

Ensuring that your money lasts

The biggest challenge facing retirees today is making sure that their money lasts. With most retirement schemes having switched from a defined benefit setup to defined contributions, pensioners are now left with the responsibility of managing their own retirement savings. This becomes a fine balancing act considering factors like beating inflation, capital growth, risk and sustainable withdrawal rates i.e. not depleting your retirement savings by drawing a large income.

A fortunate few will have a sufficiently large nest egg to achieve all of these investment goals comfortably without having to compromise. The rest of us have to ensure that we invest our money wisely in order to get the most out of our retirement savings. So, looking at the capital you have to invest at retirement and your monthly income needs, *how do you decide where to invest? What asset allocation will help you achieve your goals?*

If your initial income requirements are low, then you can afford to take on more risk in your portfolio at this early stage and potentially lock in some capital growth. As your income requirement increases, you can systematically reduce the amount of risk you take on in order to lower portfolio volatility.

If, however, your income requirement is reasonably onerous, determining the best investment strategy becomes more difficult. There are two schools of thought on the matter. The first suggests that an aggressively positioned portfolio is needed, because it is more likely to generate the high levels of returns required. An investment in equities for example, could have comfortably supported just about any level of income over the past three years, as a result of the bull market.

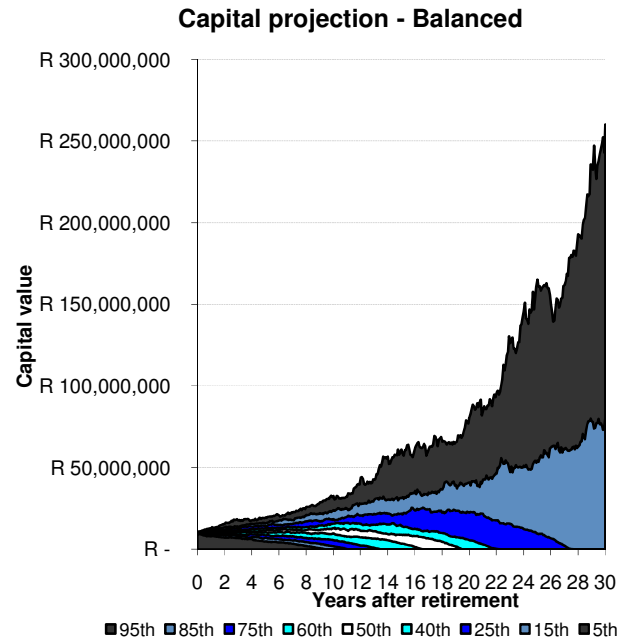
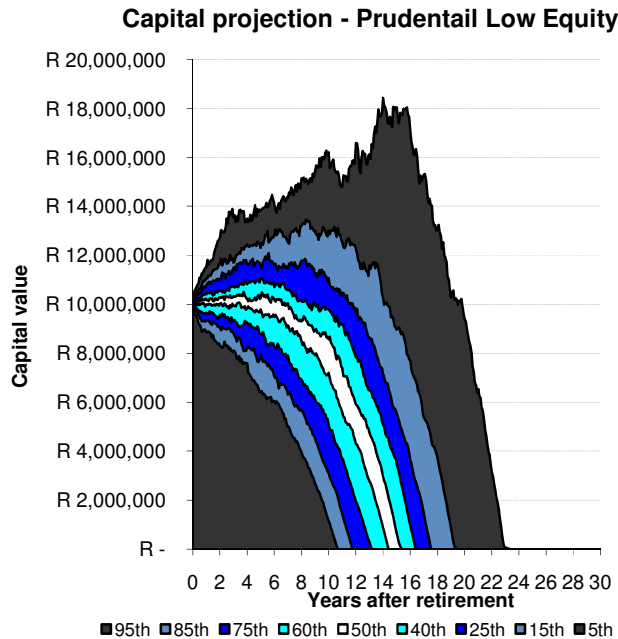
The second and more popular school of thought suggests a more cautious approach. Drawing a high level of income from a fluctuating portfolio can result in a big hole in your savings when the market is going through a negative period. Losses like these are extremely difficult to recover from and so this approach suggests that high income requirements should be met with low risk, high yielding investments i.e. predominantly cash and bonds.

Both arguments seem sensible. So what should you do? The answer lies in a complex model able to consider a range of future possible outcomes from different investment scenarios. From the outcomes, you can choose an option that will work for you and will not have extremely unpalatable consequences should things go wrong.

