

Retirement Planning in the UK

A comprehensive update on the safe withdrawal rate

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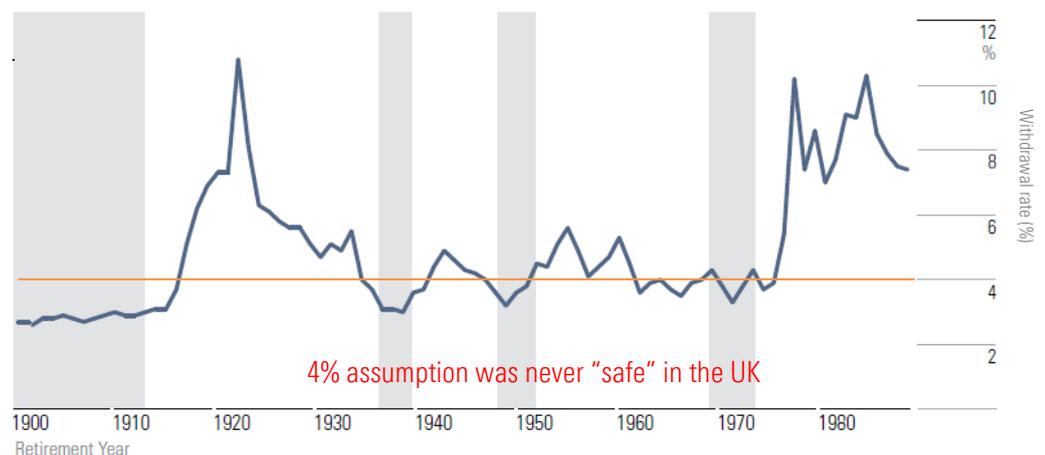
As investors become responsible for providing for their own retirement, the key question they need to answer is: will my money run out?

Self-funding one's retirement is a daunting task. Knowing how much to save, and more importantly, how much to draw, is a complex topic with many unknowns. Yet, with a challenging investment landscape and changing regulations, the "safe withdrawal rate" could be the single most important decision a retiree will make.

In prior research, Morningstar has explored the validity of the so-called "4% rule" in the UK¹ and found that it is likely to be grossly misleading. In this paper, we go a step further, by exploring; a) why the safe withdrawal rate is lower than many are led to believe, b) the impact that strong historical returns have had on safe withdrawal rates, c) the importance of keeping fees low, d) the quantifiable benefits of delaying retirement, and e) whether a flexible withdrawal strategy is better suited to drawdown solutions.

Central to this are two key insights. First, we find that managing a pension is a very personal experience – the ideal withdrawal strategy really depends on what an investor wants to achieve and their tolerance to risk. Second, we find that there are useful strategies that can help enhance the safe withdrawal rate, although many of them require some form of sacrifice.

Exhibit 1 The safe withdrawal rate of a typical UK portfolio is below 4% for extensive periods throughout history. We have therefore found it to be an unreliable indicator of success in the UK.



Source: Morningstar.

¹ The 4% rule refers to research by Bengen (1994), among others, which suggested an initial safe withdrawal rate from a portfolio is 4% of the assets, where the initial withdrawal amount would subsequently be increased annually by inflation and assumed to last for 30 years. Yet, in our 2016 paper labelled "Safe Withdrawal Rates for Retirees in the United Kingdom", we found this to be an unreliable metric.

Understanding what the Safe Withdrawal Rate is Designed to Tell Us

Safe withdrawal research is designed to help investors understand how much income they can safely draw from their accumulated pool of wealth. In this sense, it is a useful number as it helps create a target (for example, a 4% rule implies that one needs 25x their desired income need) and then helps in drawdown (by stopping a retiree from overdrawing from their pension).

However, its calculation requires careful assumptions to be made. For instance, the first point to consider is the way in which one withdraws capital from their account. Under a set and forget arrangement, such as annuity products in the UK, this can generally consist of the initial percentage withdrawn from the balance (such as 3% over the first 12 months) which is then linked to inflation and maintains its purchasing power throughout retirement. This is typically referred to as a static approach and is what most of the original “safe withdrawal research” is based on.

The alternative, which we begin to address later in this paper, is to adopt a dynamic or flexible withdrawal strategy. This can take many paths, but is generally considered to be linked to the account balance available at a given time (for example, 4% of the balance on any given year). This research is still in its infancy – especially in the UK – yet could allow for a retiree to achieve a greater withdrawal rate and is more likely to reflect the way that individuals or couples deal with drawdown pensions.

Static Withdrawal Rates

Beginning with the standardised view of the safe withdrawal rate, we know that the drawdown figure is sensitive to a number of forward-looking factors, the most important of which are: life expectancy, market conditions, ongoing fees and social support.

All of these inputs carry unique characteristics and are subject to change, so any attempt to understand the safe withdrawal rate requires forward-looking assumptions for each variable.

