timeline

Will I run out of money?

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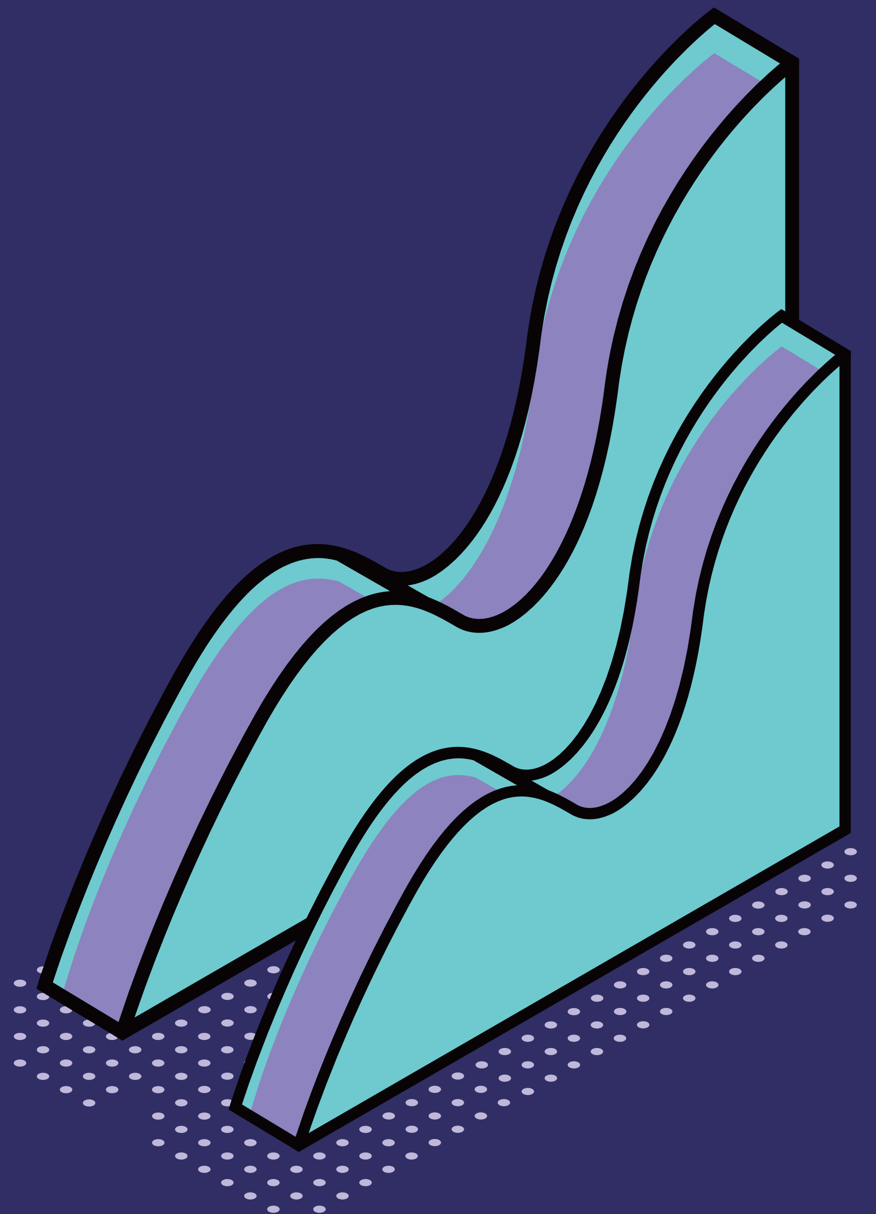


Reaching the summit

It was the crowning moment of his career. On the 14th of July 1865, British mountaineer Ed Whymper stood at the peak of the Matterhorn, the first climber ever to have scaled the treacherous Alpine mountain.

He wrote, **'At 1:40pm, the world was at our feet and the Matterhorn was conquered.'**

Whymper and his men celebrated at the summit before beginning their descent. Sadly, their joy was short-lived. Although elated at having earned themselves a place in the history books, they were also suffering from extreme fatigue.

