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Retirement is different: dollar cost averaging in reverse

'Dollar cost averaging' is widely used as a means of reducing risk for people accumulating their wealth through superannuation. By contributing an equal amount regularly, the purchase price of a market-linked investment is averaged down over time. The timing risk from buying an investment at the wrong time (ie when it is 'expensive') is thereby reduced. At first thought, it might seem that getting an average price on the way out (ie by regularly drawing down on the portfolio to meet cash flow needs in retirement) would also reduce risk. However, retirement is different and, as we will explain, making regular drawdowns actually increases the risk of your capital running out too soon.

Dollar cost averaging for investing

Dollar cost averaging is often used to lower the cost of accumulating savings

Dollar cost averaging enables investors to avoid the problem of trying to time the market with a single, lump sum investment. If the price happens to be high, then a particular contribution (like the 9 per cent superannuation guarantee) will buy a smaller number of units at that higher price. If prices are low, more units will be bought for the same level of contribution. Over time, the portfolio consists of more units bought at lower prices and less bought at higher prices, lowering the average dollar cost on a per unit basis. The risk of an investment loss is reduced because the investor buys fewer units at the top of the market. Instead, their investment is spread across a wide range of temporal entry points.

A simple example can illustrate the benefit. Take an investor who contributes $1,200 each quarter to their superannuation. If the purchase price of the investment is a constant $10, then at the end of the year, the investor would have 480 units at $10 (see the first section in Table 1). If the price is volatile, so that it is either $8 or $12, but still $10 'on average', the result to the investor is different.

Table 1 Dollar cost averaging example

	Constant price		Dollar Cost Averaging	
	Unit price	Units bought	Unit price	Units bought
March	$10	120	$12	100
June	$10	120	$8	150
September	$10	120	$12	100
December	$10	120	$8	150
Total units		**480**		**500**
Average unit price	**$10**		**$9.60**	

Investing a fixed amount means that more units are bought when prices are low resulting in a lower average price

When the price is higher, $12, only 100 units are bought each quarter, but when the price is lower at $8, 150 are bought. The net effect is that, by the end of the year, 500 units are held with an average unit price of only $9.60 (only spent $4,800). This is despite the fact that the market price is $10 across the year 'on average'. The lower average cost per unit purchased is the benefit of dollar cost averaging.

Adviser tip

Dollar cost averaging improves outcomes for investors in the accumulation phase by reducing the average cost of making regular investments of equal amounts in volatile markets.

By lowering the purchase price, dollar cost averaging also reduces the impact of market volatility. The more volatile the market, the greater the discount generated by dollar cost averaging. By generating a bigger discount, the size of any subsequent loss in value will be smaller and gains will be enhanced.

Dollar cost averaging in retirement

In retirement, regular drawdowns act as dollar cost averaging in reverse, with more units sold at lower prices

While averaging works on the way in, it doesn't work when a retired investor needs to draw on the portfolio to fund their retirement (ie to spend it). When prices are lower, they will be forced to sell more units of their investment to realise the amount they need. The net effect of this is a lower capital balance producing less income in the future. In the example in Table 1, an investor drawing $1,200 per quarter would have sold 150 units in the market dip to $8 as opposed to only 100 units when prices were at $12.

The risk of prematurely exhausting capital is bigger in the drawdown phase. If you get a sequence of positive investment returns at the start of your retirement, the need to sell fewer units at higher prices preserves capital and enhances its sustainability. Conversely, having a bad run at the start of retirement (ie falling market prices) can rapidly erode retirement savings because you need to sell more units of your invested capital at lower prices to generate the same level of cash flow. This is sometimes referred to as 'sequencing risk'.

If market returns are poor, capital will run down more quickly in retirement than if you are still contributing

The impact of dollar cost averaging is probably best demonstrated by considering the range of potential outcomes under three different scenarios:

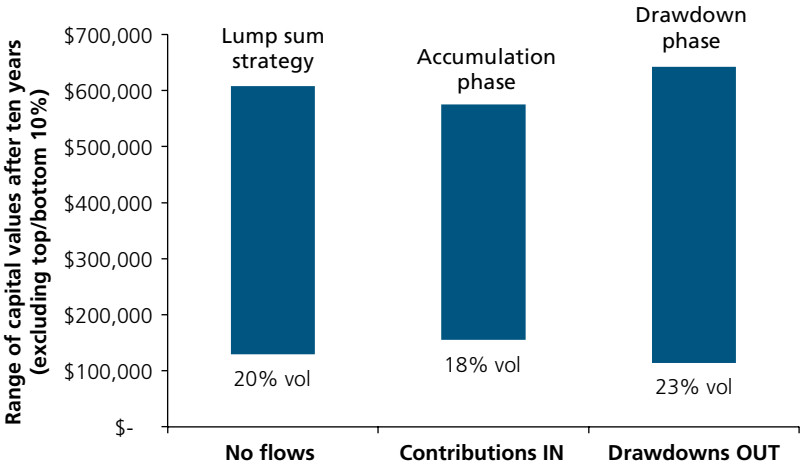
1. A lump sum investment strategy where there are no cash flows. This is typical 'text-book investing';
2. The accumulation phase where regular cash flows are added to the investment; and
3. The drawdown phase where regular cash flows are taken from the investment.