For instance, much of the prior research on this topic (including the analysis in Exhibit 1) has assumed some form of hindsight bias. However, we live in a dynamic system and thus, some of these assumptions from the past are very likely to be wrong in the future. For this reason, the below is intended to create a framework that acknowledges longer life expectancies, lower bond yields, reducing fees and higher valuations than would otherwise be considered “normal”.

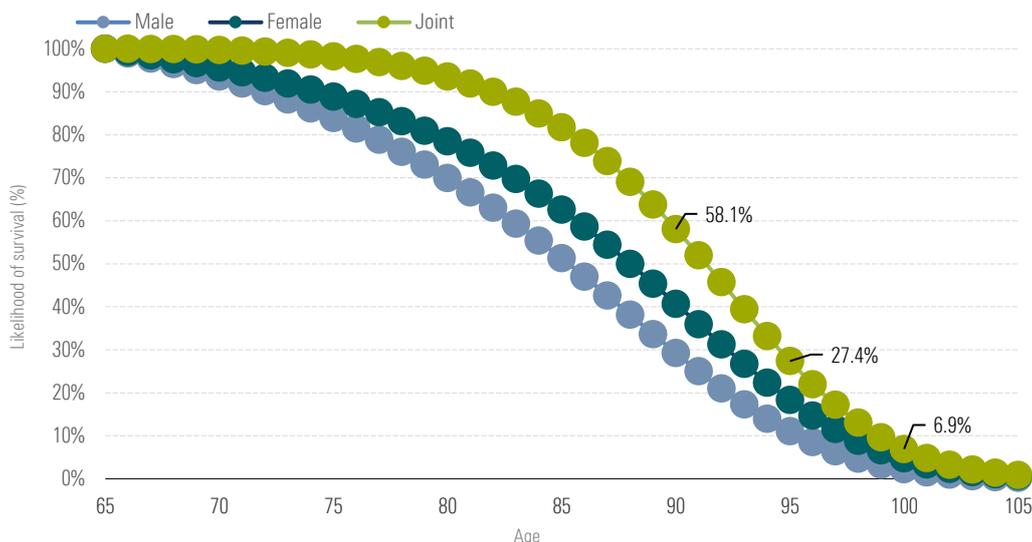
- ▶ Understanding life expectancy
Life expectancy is generally considered to be increasing in the UK and is expected to continue doing so.² While the current life expectancy of a 65-year-old in the UK is stated as 22.4 years, the Office for National Statistics expects it to be closer to 26.0 years by 2039.

This has a profound impact on the safe withdrawal rate. Naturally, individual health plays an important role, however what is clear is that many of the traditional retirement projections are incorporating a life expectancy to 95 (i.e. lasting 30 years from age 65), which could be understated for couples given there is now a 27% chance that one partner will survive beyond this date (plus the likelihood longer survival will only continue to rise).

² Sourced from ONS predictions, although recent statistics have shown stabilisation.

For this reason, we prefer to address safe withdrawal rates under the scope of the “retirement period”. This allows an individual or couple to factor in a margin of safety that is suitable to their tolerance. For instance, a 30-year period for a 65-year-old single male is likely to be conservative as statistics show an 11% chance of him surviving beyond that period. However, a couple may prefer to factor in a much longer period as the risk of one of them surviving is greater than 1 in 4.

Exhibit 2 The “retirement period” should consider not only life expectancies but also survival rates. We find in the UK that a member of a couple has a 27.4% chance of living beyond 95, which should be factored in.



Source: Office for National Statistics

► Understanding market conditions

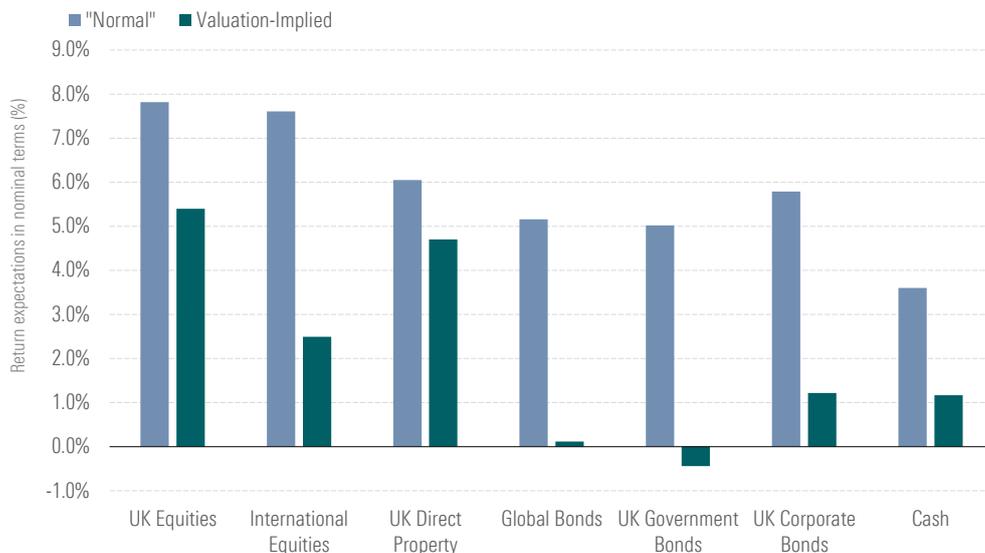
Market conditions (especially tail risk) can have a material impact on a retiree’s wealth and is therefore an important variable to consider. For example, if a portfolio falls by 50% from £400,000 to £200,000 in the year following retirement, we know it becomes increasingly difficult to fund the initially selected safe withdrawal rate. Specifically, the percentage of the capital being withdrawn effectively needs to double, which increases the probability that the capital will be eroded before the end of the investor’s life.