As they clambered down, roped together, one of the men suddenly slipped. Within seconds, four of the climbers were sliding down a near-vertical slope. The rope tightened and suddenly snapped. Whymper and two of the party survived but their comrades perished.[1]

He would have been better advised to eschew victory celebrations and instead focus his mind on the descent. For mountains as high as the Matterhorn often prove deadlier on the way down than on the way up.

Any mountain guide worth their salt will tell you that the skills needed to reach the summit are quite different to those for getting back down. They'll help you understand the risks associated with both legs of the journey and do their best to help you avoid them.

Take the earth's highest mountain, Mount Everest. Reaching its 8,848m summit is an achievement of epic proportions. But we don't often hear about the fatalities. There are no official records, but it's believed that around 280 climbers have died on Everest compared to around 4,000 climbers who've reached the summit.

Research in the British Medical Journal[ii] shows that most climbers who die on Mount Everest do so above 8000m, usually during the descent from the summit. According to mountain climbing expert Stewart Green, most deaths occur while descending the upper slope, after they've reached the summit.

It's in the area above 8,000m called the 'Death Zone.' The high elevation and corresponding lack of oxygen, coupled with extreme temperatures, weather, and some dangerous icefalls, create a greater risk of death than on the ascent.

Reaching the summit of a mountain is an incredible achievement, but it's a halfway point. American mountaineer Ed Viesturs, who has climbed Mount Everest seven times, puts it rather succinctly: 'Getting to the summit is optional; getting down is mandatory.' The summit is also the point of maximum risk.

Thankfully, most climbers avoid the dangers thanks to the Sherpas they hire to help carry gear, install ropes, and break tracks.

The same is true for successful retirement planning. We believe that everyone benefits from having a retirement Sherpa - a financial planner who applies robust and empirical evidence to retirement income planning.

Retirement planning is akin to mountaineering in many ways. Accumulating your savings is the ascent and spending them is the descent. Financial planners are like mountain guides – financial Sherpas if you like.

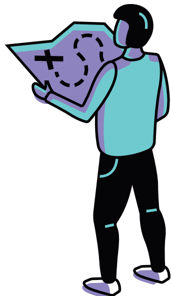
Congratulations on your retirement!

Now the real work begins...

If you've recently retired, or are just about to do so, congratulations! You've reached the peak of the mountain. You've worked very hard and saved carefully over the last few decades. However, it's only half the battle. Now, your challenge is to make sure that you don't run out of money.

Many factors contribute to a successful retirement; figuring out what you're going to do with your time, keeping physically and mentally active, and managing your financial resources in a way that helps you achieve what matters to you.

This guide is dedicated to the financial aspect – specifically, how to make sure your retirement portfolio lasts for as long as you need.

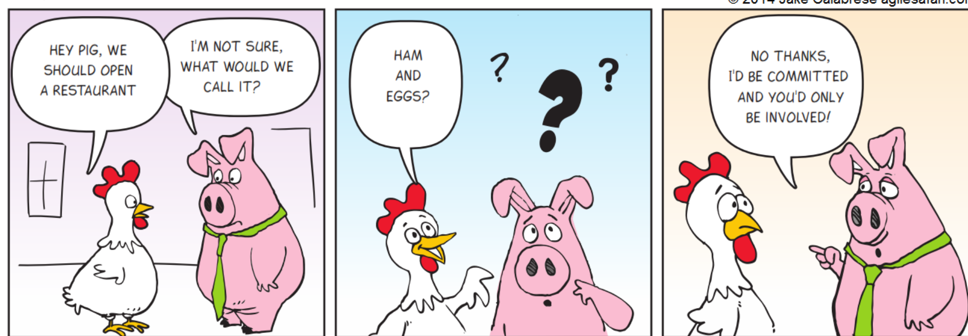


This guide probably isn't for you if you've decided to buy an annuity, or if your retirement income is mainly from defined benefit pensions. This gives you a guaranteed income for life.

However, if you're thinking about – or already – drawing income from a drawdown pot or any kind of investment, this guide is for you.

It'll help you understand the specific risks with this and how to make sure your money lasts a lifetime.

What are your key retirement risks?



This fable illustrates one of the key differences between the saving and spending phases of retirement planning.