Consider the investment options of a pensioner with R10m to invest, requiring a 10% initial income per annum (R1m). He requires an income escalation of 6% pa, and expects to pay 1% of his assets in fees every year. With interest rates at 10%, this is a demanding income requirement. To best understand the pensioner's options, we have looked at the outputs of a model similar to the one described above – please refer to the appendix for more details on the model. We have considered a range of popular unit trust mandates, and what the implications are of an investment in each.

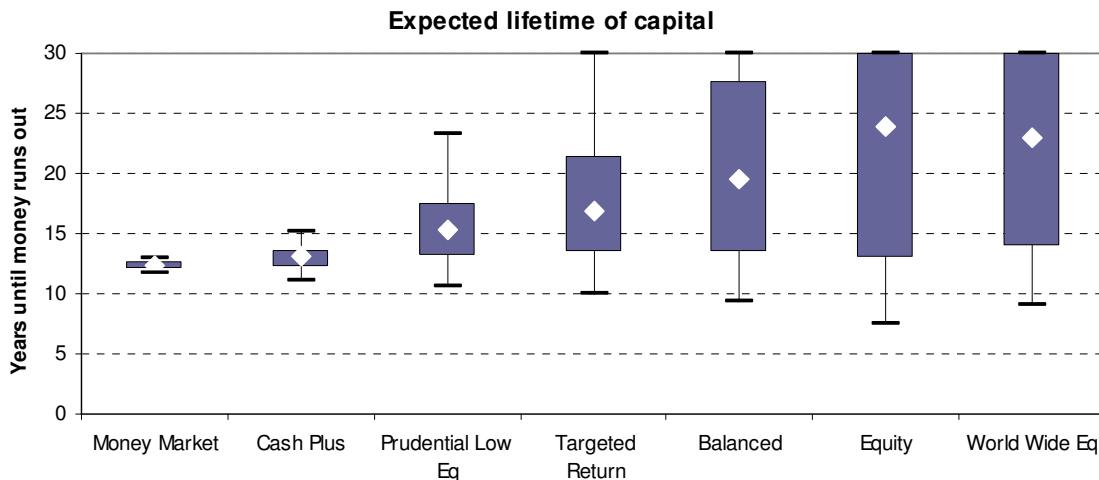
Mandate	Typical asset allocation					
	Local Equity	Local Bonds	Local Cash	Foreign Equity	Foreign Bonds	Foreign Cash
Money Market	0%	0%	100%	0%	0%	0%
Cash Plus	10%	30%	60%	0%	0%	0%
Prudential Low Eq	30%	25%	30%	5%	5%	5%
Targeted Return	45%	20%	20%	5%	5%	5%
Balanced	60%	15%	10%	10%	2.5%	2.5%
Equity	100%	0%	0%	0%	0%	0%
World Wide Eq	60%	0%	0%	40%	0%	0%

Based on the typical asset allocation shown above, and the asset classes' long-term performance history, the stochastic model projects what the likelihood is of having a given capital amount left at a fixed date after retirement. The charts below show the output for two unit trust mandates.



The colours represent the percentiles of possible outcomes. The projection of the Prudentail Low Equity investment shows that there is a 5% chance of the pensioner's money running out within 11 years, given the level of income he is taking. There is only a 5% chance of his money lasting longer than 23 years, and we expect his money to run out in 15 years. Had he chosen to invest in a balanced fund, his money would in most cases have lasted longer. Should things turn out very well there is even a chance of him having a higher capital value 30 years into retirement than at the outset. However, we also notice that, should things turn out very badly, his money could potentially run out in 10 years.