However, assessing such tail risk is a notoriously difficult task. Market movements are unpredictable, especially over shorter time-periods. So, what can a retiree do? Err on the side of conservatism? Or focus on the fundamentals of investing to construct a portfolio with attractive return for risk?

In this paper, we focus on the latter. In doing so, there are important things to realise. Principally, we must make a distinction between “normal” returns (such as averages from history) and “valuation-implied” returns (by understanding the current price relative to fair value).

The key point is that when prices outstrip the fundamentals and yields remain near record lows – as they have for the past 15 months – the future price return is expected to be lower. Of course, the same would apply in reverse. All else being equal, this implies that strong historical price performance reduces our forward-looking expectations. This is depicted below, where we show the investment landscape using a forward-looking framework that considers “normal/unconditional” returns versus “valuation-implied” returns.

Exhibit 3 – The valuation-implied return framework we adopt for this analysis



Source: Morningstar Investment Management as at 31/08/2017

An important observation is that by taking a valuation-driven approach, we tend to find an inverse relationship between the “safe withdrawal rate” and market prices. To say this simply, if markets rise, the safe withdrawal rate falls because expected returns decline; yet if markets fall, the reverse happens and the safe withdrawal rate rises.

It is also worth noting that a forward-looking model for safe withdrawal rates (using valuation-driven principles) must be updated regularly. For example, in the paper we produced in May 2016, we saw that the safe withdrawal rate was higher (at approximately 2.5% for the typical retiree with a 30-year horizon and 40% in equities), but this has fallen as prices outstripped the fundamentals.

Exhibit 4 – Arithmetic return and risk assumptions for various investments in the United Kingdom

Asset Class	Return Period		
	Next 10 years	Years 11-20	Years 21+
UK Equities	6.84	8.03	9.23
International Equities	3.58	6.08	8.65
UK Direct Property	5.13	5.79	6.47
Global Bonds	0.60	2.44	5.61
UK Government Bonds	0.01	1.75	5.45
UK Corporate Bonds	1.65	3.01	6.20
Cash	1.19	2.11	3.62

Source: Morningstar Investment Management as at 31/08/2017. Compound returns before fees and taxes.

The Evolution of the Safe Withdrawal Rate

A few clear messages should be becoming apparent. Primarily, the current market prices are quite high relative to the fundamentals. As a result, the forward-looking “valuation-implied” returns are considered to be worse than “normal” and this is pushing down the safe withdrawal rate considerably.

Exhibit 5 – The change in the safe withdrawal rates from May 2016 to September 2017

Portfolio % / Probability of Success %	Retirement Period (Years)				
	20	25	30	35	40
40% Equities					
99%	-0.4%	-0.4%	-0.3%	-0.3%	-0.3%
95%	-0.4%	-0.4%	-0.4%	-0.3%	-0.3%
90%	-0.5%	-0.5%	-0.4%	-0.4%	-0.3%
80%	-0.5%	-0.5%	-0.5%	-0.4%	-0.5%
70%	-0.6%	-0.6%	-0.5%	-0.5%	-0.5%
50%	-0.6%	-0.6%	-0.6%	-0.5%	-0.6%

Source: Morningstar Investment Management as at 31/08/2017

Remarkably, given the market appreciation for UK investors over late-2016 and early-2017, the safe withdrawal rate has fallen by 0.3% to 0.6%. Alarmingly, this is inferring to retirees that they may require closer to 35-50 times their income need (calculated as 1 divided by the safe withdrawal rate) instead of 25 times their income need under a 4% safe withdrawal rate. This is illustrated below, showing the safe withdrawal rate over different retirement periods.

Exhibit 6 – Safe withdrawal rates in September 2017

Portfolio % / Probability of Success %	Retirement Period (Years)				
	20	25	30	35	40
40% Equities					
99%	2.8%	2.1%	1.8%	1.5%	1.3%
95%	3.3%	2.6%	2.1%	1.9%	1.7%
90%	3.6%	2.8%	2.4%	2.1%	1.9%
80%	4.0%	3.2%	2.7%	2.4%	2.1%
70%	4.2%	3.4%	2.9%	2.6%	2.3%
50%	4.8%	3.9%	3.3%	3.0%	2.7%

Source: Morningstar Investment Management as at 31/08/2017

► **Understanding fees**

Fees have garnered increasing attention and will play a pivotal role in the prosperity of retirees. We are seeing an exciting period of awareness and consolidation, with lower fees across many pension solutions. This is a vital component to the safe withdrawal rate as lower fees intuitively help end investors obtain better outcomes.

