio. This is in addition to getting the highest return available. In decumulation, the cash objectives sometimes work against the investment objective, so an appropriate measure, such as a utility function, can capture the best trade-off.

## A maturing super system

As the super system is still maturing, the net contribution flow remains positive. Eventually, net contributions across the super system will turn negative as members take more money out than they put into super. As the data in Figure 2 show, the net contributions (contributions less benefits) across the whole super system has been gradually declining, but is still positive.

**Figure 2: Net contributions for all super funds (including SMSFs), \$bn**



Source: APRA

These aggregate numbers mask some of the trends in different sectors. For example, corporate funds have been in decline for most of this period, with 13 years of net outflows in the past 15 years. In more recent years, the decline in net contributions has been particularly strong in the retail and SMSF sectors, where the fund members are older on average. As fund demographics move to increasingly older members, the increase in pension payments reduces the net cash flows to the fund. In aggregate, the industry fund sector is currently experiencing strong net flows in the wake of the royal commission. However, some individual funds have low, and even negative net flows due to their ageing member base.

## Investment framework for decumulation

As an example of a different approach to investment strategy for decumulation, consider the approach a life insurer might take. The insurer will need to consider three key elements:

1. The need to match the liability profile with appropriate assets;
2. A framework to construct an optimal investment portfolio, that might be informed by relative value; and
3. A consideration of risk, reflected in the shareholder capital it must hold as a buffer and the returns its shareholders expect it to generate on their capital whilst providing a competitive return to customers.

### Asset-liability matching: an effective method to reduce sequencing risk

A decumulation portfolio is characterised by its expected cash flow profile, and the potential variability of this profile. Sources of variability include life expectancy, inflation, potential early withdrawals and, for a fund, potential new business inflows.

An approach to address the uncertainties associated with managing a decumulation portfolio is to apply an ALM process. In many ways, matching the assets to cash flows is an extension of the investment approach in the accumulation phase. The portfolio manager can target the highest risk-adjusted returns over the specified horizons. This ensures certainty and more rigour in the investment process. It also addresses head on the concept of sequencing risk of returns. An ALM process allows the delivery of a cash flow profile that is immunised from the perils of market volatility; a risk that has been highlighted over the past few weeks.

A prudent ALM process aims to match these expected cash flows appropriately, taking into account their underlying variability. Using ALM to manage the decumulation process also makes it easier to manage other trade-offs. For example, the choice between income from investments versus the sell-down of capital to meet the liability (cash flows) becomes explicit and easier to manage. It also enables relative value to be assessed across investments that can meet the liabilities. Each retiree will have a liability stream for the cash flows that they will need in retirement. At the portfolio level, this won't be as precise. Some liabilities will be more than 20 years away from the start of retirement, and the best-matched investment could be a long-term investment but without a specific match to any liability.

At one extreme, the ALM process could match all cash flows with government bonds. This approach has the benefit of removing all investment risk and providing maximum liquidity to accommodate potential early withdrawals where applicable. However, this would also minimise potential returns to the ALM manager, and therefore also to the customer. Taking appropriately managed investment risks can produce higher expected returns on the investments.

The requirement for matching cash flows maintains a bias to fixed income assets. Other assets that produce long term predictable cash flows such as property, with long term leases to high grade institutions, and infrastructure make suitable investments, especially for longer term liabilities. Other investments can also be held for diversification purposes.

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A sample asset portfolio is shown in the top half of Figure 3, highlighting the matching of the cash flows from the assets to meet the expected liabilities. A buffer of additional liquidity is used to meet short-term needs if required.

**Figure 3: Example of ALM cash flow matched portfolio**

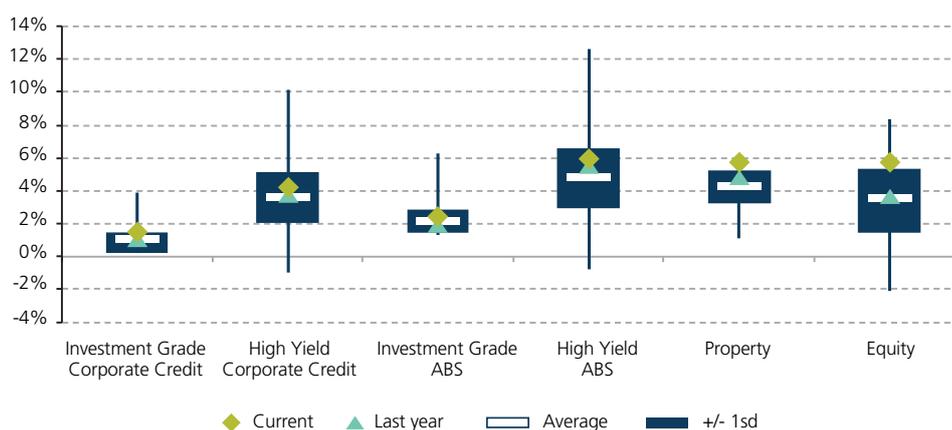


## Relative value

Many investors operate an ALM strategy as a “buy and hold” process and they seek to capture a risk premium over time. A consideration of relative value and current richness, or cheapness, can help in optimising the investment portfolio.

Figure 4 is an illustrative example of how an investor can estimate risk premia for each of the asset classes under consideration in the context of their historical variability.

**Figure 4: Asset risk premia**



Investing in assets with the highest relative value, while maintaining the cash flow matching, should provide the highest overall returns to the portfolio.