The point is, in a breakfast of eggs and bacon, the pig has a lot more to lose than the chicken. Retirement is the stage when your pension pot transitions from a chicken into a pig. It becomes a lot more than just a number on a statement. You rely on it to pay your day-to-day bills, fund your lifestyle and enjoy your newly found freedom. When you're retired, you have more skin in the game, so to speak.

Sadly, when it comes to retirement income planning, many people continue to think like chickens, when they should think more like pigs! Here are some of the unique risks associated with retirement income planning. They sum up the differences between the saving and spending stages.

Diminished Earning Flexibility

Retirement happens at the tail end of your working life, long after earnings have peaked. Returning to work after retirement isn't a viable option for many. So, as we rely more on our financial assets, we want to take less risk with them.

Inflation Risk

A major challenge is how to prevent inflation – the thief that keeps on taking – from depleting the buying power of your income over what may be a 30-year retirement, or possibly longer. A yearly income of $1,000 in 1990 had the buying power of $490 by the end of 2019 – a reduction of over 50% over a 30-year period using the Consumer Price Index (CPI).

Decreasing Cognitive Abilities

As people get older, their ability to make a financial decision is impaired. It's estimated that financial capability declines at a rate of 1% to 2% each year from age 60.[iii] But, people still think they're just as capable as when they were younger. This is dubbed the overconfidence gap. It makes it challenging for people to manage a drawdown portfolio. It may even be challenging to give their advisor informed consent to manage it on their behalf.

Longevity risk and unknown time horizon

the fear of dying is high on the list of people's biggest fears. But actually, for retirees, the greatest fear should be of living too long! Indeed, research suggests that running out of money is a huge concern for many. Retirement income planning is particularly challenging because we're planning for a finite, but precisely unknown retirement period. Without the proverbial crystal ball, it's tricky to estimate how long we're likely to live.

Heightened sequence risk.

Poor returns early in retirement can cause untold damage to your prospects of a decent income for life. Sequence risk is often confused with volatility, a traditional measure of investment risk. But it's a distinct and visible risk – particularly at the retirement income stage. We know that capital markets deliver good returns over the long term. But you'll most likely need income from your portfolio monthly or yearly. More on this in a moment.

All these risks are uniquely associated with retirement income planning and we should approach them in a scientific way. It's all the more reason why it makes sense to work with a financial advisor to help you.

Playing all the right notes, but not in the right order!

The most significant risk to maintaining a lifetime income from your portfolio is known As sequence risk.

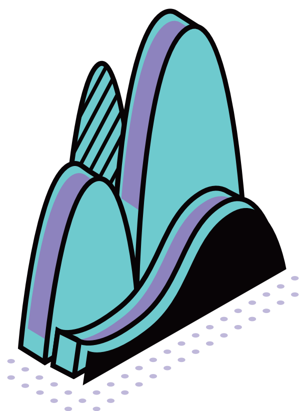
Sequence risk is the risk that the order of investment returns is going to be unfavorable.

Returns in the early period of your retirement have a disproportionate effect on the overall outcome, regardless of long-term returns over your entire retirement period. And it must be properly managed to avoid disaster.

This risk exists when you're saving too, but it's amplified when you take money out of your portfolio during retirement (also known as the spending stage).

Research shows that your investment return in the first ten years of retirement largely determines whether you're likely to run out of money over a typical 30-year period.

If you get good returns in the early part of retirement, you're unlikely to run out of money. If you get poor or even mediocre returns in the early part of retirement, you may have a problem.



It ain't volatility, stupid!

It is important to understand that sequence risk is NOT the same as portfolio volatility. The two are often confused, even by financial professionals. Volatility is the day-to-day movement in your portfolio. It's measured using standard deviation – the amount your portfolio return deviates from the average over any given time period. Sequence risk on the other hand relates to the order of portfolio returns.

Sequence risk is the number one investment risk to manage in your retirement. Not volatility.

Many people try to avoid investment volatility when they're taking income from their portfolio. But, controlling volatility doesn't necessarily control sequence risk. This is because sequence risk is exacerbated by withdrawals from a portfolio, not by volatility.

The easiest way to think of sequence risk is to think of the words of the legendary Eric Morecambe, 'I'm playing all the right notes, but not necessarily in the right order.'

