

Retirement Calculators

The flaw of averages

Financial calculators are letting us down

The current stock market gyrations highlight the volatility of investment returns. Yet hundreds of thousands of Australians predict their financial future relying on online financial calculators that treat market returns as if they were constant.

Most calculators and tools use long-term average investment returns as a constant compounding factor. That is, they assume that the long term average happens each and every year when we all know it does not. This is called a 'deterministic' approach. You key in a fixed investment return (say 6%) and that determines what you end up with. There are often warnings in the instructions or in a footnote that things might not go to plan, but that doesn't change the fact that these calculators sugar-coat what really happens.

For younger people with smaller super balances, using long term average investment returns is probably OK. Any impact from market gyrations will typically be more than offset by regular and much smoother contributions. Those closer to retirement, on the other hand, have larger balances and so the gyrations are not easily offset. Those approaching or in retirement are most affected.

Superannuation research house, Chant West, recently tested seven major super fund retirement calculators, including ASIC's MoneySmart superannuation calculator. Chant West assumed a 35-year old male earning \$60,000 a year with super of \$50,000, making only compulsory contributions, and tested what lump sums were projected at retirement age of 65. The results ranged from \$235,064 (ASIC) to \$376,809 (unknown super fund) which is more than 60% above the ASIC figure. Such a wide range would suggest that something is wrong; possibly funds using overly optimistic investment return assumptions.

But even ASIC doesn't get a perfect score on this issue. The MoneySmart superannuation calculator allows users to select a 'High Growth' investment option with a higher expected return of 6.6% per annum. MoneySmart warns about the uncertainty of the superannuation benefit the calculator predicts. Nonetheless, at the command of the user, the calculator delivers the higher 6.6% compound return year in and year out as if it were guaranteed (a disclaimer says it is not). In real life, an investor will not get an investment return of 6.6% every year and might never get exactly 6.6%.

Humans use averages as a way of simplifying the complex. We need rules of thumb, but few people have a thumb segment that is exactly one inch (25.4mm) long and using averages has its flaws. Consider the information that a creek has an average depth of 1 metre (but is 4 metres deep in the middle). Try wading through that!

The solution here is for retirement calculators to present an appropriate range of ultimate outcomes in a way that is meaningful to users. Statisticians and actuaries will talk about the 'stochastic' (probability-based) model behind the calculator and the 'standard deviation' of actual outcomes.

The standard deviation is a guide to how far above and below the expected return your actual investment returns should be most of the time. For a high growth investment option, you could expect a standard deviation of 8%. In other words, roughly two-thirds of actual investment returns for a High Growth investment option targeting 6.6% on average would be between minus 1.4% and plus 14.6% a year. That is a very different world from the one where it is always 6.6% a year.

The other problem is the false sense of comfort created by looking at annual average returns. The potential for your superannuation balance to be seriously affected by poor returns increases over time, but annual average returns make it look like this risk reduces over time.

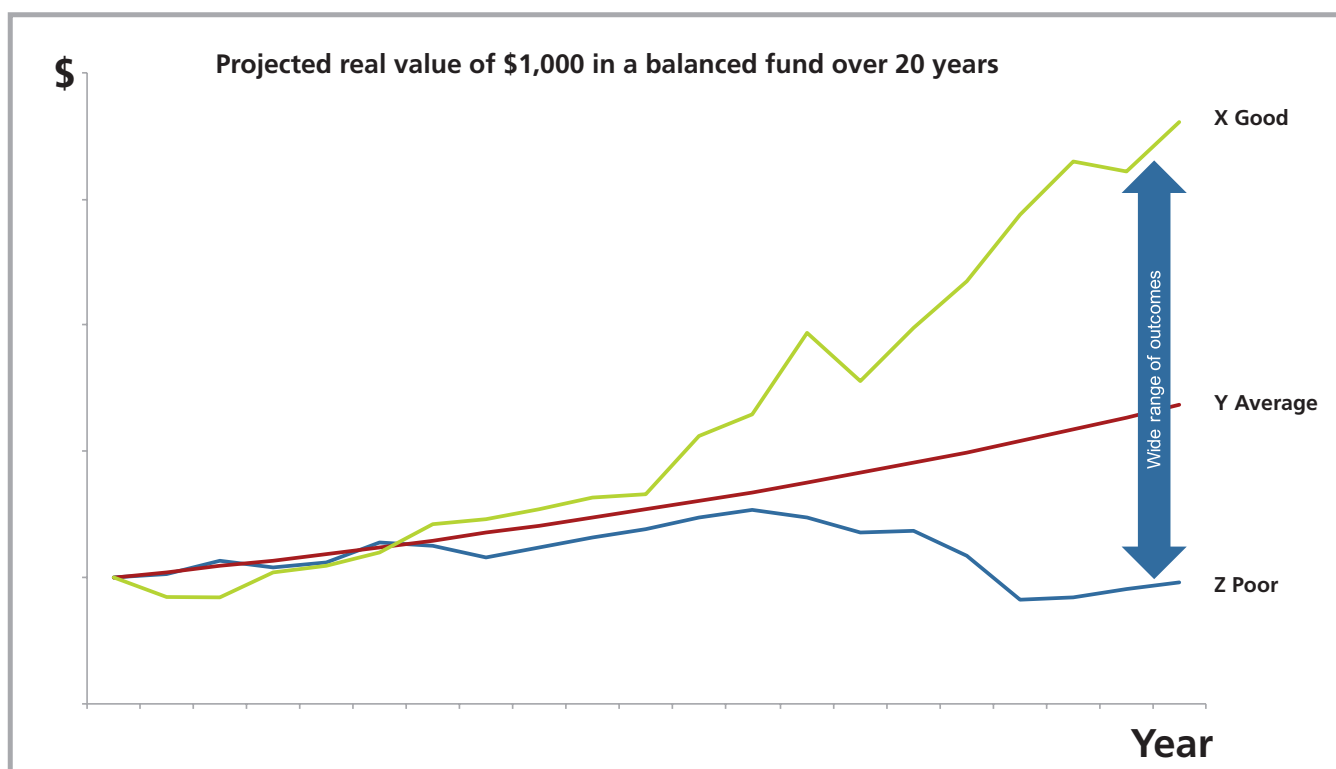
Now this might sound like complex financial gobbledygook and, if not presented in the right way to consumers, it certainly could be. All it really means is that calculators should present their conclusions in a way that illustrates the inherent uncertainty of investment outcomes and the probability of achieving a certain outcome or range of outcomes.

A calculator that only illustrates an average outcome has roughly the same margin of error or chance of success as tossing a coin (in other words, it has about a 50% probability of success). In roughly half the cases, a person will actually get less to retire with than what the calculator shows and in about half the cases they will get more. We have to be able to do better than this for people trying to engage with their retirement finances.

A big improvement could be achieved if calculators provided a simple range of probable outcomes. Consider a calculator that said: ...if you get mostly good returns, your retirement income will be X; mostly average returns: Y and mostly modest/poor returns: Z. Another way of presenting this information might be to say: in roughly two-thirds of cases, your retirement income will be in the range of X to Y a month.

An example of the first of these suggestions is illustrated below. These options really require comprehensive consumer testing to see which approach resonates most with consumers.

Example of calculator results that show a range of potential outcomes



ASIC does a lot of thorough consumer testing and could lead the way in transforming its popular MoneySmart calculators in this direction.

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