While most people prefer to pay less than more, investment fees have a particular impact on retirees as they affect both the safe withdrawal rate and the probability of a given level of income being safe. To illustrate, we show three portfolios that each have a 40% equity allocation: a low-cost solution (fees of 0.5%), a medium-cost solution (fees of 1.0%) and an expensive solution (fees of 2.0%). We can see that fee minimisation could be the single most important variable to increase the safe withdrawal rate for retirees.³

³ Note that this assumes the payment of fees fails to generate value. Of course, this is not always the case (some active managers have delivered sizeable outperformance over time), yet research suggests this is not the case in aggregate.

Exhibit 7 Fees have a significant impact on the success rate.

Success rate % /	Retirement Period (Years)				
	20	25	30	35	40
0.5% Portfolio Fee					
2.0%	100.0	99.9	98.9	96.5	92.8
2.5%	99.9	98.3	92.6	84.5	75.3
3.0%	99.1	91.7	77.6	62.8	50.7
3.5%	95.6	77.3	55.1	38.9	28.7
4.0%	86.7	56.3	33.6	21.2	14.1
4.5%	70.5	35.8	18.0	9.8	6.0
5.0%	51.5	20.0	8.3	4.1	2.2
5.5%	33.4	10.0	3.4	1.4	0.6
1.0% Portfolio Fee					
2.0%	100.0	99.7	97.7	93.2	87.1
2.5%	99.8	96.9	88.1	75.9	64.8
3.0%	98.5	87.2	68.1	50.8	38.1
3.5%	93.0	68.7	43.7	28.6	19.2
4.0%	81.1	45.9	24.6	13.8	8.3
4.5%	62.0	27.1	11.9	5.8	3.2
5.0%	42.5	13.9	5.0	2.1	0.9
5.5%	25.7	6.3	1.7	0.6	0.2
2.0% Portfolio Fee					
2.0%	100.0	98.4	91.9	81.0	69.1
2.5%	99.2	90.6	72.5	53.5	38.8
3.0%	95.1	72.5	45.7	28.5	17.9
3.5%	84.2	48.1	24.3	12.6	7.0
4.0%	65.2	27.3	10.9	4.8	2.3
4.5%	44.1	13.4	4.2	1.4	0.6
5.0%	26.0	5.7	1.3	0.3	0.1
5.5%	13.6	1.9	0.3	0.1	0.0

Source: Morningstar Investment Management as at 31/08/2017

To make this very clear, fees matter. For instance, on a 30-year horizon, a 3.0% withdrawal rate has a 77.6% success rate if fees are limited to 0.5%; yet if fees are 2%, this success rate falls to just 45.7%. Furthermore, an ambitious 4% withdrawal rate has a 33.6% success rate if fees are limited to 0.5%, yet if fees are 2%, this success rate falls to just 10.9%.

► Understanding social support & delayed retirement

The UK has a long history of providing social support and many residents have relied on this to fund at least part of their retirement strategy. However, recent proposed changes to the State Pension has shown that government support is subject to change and there is a clear movement towards extending the retirement date.

Therefore, factoring in social support can be a fickle process. On the one hand, it is clear that social support will remain in place as an income source for the foreseeable future. However, it is similarly clear that the direction of travel is to provide benefits over a shorter horizon.

For instance, the government recently proposed another change to the State Pension system, stating; “When the State Pension was introduced in 1948, a 65-year-old could expect to spend 13.5 years in receipt of it – around 23% of their adult life. This has been increasing ever since. In 2017, a 65-year-old can now expect to live for another 22.8 years, or 33.6% of their adult life.”⁴

The government then followed this statement with the below proposal as a solution to the demographic challenges faced:

Exhibit 8 – State Pension proposed changes

Your date of birth	How the proposals affect you
On or before 5 April 1970	No change
Between 6 April 1970 and 5 April 1978	Your State Pension age is currently 67. It would increase to between 67 years and 1 month, and 68 years, depending on your date of birth
After 6 April 1978	No change. Your State Pension age remains 68

Source: UK government

Therefore, with the pension age increasing, it raises the question of what it means for retirees. While some view it as a cut to benefits that they may have contributed to through taxation, others take encouragement from the government’s prudence.

Delaying Portfolio Withdrawals

Withstanding any legislated changes to the State Pension age, it is worthwhile quantifying the benefits of delaying withdrawals from a portfolio.

Delaying withdrawals does a number of things to improve the situation of the retiree:

- ▶ Gives the pension assets more time to grow.
- ▶ Reduces the number of years that the pension is required to outlast its holder.

Below is information about how the probability of retirement success changes for a 30-year retirement period based on delaying retirement. Note, for the analysis the withdrawal rate is some assumed amount the retiree would have taken upon retirement with no delay.