Solving the 'Nastiest, Hardest Problem in Finance'

The key question you need to confront is, 'how much can I withdraw from my portfolio to avoid the risk of running out?'

Don't be fooled by retirement calculators.

Don't be tempted to confront this question by using one of the commonly available retirement calculators though. These are mostly based on cashflow projections. Expert Dr. William Bernstein calls any tool like this a 'retirement calculator from hell'. He notes that 'these calculators all make the same erroneous assumption – that your expected rate of return is the same each and every year.' The real world doesn't work that way.

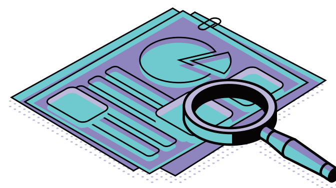
Using historical data is the gold standard.

Thankfully, there's an extensive body of research by academics and practitioners alike to help solve this problem. This research began in 1994 when Bill Bengen, an aeronautical engineer turned financial advisor, proposed using extensive historical data to explore how well a withdrawal approach might fare under a wide range of market conditions.

Bengen's idea is very simple; consider how your withdrawal would have fared in good times and bad times. Then, choose a conservative approach that survived most or all situations over the last 100 years or so. You'll still have to adjust along the way, but you can be confident that market conditions would have to be worse than any we've seen in the past to be a problem.

Bill Bengen established this key framework to manage sequence risk back in 1994. He developed a Sustainable Withdrawal Rate (SWR). This rate is a percentage of the initial portfolio balance. Ongoing withdrawal amounts are then adjusted for inflation. This SWR was capable of surviving any 30-year period in the last 100 years.

Using US historical data, Bengen established what is now known as the 4% rule. In other words, an initial withdrawal of $40,000 from a $1,000,000 portfolio invested in 50% US Equities and 50% US Intermediate Bond would have lasted 30 years, in the very worst-case scenarios.



The 4% rule in practice.

The most important point to remember is the withdrawal percentage is based only on the portfolio value in the first year of retirement.

So, for instance, a withdrawal rate of 4% from a $1,000,000 portfolio gives an income of $40,000 in the first year.

This $40,000 a year then increases or decreases in line with inflation each year, regardless of the ongoing portfolio value.

Bengen’s focus on the worst-case scenarios is important.

It creates a high level of confidence that a plan will succeed. Of course, no one really knows what the future holds, but it’s reasonable to suggest that a withdrawal plan that survived The Great Depression, WWI, WW2, and many other severe market conditions, is likely to be successful.

However, we shouldn’t necessarily consider just the absolute historical worst-case scenario for a sustainable withdrawal strategy. We can also bring in the concept of probability of success (also known as success rate).

The success rate gives us the percentage of time that a given withdrawal approach has lasted the full retirement period. Defining one’s retirement strategy in terms of probability of success or failure may seem odd at first. But it just acknowledges that there’s always a risk associated with any retirement plan. There are no absolute guarantees here!

The concept of probability is used in many other fields, including medicine – particularly surgery, where lives may be at risk. Compare this with retirement, where one’s money (and lifestyle) are at risk. Arguably, if it’s good enough for medicine, it’s good enough for retirement planning.

The success rate is basically telling us the chances of our plan staying on track or needing an adjustment at some point down the line. Given that we’ll be re-assessing our plan on an ongoing basis - and making course corrections along the way - success rate should really be called ‘likelihood of staying on track’. But that’s a bit of a mouthful.

The opposite of success rate should be called ‘probability of a course correction’! This is vital because retirement planning is an ongoing process. We’re going to make course corrections along the way.

A 90% Success Rate means that our plan would be on track in 90 out of every 100 market conditions. And we would need to make a significant adjustment to our plan in 10 out of every 100 market conditions.

A crude way to think of this is by supposing we’re planning for a 30-year retirement. A success rate of 50% means that in 15 of those 30 yearly reviews, we’ll be spending lots of time fire-fighting. We may need to reduce the withdrawal, change the asset allocation or make any number of changes to our plans to make sure we stay on track. The odds are stacked against us from the start! Whereas a success rate of 90% means that we’ll need to make a course correction in only three of those 30 years.