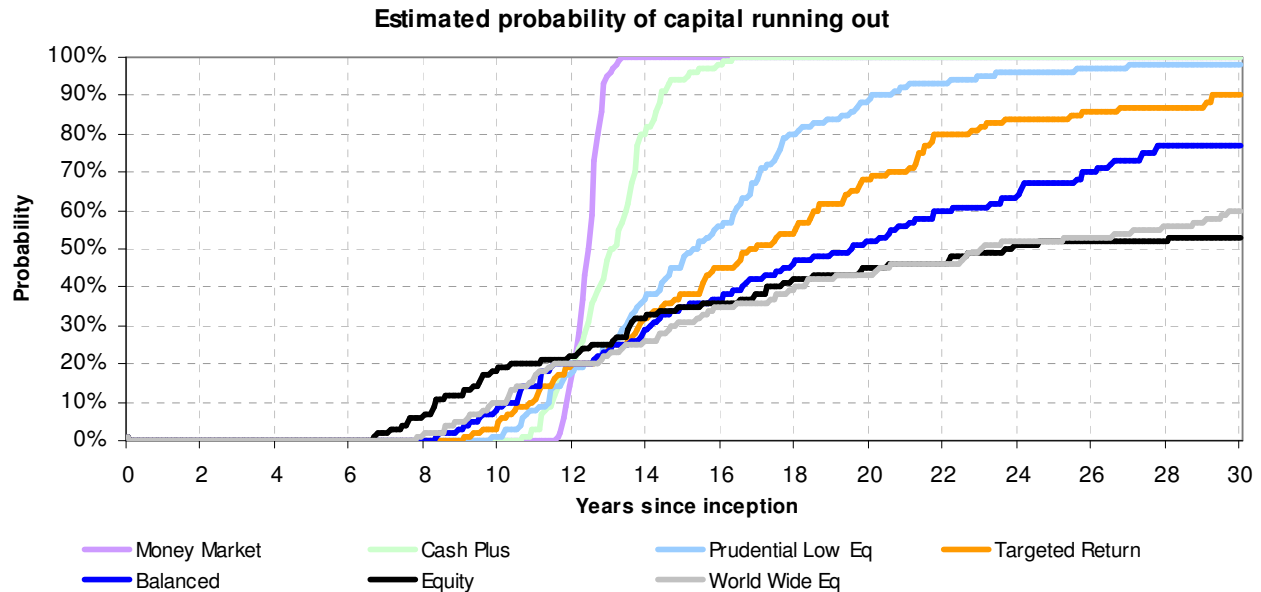
This suggests that the pensioner is perhaps better off by taking on more risk, but it is difficult to confidently make this conclusion at this stage. A clearer view can be formed by focussing explicitly on how long the pensioner's capital would last under different investment mandates. The graph below illustrates the results.



This type of chart, known as a "box and whisker plot", shows the distribution of possible outcomes for all the investment mandates considered. The top and bottom horizontal lines show the top and bottom 5th percentiles respectively, or the best and worst case scenarios. 50% of the values lie within the blue block, and the diamond represents the median.

The plot of the Prudential Low Equity mandate, for example, shows that the worst case scenario for this type of investment would see the capital running out in 10.5 years. The capital is also unlikely to last more than 23 years, and our best estimate suggests that the money will run out after 15 years.

The chart shows us that even though a money market investment has the most tolerable worst case scenario, it is still not significantly better than the riskier investment options. Whether your money lasts 10, 11 or 12 years after retirement, it is unlikely to suffice, as you will probably live longer. Most pensioners should be indifferent between these outcomes as they all lead to catastrophe. However, by opting for a medium to high risk investment strategy, you at least give your capital some chance of surviving your retired lifetime.



The above chart shows another approach to the problem. It examines the estimated probability of the pensioner's capital surviving to various dates in retirement for all the investment mandates considered. As expected, cash seems to be the best investment choice should the pensioner expect to live less than a decade into retirement. For a healthy pensioner expecting a long retired lifetime, riskier seems better, due to this demanding income requirement.

A particularly interesting feature of the chart is that all the lines cross over after 12 to 14 years. If a pensioner knew with certainty that he would only survive 12 years into retirement, he could safely invest all his money in cash. A pensioner that will live longer than 14 years into retirement (i.e. most pensioners) is no longer being rewarded for being conservative, and a pure equity investment appears (surprisingly) to be the best solution to his problem.

Conclusion

The output of the model appears counter-intuitive. It suggests that the prudent investment choice for this pensioner is to be fully invested in the local stock market. This will surely be contrary to the investment advice given by most intermediaries. The reason for this discrepancy is the pensioner's very demanding income requirement. He should ideally be advised to take a lower level of income if possible.

The bottom line is that intuition does not always serve as a good basis for giving investment advice. Often intermediaries base their advice on their perceptions of the risk inherent in various asset classes, combining this with the risk profile of the client. Although these factors should by no means be omitted during financial planning, they do not dynamically take into account the complexity of the problem. Even though models such as the one used here are imperfect, they surely serve as a better guide for giving advice on complex matters – such as sustainable withdrawal rates – than pure intuition does. With today's technology at our disposal, relying on intuition alone is no longer good enough.

“When you can measure what you are speaking about, and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind” – Lord Kelvin

Appendix – a closer look at the model

All of our projections were made with the help of a proprietary stochastic model. The model assumes that returns are normally distributed. The means and standard deviations used to model the outcomes were calculated by studying the performance of all asset classes since 1960. We also took into account how asset classes behaved relative to one another. Property and inflation linked bonds were omitted due to a lack of long-term performance history.

Over the next two weeks we will be discussing attractive investment themes with fund managers.