For example, if the portfolio is £1 million and the initial target withdrawal rate is 3%, the initial withdrawal amount is £30,000. For these tests, we would assume (for the 3% initial withdrawal rate) that same amount £30,000, in today’s sterling value (i.e., increased by inflation), would be taken out whenever withdrawals commence. Analysis assumes a 40% equity portfolio throughout retirement and a 1% annual fee.

⁴ <https://www.gov.uk/government/news/proposed-new-timetable-for-state-pension-age-increases>

Exhibit 9 - the impact of delayed portfolio withdrawals on the probability of success for a 30-year retirement period

Portfolio % / Initial Withdrawal Rate	Number of Years to Delay Withdrawals					
	0	1	2	3	4	5
2.0%	97.7	98	98.4	98.6	98.9	99.2
2.5%	88.1	89.6	91.1	92.5	93.8	95
3.0%	68.1	72.2	76	79.4	82.5	85.5
3.5%	43.7	49.5	54.8	60.3	65.4	70.3
4.0%	24.6	29.8	35.2	40.5	46.4	52.5
4.5%	11.9	16	20.7	25.6	30.9	36.4
5.0%	5	7.7	10.9	14.7	19.3	23.9

Source: Morningstar Investment Management as at 31/08/2017

Here we see that retirees can meaningfully improve their situation by delaying retirement. For example, a retiree targeting a 3.5% initial withdrawal rate would see the success rate improve from 44% to 60% by delaying withdrawals for 3 years.

The significance of this should not be understated, as the above doesn't even include any additional savings made by working in the lead up to retirement, nor the additional State Pension bonuses that one would potentially be eligible for. Therefore, while many don't like the idea of retiring later, it could be a feasible solution for those that remain healthy enough to work and would otherwise not meet their desired safe withdrawal rate.

► Understanding risk tolerance

The investment mix, or asset allocation, can have a material impact on the safe withdrawal rate. For example, a more conservative investor is more likely to have a larger allocation to fixed income and cash, which minimises the risk of loss, but also hampers the prospects for growth by reducing the long term expected return.

To undertake the analysis in this paper, we have had to make assumptions about what a portfolio would look like. Below we show the asset class mix we have incorporated, allowing for broad diversification and differing equity weights as our proxy for risk tolerance.

Exhibit 10 Portfolio breakdown %

Equity Allocation	0	20	40	60	80	100
UK Equities	0	11	18	25	33	41
International Equities	0	7	18	30	41	55
UK Direct Property	0	2	4	5	6	4
Global Bonds	17	14	12	10	5	0
UK Government Bonds	37	29	21	13	7	0
UK Corporate Bonds	26	21	15	10	5	0
Cash	20	16	12	7	3	0
Total	100	100	100	100	100	100

Source: Morningstar Investment Management as at 31/08/2017

It is worth disclaiming that the above is not intended to be “optimal”, but rather a reasonable representation of the way in which solutions are typically structured. This allows us to test the sensitivities across a range of risk tolerances, so retirees can comprehend which safe withdrawal rate is most relevant to them. There are a few worthy observations to be drawn from this analysis:

- ▶ Across all portfolio solutions, a shorter retirement period improves the safe withdrawal rate.
- ▶ Furthermore, higher risk solutions tend to provide a higher safe withdrawal rate, although this is not always the case. For example, if a retiree wants 99% confidence of outliving their capital, 100% equity solutions provide little advantage over 0% equity solutions.
- ▶ Conversely, lower risk solutions tend to provide greater certainty of outcome, but are only effective if the desired withdrawal rate is low.

Exhibit 11 - the safe withdrawal rates based on different portfolio compositions.

Portfolio % / Safe withdrawal	Retirement Period (Years)					Portfolio % / Safe withdrawal	Retirement Period (Years)				
	20	25	30	35	40		20	25	30	35	40
0% Equities						60% Equities					
99%	3.3	2.5	2.0	1.7	1.5	99%	2.6	2.0	1.6	1.4	1.2
95%	3.5	2.7	2.2	1.9	1.7	95%	3.2	2.5	2.1	1.8	1.6
90%	3.7	2.8	2.3	2.0	1.8	90%	3.5	2.8	2.4	2.1	1.9
80%	3.9	3.0	2.5	2.1	1.9	80%	4.0	3.2	2.7	2.4	2.2
70%	4.0	3.1	2.6	2.2	2.0	70%	4.4	3.5	3.0	2.7	2.5
50%	4.2	3.3	2.8	2.4	2.1	50%	5.0	4.1	3.6	3.2	3.0
20% Equities						80% Equities					
99%	3.0	2.3	1.9	1.6	1.4	99%	2.3	1.8	1.5	1.3	1.1
95%	3.4	2.7	2.2	1.9	1.7	95%	3.0	2.4	2.0	1.7	1.6
90%	3.7	2.8	2.4	2.1	1.8	90%	3.5	2.7	2.3	2.0	1.9
80%	3.9	3.1	2.6	2.3	2.0	80%	4.0	3.2	2.8	2.5	2.3
70%	4.1	3.3	2.8	2.4	2.2	70%	4.4	3.6	3.1	2.8	2.6
50%	4.5	3.6	3.0	2.7	2.4	50%	5.2	4.4	3.8	3.5	3.2
40% Equities						100% Equities					
99%	2.8	2.1	1.8	1.5	1.3	99%	2.1	1.6	1.3	1.1	1.0
95%	3.3	2.6	2.1	1.9	1.7	95%	2.9	2.2	1.9	1.6	1.5
90%	3.6	2.8	2.4	2.1	1.9	90%	3.3	2.7	2.3	2.0	1.8
80%	4.0	3.2	2.7	2.4	2.1	80%	4.0	3.3	2.8	2.5	2.3
70%	4.2	3.4	2.9	2.6	2.3	70%	4.5	3.7	3.2	2.9	2.7
50%	4.8	3.9	3.3	3.0	2.7	50%	5.5	4.6	4.1	3.7	3.5