Clearly, the higher the success rate, the better. High success rate means that, given what we know about the nature of investment and inflation over the last 100 years or so, the odds are stacked in our favor. We expect our plan to remain on track in the vast majority of scenarios. The opposite is true for a low success rate.

Many experts believe that working to an overall probability of success of 80%-90% is reasonable in retirement income planning. This means that there’s a 10%-20% chance you’ll have to make an unplanned adjustment to your withdrawal plan if you experience poor returns early in retirement.

“I know of no way of judging the future but by the past”
Patrick Henry

What does this mean for me?

While Bengen's idea is very useful, it's important to stress that the 4% rule itself does NOT apply to everyone for the following reasons:

- Your portfolio is likely to be different to the one Bengen used in his research. The mix between equity, bonds and other asset classes makes a difference to the sustainability of the withdrawal
- You may have longer or shorter timescales than the 30 years used in Bengen's research
- You have to account for the investment fees and taxes you'll pay
- Typical spending in retirement isn't static in real terms

So, don't rely blindly on the 4% rule! Everyone needs their own personalized sustainable withdrawal strategy.

This is why forward-thinking financial planning uses cutting-edge technology like Timelineapp to create a personalized withdrawal strategy for their clients.

Rule-based withdrawal strategies

Since Bengen's original work, other researchers have added to the body of knowledge and developed other sustainable withdrawal strategies.

These are called rule-based strategies; they have a higher withdrawal rate but use safeguards (rules) to stop you from running out of money. Typically, these rules involve adjusting their spending gradually downwards if they face poor returns early in retirement. Some of the more popular strategies include:

Cap & Collar

Under this approach, you set an upper (cap) and lower (collar) inflation limit. You adjust your withdrawals each year for inflation on this basis

Guyton Inflation Adjustment

This approach recommends adjusting your withdrawals for inflation each year, except after a negative portfolio return

Guardrails

You can reduce or increase what you spend based on a pre-defined percentage of your initial withdrawal rate

As you can see, these rules can be complex to define and understand! Each of these has its pros and cons. A good financial advisor can help you work out the best approach for you and will use cutting-edge software to model how these strategies might fare under a wide range of market conditions.

Managing longevity risk

A major challenge to working out whether you'll run out of money is understanding how long you'll live (longevity).

In retirement planning, it's best to think of it in terms of survival probability. This gives us an idea of the chances you'll live to a certain age.

According to the Social Security data, there's a 7% chance a 65-year-old male will celebrate their 95th birthday, and that rises to 15% for a female of the same age. For a couple of the same age, the probability that at any one of them will live to age 95 is a whopping 27%!

Ideally, a withdrawal plan should go right through to the tail end, where an individual or a couple only has a 10- 20% probability of surviving.

The goal isn't to precisely predict how long you may live. The goal is to address the risk that you outlive your wealth.

Crafting a sustainable withdrawl strategy

A sustainable withdrawal strategy is your plan for NOT running out of money in retirement. This plan is unique to each individual or couple. There's no one-size-fits-all solution when it comes to spending your nest egg.

Managing withdrawals is a delicate balancing act, thanks to the complex and nuanced nature of mitigating sequence and longevity risk. There's a myriad of decisions to make, including:

Your Withdrawal Strategy

This should include the level of income you want to draw from the portfolio, one-off lump sum withdrawals over and above normal income needs, and what adjustments you're prepared to make during poor market conditions

Your Longevity

This is an estimate of how long you're likely to live. This will depend on several factors including your age, health, and marital status

Your investment strategy

This should include asset allocation, rebalancing, what proportion of portfolio (if any) to hold as a cash buffer, what order you'll sell from asset classes, and tax wrappers

Your Fees and Taxes

These include investment and advisory fees, relevant income, and capital gains taxes. To misquote Benjamin Franklin, in the investment world, nothing can be said to be certain - except fees and taxes

Any legacy you want to leave

These are just some of the things to consider and you'd be forgiven for wondering where to start!

Traditional straight-line cashflow projections are incapable of accounting for these complex factors accurately.

Thankfully, your advisor can use cutting-edge technology like Timelineapp to apply extensive data to create a strategy that takes account of all these factors and much more. They can present the results to you in a simple and elegant way that will help you understand how these decisions could impact you and your family.