## Capital support

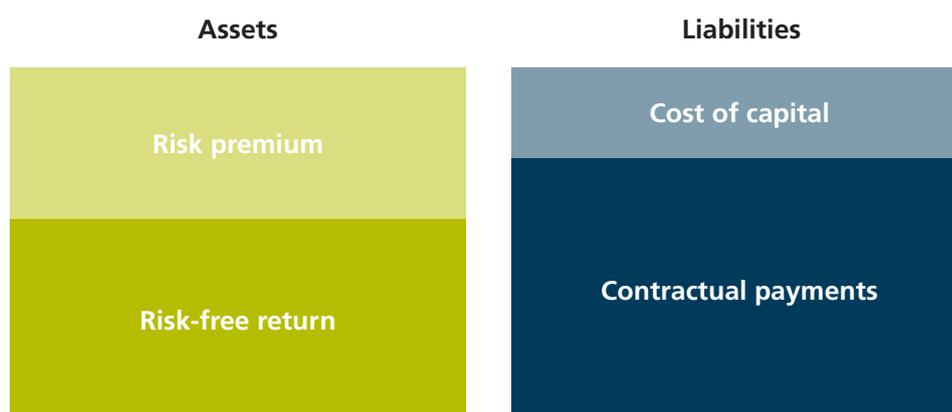
Taking the ALM concept one step further, we can consider how an insurer manages its investment portfolio. An insurer can protect the investor against market, sequencing and longevity risks through access to capital support. The insurer will seek to build an appropriately diversified ALM portfolio, and price for the risks it takes on to earn an appropriate return on capital.

In Australia, insurers are required to hold large risk-based capital reserves and to have detailed strategies to manage market sell-offs. The Internal Capital Adequacy Assessment Process (ICAAP) ensures that the insurer has plans in place to take appropriate actions to maintain appropriate capital levels under times of severe market stress. Actions the insurer might take, beyond absorbing losses with its capital buffers, include adjustments to asset allocation to reduce risk.

## Sharing the risk premium

In order for the life insurer to be successful, it must provide competitive returns to its customers. This can be achieved by adopting an appropriate investment strategy that will capture a risk premium that can be shared between customer and shareholder, as the below chart illustrates.

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## Decumulation phase: the need for an individualised member experience via digital enablement

During the accumulation phase, the differences at the member level with regards to salary, earnings potential and super balance have very little impact on the suitable investment strategy. This is because the goal is, as highlighted above, to maximise the investment return of the portfolio and therefore also the ending balance to fund retirement.

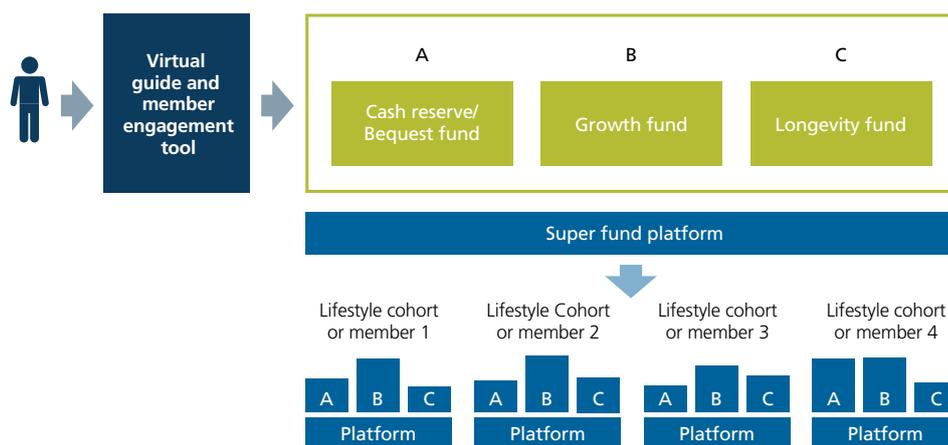
The retirement stage, on the other hand, is a totally different proposition. Now that members are at the point of capital consumption, all of those variables that played no part in differentiating the accumulation strategy, now play a major part in determining a suitable decumulation strategy. Specifically, home ownership, marital status, super balance and investment strategy will have a significant impact on defining an appropriate retirement strategy. The ability to take into consideration the variables at the member level is the next paradigm in institutional product design and delivery.

With advancement in digital technology and the ability to integrate and use member information, it is easy to imagine a seamless member experience at retirement (refer to the image below). It is highly conceivable that the next generation of retirement products will be a hybrid framework of highly scalable core building blocks. For example; cash fund, account-based pension growth fund, longevity hedged income fund; all digitally delivered through an individualised (or cohort-based) allocation framework.

This means that individualised outcomes can be implemented with fewer moving parts. This approach would seek to understand the member and construct a blend of best in class building blocks that are managed by a super fund and blended in such a way that suits the member. This way, the member could have the individualised retirement experience that addresses needs such as, 'rainy day' funds, the appropriate growth profile to allow for a long retirement, maximises the Age Pension, and a longevity hedged income allocation. This last component would provide a safety net so that each retiree has a bedrock of income to peace of mind in retirement.

## Individualised member experience

### Seamless outcome



## Summary

Managing a portfolio of decumulating capital is different from managing one that is accumulating wealth. The challenge of providing a series of regular cash flows makes the investment decisions more complex. Using an ALM framework can help a portfolio manager to ensure that they deliver all required cash flows and manage any sequencing risk in the investment portfolio. If the cash flows are guaranteed, sequencing and other market risks are removed completely from the portfolio. Once the cash flows are matched, a portfolio manager maintains the flexibility to target the highest risk-adjusted returns in a similar way to a wealth accumulation portfolio.

With advancement in digital technology and the ability to integrate and use member information, it is easy to imagine a seamless member experience at retirement. It is highly conceivable that the next generation of retirement products will be a hybrid framework of highly scalable core building blocks.

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