Source: Morningstar Investment Management as at 31/08/2017

Another point worth contemplating is that individuals face behavioural biases that can create a fluctuating attitude to risk. For example, in periods of euphoria, asset flows typically favour higher risk assets, while in periods of despair, people tend to invest more conservatively. The subsequent change in the price of these assets compared to their fair values can meaningfully change the expected returns for investors and consequently the safe withdrawal rate.

Investors are all prone to behavioural biases of this kind and it is essential that all investors, and especially retirees, strive to overcome these biases as self-control remains one of the key criteria of successful investment.

Flexible or Dynamic Withdrawals

Thus far, we have only explored safe withdrawals under a static or annuitised framework, where a withdrawal rate is selected upon retirement and this determines one's income need thereafter.

Yet, with the direction of travel showing longer life expectancies, a longer delay for the State Pension and lower safe withdrawal rates, it reinforces the need for retirees to reconsider their overall withdrawal strategy.

In this regard, a common assumption in retirement research is that the retiree desires a constant level of real income (i.e., a consistent inflation-adjusted consumption level) during retirement, and that the individual makes decisions only upon retirement and then follows the strategy until death. This single decision framework is often referred to as a static perspective.

Following a static approach is consistent with lifecycle consumption smoothing only under a very limited set of implausible preference parameters. It is therefore unlikely that a retiree when faced with realised asset returns and changing circumstances will follow the same strategy, without change, for the entire retirement period. In practice, it is likely a retiree would change his or her consumption based on their circumstances and the available balance. For, example, if portfolio performance exceeds expectations, a retiree could consume more wealth than initially projected. The opposite is also true, as it is unlikely a retired couple will continue to draw £50,000 if their balance fell from £400,000 to £200,000.

This is especially true given the high cost of retirement noted in this updated research. A retiree with a 40% equity portfolio targeting a 30-year retirement period and a 20% tolerance for failure (i.e. an 80% success rate) would have an initial withdrawal rate below 3%. This suggests a required savings level of more than 33 times the initial income goal and most retirees would find such an accumulation hurdle problematic.

So, what if the withdrawal strategy was updated every year? This would mean that a £100,000 portfolio and a 3% withdrawal would equate to £3,000 in year 1, then the income amount is adjusted depending on what markets do. For instance, if markets were kind and the portfolio grew to £120,000, a retiree could draw 3% of this sum (£3,600). However, if markets fell and the portfolio reduced to £80,000, the withdrawal of 3% would equate to £2,400.⁵

Underlying this flexibility, an important distinction is to differentiate fundamental growth (which could lead to maintained future returns) and price growth. While the above focuses on price growth, it is important to understand that higher prices could actually reduce the future safe withdrawal rate as expected returns decline.

Regardless, this model has the distinct advantage that a retiree is far less likely to run out of money (in fact, it is practically impossible to run out of money), while the income drawn may be considerably different to what one might have expected under a static framework.