The withdrawl policy statement

The complexity of the decisions means that many people – and financial advisors – find it useful to agree upon and document how they'll make these decisions through retirement. This is known as a withdrawal policy statement (WPS). It's a set of guiding principles around how to manage retirement portfolio withdrawals in line with your income objectives.

Financial planner Jonathan Guyton, one of the early proponents of the WPS, notes that, 'a withdrawal policy statement specifies the goals, policies, and parameters that the client and advisor agree to adopt to guide future decision-making regarding the use of the client's financial capital to help fund their lifestyle during their retirement years.'

The policy should be broad enough to encompass unexpected events as they happen, and specific enough so your advisor is rarely in doubt about the action to take when things change.

Of course, it's possible to implement a withdrawal strategy without a WPS. But because many of the strategies can have a direct impact on your lifestyle, having something you've agreed upon up-front with your advisor can make the process easier to manage.

It's impossible for anyone – including a financial advisor – to anticipate every possible market condition. However, a WPS provides an anchor point for you both when things are changing rapidly.

Here are the essential components of a good withdrawal policy statement:

- Goal(s) including the income and legacy requirements, as well as the assets to which the WPS applies
- The withdrawal strategy, including how to decide the withdrawal amount in subsequent years, as well as the triggers and size of adjustments
- A way to assess if the plan is working; this includes probability of success and how the plan meets your income and legacy requirements

To bring this all to life, here are two case studies that show how a financial advisor can help clients make sure they don't run out of money.

In these scenarios, the advisor has used technology to model different scenarios with their client and they have a good WPS in place.

Case study:
Janet Sample

After 30 years in the music industry, Janet Sample is looking forward to a slower pace of life, doing some traveling and spending more time with her grandchildren. At 65 and with the house paid off, Janet has managed to build up a nest egg of $1m in her IRA.

She'd like an income of $60,000 pa after tax, including her Social Security of $25,000 a year, but this doesn't kick in until she turns 66. Janet would like to leave a legacy to her son and grandchildren, as well as a mental health charity that supported her when things were particularly rough in her early career. She'd ideally like her home, currently valued at $550k, to go to her family. She'll leave a legacy of $100,000 to the charity.

Janet is an experienced investor and has always taken the sensible approach of spreading her portfolios equally between US equities and bonds. She expects this to continue.Janet is an experienced investor and has always spread her portfolio equally between global equities and bonds, which she expects to continue to do.

The outcome: Before an advisor's recommendations.

The financial advisor's analysis shows that, based on Janet's withdrawal intentions, her current portfolio only has a success rate of 63% - meaning that she'd need to make significant adjustments to her plan in 34 out of every 100 scenarios or she risks running out of money.

While these aren't particularly terrible odds, her advisor is concerned that in the event of poor sequence of return, the portfolio will likely run out at age 87. And of course, in that scenario, she won't be able to meet her wishes to leave a legacy to her favorite charity.

After detailed analysis, her financial advisor proposed a number of changes to improve the situation:

- Janet's withdrawals are to increase in line with inflation less 1%. This means that her income will rise, but at a slower pace than inflation. There is extensive research to suggest the people tend to spend progressively less as they get older.
- A portfolio mix with 60% allocation to equities, including some exposure to international equities, instead of the current allocation of 50% exclusively to US. The rest is allocated to intermediate Treasuries and US Government bonds with a small portion held in International bonds.

This plan significantly increases the probability of success for meeting Janet's income goal to 90%. This means that, with small adjustments along the way, Janet's portfolio will last until she's 94 - even taking into account some of the severe market conditions.

And of equal importance, she'll also be able to meet her goal of leaving a legacy to her favorite charity, even in some of the worst scenarios. some of the severe market conditions. And of equal importance, she'll also be able to meet her goal of leaving a legacy to her favorite charity, even in some of the worst scenarios.

Case study:
Jake & Jo Miggins

The Miggins have just sold their business and their home in Chicago. They've both recently turned 63, and have decided to retire to Florida.

After buying a new retirement home, they expect to have $2m left in their retirement accounts. They expect to draw $120k net income, including their Social Security of $20,000 each year, which they expect to file at age 66.