For each scenario, the range of potential outcomes has been generated by running 5,000 simulations of investments in a risky asset, such as shares. The investment is held for 10 years and the average return is 10 per cent per annum with a standard deviation of those returns of 20 per cent per annum. The range of results is shown by the bars in Figure 1.

The bars represent different percentiles with the coloured areas including 80 per cent of simulated capital balances after 10 years. The best 10 per cent and the worst 10 per cent are not included. The investments have been scaled across the scenarios so that the net present value of the initial capital and all cash flows are equal. As a result, the expected (i.e. average) capital balance after 10 years is the same across the

three scenarios. In this example, the payments (contributions and drawdowns) have been fixed at $5,000 per annum. In reality, both the inflows and outflows are likely to increase with wage and price inflation, but are not shown here. If the flows increase over time, the differences illustrated would get larger.

Figure 1 The range of remaining capital scenarios after dollar cost averaging



Assumes, 10% p.a. returns with 20% p.a. standard deviation; Flows in/out of $5,000 p.a. with initial capital amounts scaled to the same NPV in each scenario ($100,000 initial capital with contributions).

The range of potential outcomes in retirement is different from what happens when savings are being accumulated

The benefit of the dollar cost averaging in the accumulation phase is shown by the smaller range of remaining capital outcomes relative to investing $100,000 as a lump sum without any other cash flows. The risk of having a really low capital balance after 10 years has been reduced, as has the chance of getting the best possible outcome. For the drawdown period, the range is wider. The worst potential outcome here is actually worse than what would occur with the volatility of an equivalent lump sum without cash flows.

The numbers below the bars in Figure 1 indicate how the volatility varies across the scenarios. From a risk perspective, we can consider the differences by the bottom of the ranges. Over three years, without cash flows, you might experience a 17 per cent loss of capital. If you are regularly contributing, this would only feel like a 14 per cent loss, but if you were drawing down your savings, the same investment returns would have the impact of a 21 per cent loss of capital over those three years.

The order of returns is more important in retirement than the expected or average level of returns

The higher risk and wider range does not mean that the remaining capital will always be worse than what is expected. It does indicate, though, that more caution is warranted, for the same risk preference, when you are drawing down in retirement compared to when you are saving up for retirement.

Adviser tip

Drawdowns in retirement can lead to selling more units of an investment at lower prices which compounds the impact of market volatility.

Retirement is different: the order matters

An addendum to this analysis is the danger of thinking only about expected or average returns in retirement. In the accumulation phase, the sequence of returns does not matter as much as average returns as the investment has time to recover from adverse markets. The risk from a volatile sequence is reduced by dollar cost averaging. In retirement, when you are looking for regular cash flow, that involves consuming capital as well as income, the order of investment returns is critical. A more volatile sequence of returns will increase the chance of running out of money too early.

Reducing volatility in retirement

It is generally accepted that people's lower tolerance for risk and losses tends to decline as they get older. In this light, it is extremely unhelpful that moving from the accumulation phase to regularly drawing on retirement savings will increase the impact of volatility. In some cases, the asset volatility will be reduced, but the chance of a poor outcome to the investor will be just as much as what they had before retirement.

Adviser tip

Retirees need to reduce the asset risks in their investment portfolio for two reasons:

- Retirees tend to be more risk averse; and
- Drawdowns in retirement mean that the same asset volatility that helped build savings during the accumulation phase will involve a larger risk of the retiree's capital running out early.

Conclusion

Dollar cost averaging is beneficial in reducing volatility when accumulating wealth. When the time comes to spend the money to fund your retirement, the benefits are actually reversed. This is yet another aspect in which investing in retirement turns out to be different from accumulation. Risks from volatility in investment returns are compounded once regular drawdowns are imposed on the portfolio. Investors seeking to mitigate this risk might need to reduce the volatility of their portfolios by reducing exposure to risky assets to a greater extent than they expected.

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