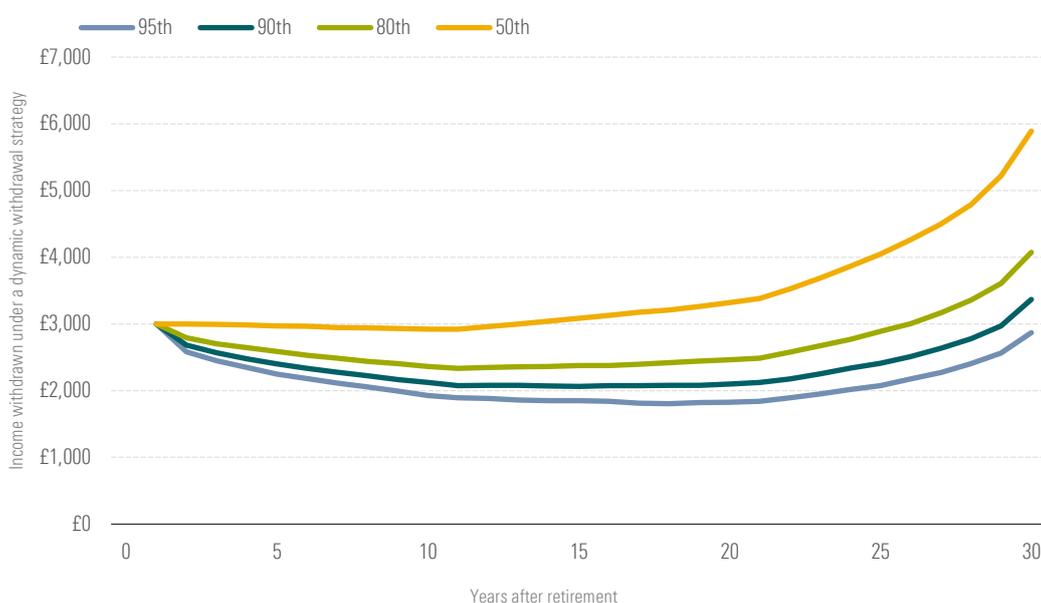
⁵ Note, a dynamic withdrawal strategy can contradict the inverse relationship between valuations and the safe withdrawal rate. I.e. if prices rise excessively, the safe withdrawal rate reduces. Therefore, in practical terms, care should be taken when increasing income as markets rise.

Analysing Success for Dynamic Withdrawal Strategies

To undertake this analysis, we estimate the liability as the net present value of expected cash flows based on the duration of retirement based on a real discount rate of 0%. This model effectively assumes the retiree will maintain whatever the new level of consumption is for the remainder of the retirement period.

The next exhibit demonstrates how the distribution of withdrawals would look if a retiree targeted an initial withdrawal rate of 3%, i.e., £3,000 from a £100,000 portfolio, assuming a retirement period of 30 years. In the exhibit we only focus on income percentiles that are at or below the median (which is the 50th percentile). The 95th percentile corresponds to the worst 1 in 20 runs, the 90th percentile to the worst 1 in 10 runs, and the 80th percentile to the worst 1 in 5 runs.

Exhibit 12 The impact of dynamic withdrawals on portfolio income



Source: Morningstar Investment Management as at 31/08/2017

Using a dynamic approach we see that the withdrawal rate stays at or above the initial income target of £3,000 for approximately half of the runs (i.e., the 50th percentile). We see, though, if returns are worse than expected (i.e., the 95th percentile) that income tends to decrease. For example, for the 95th percentile the income is less than £2,000 after 10 years of retirement.

A dynamic withdrawal approach simply reflects the fact if a retiree is able to take some risk with respect to his or her retirement income. By doing so, he or she (or they) can likely be more aggressive with the initial withdrawal amount.

One problem when attempting to quantify the outcomes associated dynamic withdrawal rates is that it's not possible to fail in the traditional sense. By definition, the income may be more or less than the target, and it is unlikely the portfolio will ever go to £0 since most dynamic approaches involve taking some percentage of the existing balance. Therefore, for our analysis we relay the percentage of the initial income goal accomplished, as an effective means of comparing such an approach to the static withdrawal strategy.

Exhibit 13 Estimating the average initial income target replacement rate

Dynamic withdrawals £ /	Percentile			
	95th	90th	80th	50th
Year				
1	£3,000	£3,000	£3,000	£3,000
2	£2,580	£2,680	£2,790	£3,000
3	£2,450	£2,570	£2,700	£2,990
4	£2,350	£2,480	£2,650	£2,980
5	£2,250	£2,400	£2,580	£2,970
6	£2,180	£2,330	£2,530	£2,960
7	£2,110	£2,280	£2,490	£2,940
8	£2,050	£2,220	£2,440	£2,940
9	£1,990	£2,160	£2,400	£2,930
10	£1,930	£2,120	£2,360	£2,920
Average	£2,290	£2,420	£2,590	£2,960
% of initial	76.3%	80.8%	86.5%	98.8%

Source: Morningstar Investment Management as at 31/08/2017

As can be seen above, for a retirement period of 10 years and an initial income target is £3,000, a dynamic withdrawal strategy can deliver a wide range of results. For our analysis, we estimate the average income received for various income percentiles, and if we focus on the 80th percentile, which was the worst 1 in 5 outcomes, we see that the average was £2,590. This implies the retiree was able to receive 86.5% of the target income level over the period for the worst 1 in 5 outcomes.

Whether or not this level of income variability is acceptable to the retiree likely depends on that retiree's circumstances. Retirees who are more risk averse (i.e., they require more income certainty) would likely focus on a more conservative percentile (e.g., the 95th percentile) while retirees who are ok with more income risk would focus on a more aggressive outcome (e.g., the 80th percentile).

Providing Further Context

In the next table we provide information about the average initial income target replacement rate for various initial withdrawal rates assuming a 30-year retirement period, a 40% equity portfolio allocation, and 1% annual fee.