The Miggins are comfortable with equity risk and are prepared to hold as much as 70% of their portfolio in equities and the rest in bonds. The Miggins recognise that flexibility with their income is the price they'll have to pay for the high level of withdrawals they want to make.

Accordingly, they're quite happy to accept some adjustment to their portfolio withdrawals, if market condition dictates. They're not particularly keen on leaving wealth to their relatives; they've spent much of their lives supporting their children, so now it's time to enjoy their own lives.

The outcome: Before an advisor's recommendations.

Based on their current intention, analysis of the Miggins's current circumstances shows a 49% probability of success. This means that the Miggins will likely run out of money in 51% of every 100 scenarios unless they make drastic adjustments to the plan. In particular, given that the longer living member of the couple is likely to live well into their 90s, the analysis reveals that their portfolio will only last till Jake's 80th birthday in the event of severe market conditions.

After detailed analysis, their financial advisor suggested significant changes to their withdrawal plan:

An income of $120,000 after tax isn't sustainable unless the Miggins agree to some modifications. The Miggins will be able start with an initial income of $120,000 pa after tax and fees as long as they accept they'll have to make some changes to their spending if market conditions demand it.

These changes will be guided by the following rules and their withdrawal will be adjusted as follows:

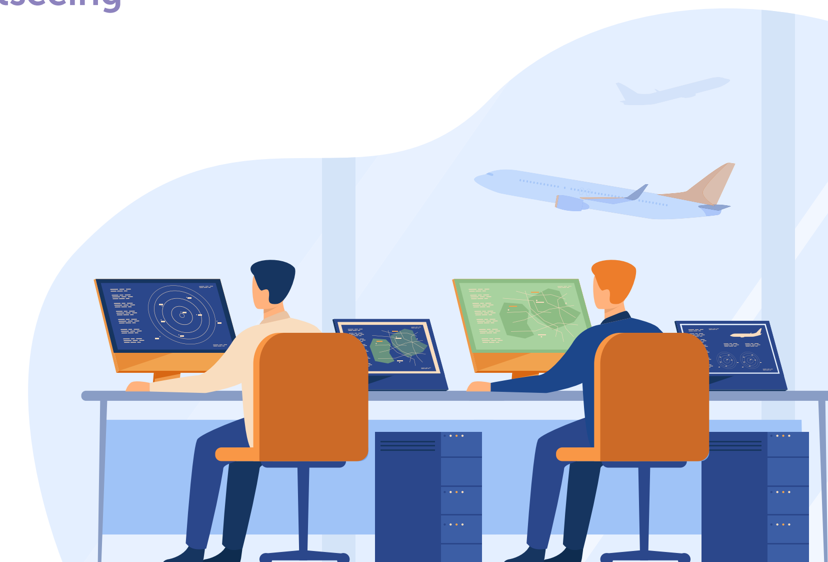
- If their withdrawal rate goes above 7% within the first 15 years of retirement, they reduce their spending by 5%.
- If their withdrawal rate drops below 3% within the first 15 years of retirement, they can increase their
- spending rate by 10%
- • Their total net income in any one year will not fall below $90,000, in today's terms. The Miggins had
- indicated that they'd need this amount to at least get by.Their total net income in any one year will not fall below $30,000, in today's terms.

The implication here is that, the Miggins should be prepared to adjust their withdrawal downwards, if market conditions turn out to be unfavorable, subject to a minimum of $90,000 net of taxes. Equally, if market conditions turn out to be favorable, they'd be able to increase their income and will likely spend more than their desired $120,000.

This plan significantly reduces their risk of running out of money. The analysis shows that even under severe market conditions, the risk of running out of money before Mrs. Miggins's 98th birthday is minimal. Based on their current age, the odds that any one of them will live to age 98 is only 1 in 10.

The Power of one-degree correction

In 1979 a passenger jet with 257 people on board left New Zealand for a sightseeing flight to antarctica and back...



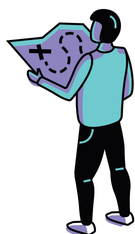
Unknown to the pilots, someone had modified the flight coordinates by a mere two degrees. This error placed the aircraft 28 miles (45km) to the east of where the pilots assumed they were. As they approached Antarctica, the pilots descended to a lower altitude to give passengers a better look at the landscape.