Exhibit 14 Average initial income target replacement rate depends on the withdrawal rate and confidence level.

Income Target achieved % /	Income Percentile			
	50th	80th	90th	95th
Withdrawal rate				
40% Equities				
2.0	170%	128%	111%	99%
2.5	139%	106%	92%	82%
3.0	115%	89%	78%	70%
3.5	98%	77%	68%	61%
4.0	85%	67%	60%	54%
4.5	75%	60%	53%	49%
5.0	67%	54%	48%	44%

Source: Morningstar Investment Management as at 31/08/2017

Again, we see that the certainty required changes the perspective. While a 3% initial withdrawal rate may only have a 68% success rate under a static approach, at the 80th percentile under a dynamic approach (worst 1 in 5 outcomes) the retiree was able to replace 90% of the target income.

This is worth elaborating on. What it shows is that a retiree, when given two choices, can decide between maintaining their income or amending it to reflect market conditions. By doing the latter, they must be willing to forego some income, but the reduction could be considerably less burdensome than running out of money in its entirety. The upside is that it can also allow for greater income under a “normal” outcome. For instance, at the median level the replacement rate was 115%. In other words, in most scenarios the retiree will be able to take out more than the initial withdrawal but in some scenarios the retiree will be forced to live off less.

Delaying Portfolio Withdrawals and Being Dynamic

Finally, we look at what the impact would be of combining delaying portfolio withdrawals with a dynamic withdrawal approach. Since we’re using a dynamic withdrawal approach and can’t use success rates, we therefore use the same metric we used for the dynamic withdrawal analysis above. This is the average initial income target replacement rate, and the analysis assumes a 40% equity portfolio for a 30-year retirement period and a 1% annual fee. We include the 50th, 80th, and 95th percentiles.

Exhibit 15 The safe withdrawal rate of a typical UK portfolio is below 4% for extensive periods throughout history.

Income Target Achieved % / Withdrawal rate	Number of Years to Delay Retirement					
	0	1	2	3	4	5
50th Percentile						
2.0	170	175	180	185	191	196
2.5	139	143	148	153	159	164
3.0	115	120	124	129	134	139
3.5	98	102	106	110	115	120
4.0	85	88	92	96	100	104
4.5	75	78	81	84	88	92
5.0	67	69	72	75	78	82
80th Percentile						
2.0	170	175	180	185	191	196
2.5	139	143	148	153	159	164
3.0	115	120	124	129	134	139
3.5	98	102	106	110	115	120
4.0	85	88	92	96	100	104
4.5	75	78	81	84	88	92
5.0	67	69	72	75	78	82
95th Percentile						
2.0	170	175	180	185	191	196
2.5	139	143	148	153	159	164
3.0	115	120	124	129	134	139
3.5	98	102	106	110	115	120
4.0	85	88	92	96	100	104
4.5	75	78	81	84	88	92
5.0	67	69	72	75	78	82

Source: Morningstar Investment Management as at 31/08/2017

As can be seen above, a retiree who is willing to delay retirement and maintain flexibility in their withdrawal strategy could end up with significantly better outcomes than a static approach with no delay.

For example, on average, it could be realistic for a retiree to draw 3.5% if they are willing to delay retirement by two-years or more. This is illustrated above, as over the 30-year horizon they would be achieving slightly more income than the target (under a static approach) for the median scenario (105.9%).

Even when we stress this using tail risk scenarios, we find that 81% of the income target would be achieved (equating to approximately 2.8% as the average withdrawal rate) for the worst 1 in 5 scenarios (80th percentile) and 64% of the income target would be achieved in the worst 1 in 20 scenarios (equating to approximately 2.2% as the average withdrawal rate under the 95th percentile).

Summary

Safe withdrawal rates are an incredibly important input into retirement projections, yet remain very complex. We have reiterated our concerns with the so-called 4% rule – which for all its simplicity, is a misguided figure – and tested the various assumptions one must consider.

When contemplating the most appropriate withdrawal rate, it is clear that the answer is a very personal decision that necessitates a balance between risk tolerance and risk capacity. In addition, it's also important to remember that the vast majority of current retirees in the UK have some form of guaranteed income, whether it be some type of public pension benefit or private defined benefit plan.

Therefore, the analysis contained in this paper must be contemplated holistically, including a comprehensive understanding of the individual or couple. It should also include a comparison to the annuity market, as annuities may become a viable solution⁶ if the safe withdrawal rate remains low.

Yet, regardless of the variables, we find that the safe withdrawal rate is sensitive and considerably lower than many retirees realise. For those wishing to extract more than 4% income from their portfolio, some sacrifices will need to be made. The sacrifices may involve a delayed retirement, a willingness to adopt a flexible withdrawal strategy or a willingness to take more risk. For the average investor, the simple answer may be to save more.

⁶ The annuity providers must also be careful as they may find themselves underfunded given the prevailing market conditions.

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