Although both were experienced pilots, neither had made this particular flight before, and they had no way of knowing that the incorrect coordinates had placed them directly in the path of Mount Erebus, an active volcano that rises from the frozen landscape to a height of more than 12,000 feet (3,700 m).

As the pilots flew onward, the white of the snow and ice covering the volcano blended with the white of the clouds above, making it appear as though they were flying over flat ground. By the time the instruments sounded the warning that the ground was rising fast towards them, it was too late. The airplane crashed into the side of the volcano, killing everyone on board.

It was a tragedy caused by a minor error – a matter of only a few degrees.

Experts in air navigation have a rule of thumb known as the one-in-60 rule. It states that for every one degree a plane veers off its course, you'll miss your target by one mile for every 60 miles you fly. And more importantly, the further you travel, the further you are from your destination. If you veer off course by one degree, flying around the equator will land you almost 500 miles off target!



Navigating an effective withdrawal strategy.

The point here is that managing a withdrawal strategy in drawdown isn't a set-and-forget approach. The flexible withdrawal strategies illustrate exactly this point, despite what some people incorrectly believe.

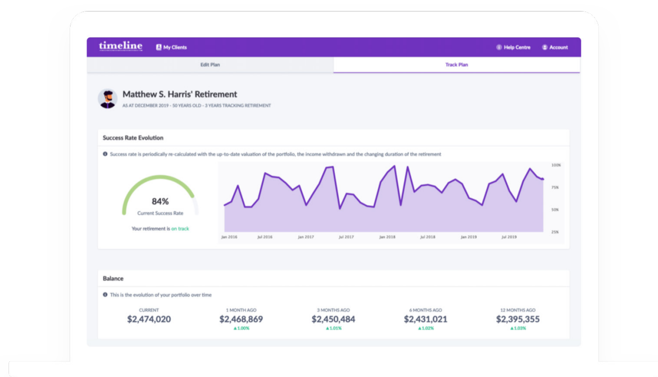
To enjoy a fulfilling retirement, confident that you won't run out of money, it's crucial to review your plan regularly with your financial advisor and make course corrections where necessary.

Keeping your retirement plan on track

Creating a strategy is one thing, monitoring and keeping it on track is another. To borrow the words from former President Dwight Eisenhower, 'plans are worthless, but planning is everything'.

Traditional retirement plans have a fundamental flaw – they are out of date the minute you create them. These static plans have to be updated manually, perhaps on an annual basis or even less often. This is very time consuming and doesn't reflect the reality of ever-changing market conditions.

Timelineapp Livetrack automatically tracks and monitors your retirement plan on a weekly basis and provides actionable alerts to your advisor. This ongoing reassessment is completely automated, saving you and your advisor time, and is one of the many things that makes Timelineapp valuable.



Meet our dynamic co-pilot

Livetrack reassess your retirement plan on a weekly basis to reflect latest market conditions and ensures the plan stays on track. If changes in market conditions affect your plan meaningfully, your advisor will be the first to know because Timelineapp will alert them. They can then review the plan, consider any changes that might be required, and discuss this with you.

Put it this way: Timelineapp's Livetrack is your advisor's co-pilot for your retirement journey!

References

i. Based on the account of Giles Milton (2016): When Churchill Slaughtered Sheep and Stalin Robbed a Bank: History's Unknown Chapters

ii. Firth P G et all (2008) Mortality on Mount Everest, 1921-2006: BMJ 2008; 337 doi: http:// dx.doi.org/10.1136/bmj.a2654 (Published 11 December 2008) :BMJ 2008;337:a2654

iii. Finke M, Howe J and Huston S (2011) Old Age and the Decline in Financial Literacy, Social Science Research Network, Available at SSRN: http://ssrn.com/abstract=1948627

iv. 'Tackling the 'Nastiest, Hardest Problem in Finance' By Barry Ritholtz June 2017, https:// www.bloomberg.com/opinion/articles/2017-06-05/ tackling-the-nastiest-hardest-problem- in-finance

v. The Retirement Calculator from Hell http://www.efficientfrontier.com/ef/998/hell.htm

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