fowlerdrew

# Drawdown explained

A drawdown plan describes the process of turning a pot of capital into a stream of cash payments to meet required and desired spending

Typical spending goals requiring a drawdown plan:
Retirement savings
Divorce settlement
Injury settlement
Sale of business
Sale of home
DB Pension transfer
Inheritance

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"THE BEST DRAWDOWN PLAN IS THE ONE THAT WILL PROVIDE THE MOST SATISFACTION. SATISFACTION IS WHATEVER YOU DEFINE IT TO BE, BASED ON VISUALISING WHAT YOU (OR OTHERS) WILL DO WITH THE MONEY."

A drawdown plan describes the process of turning **a pot of capital** into a **stream of cash payments**, under your own control, to meet spending.

Though a term often used in a retirement context, the capital being turned fully or partially into spending could come from any number of sources:

- A clean-break divorce settlement
- An injury settlement
- Sale of a home or business
- Accumulated savings while working, whether in or out of a pension account
- Transfer of a Defined Benefit (final-salary) pension
- An inheritance

The **best drawdown plan** is the one that, if implemented, will provide the most satisfaction. Satisfaction is whatever you define it to be, by visualising what you (or others) will do with money.

- It may come from your own spending or from the help you give to others
- Satisfaction by definition avoids regret about the outcomes (such as from falling short of a tolerable minimum level of spending; from being forced to cut spending; from either spending too little or too much)
- Satisfaction means meeting any time preferences for when spending and gifting deliver most benefit

The **best possible** drawdown plan is the one that provides the most satisfaction *and* is realistically achievable. What makes it realistically achievable is that it has the right combination of **resources** and **risk taking** to deliver the **outcomes** that maximise satisfaction.

Planning drawdown therefore involves bringing into **balance** the three things that will determine the outcomes of your spending goal, as after-tax spending money, by each and every year, allowing fully for uncertainty about what happens in financial markets, about the future inflation rate and how long you might live:

- Your personal Time line
- The Resources you can apply
- The Risk you take.

Since there are many combinations of these variables, the process starts by identifying those that are known or are constrained. Finding the best balance of other variables consistent with those that are known is a process best carried out by iteration: trying different things and reacting to the information about outcomes by visualising their consequences, for example, *could we cope with a worst-case spending level of £x pa or being forced to trade down as early as age 85?*

When planning with Fowler Drew, the information about spending outcomes comes from modelling. A model is a mechanistic way of replicating 'real-life' behaviour based on a combination of assumptions (or inputs) and rules to generate results (or outputs).The Fowler Drew drawdown model applies probabilistic investment returns and likely costs to measure the sustainable real spending, given the client's own time horizons and a particular approach to risk. By 'sustainable' we mean that the draw rates from capital are subject to constraints: the capital must not run out before a specified date; the total real spending rate must be maintainable from year to year with downward adjustments only within specified tolerances.

The form of interaction with the Fowler Drew model is a user interface. A simplified version is accessible remotely on our website, as the Drawdown Planner. Once an adviser is involved, the same model is used to develop the spending goal as is then used by Fowler Drew to manage the adopted goal-based portfolio, on a discretionary basis. That too has a user interface that allows more detailed variation in inputs and outputs, working in collaboration with an adviser.

Because the model is being constantly rerun in the light of market returns, the progress of the goal-based portfolios can be measured at any frequency in terms of the probability of achieving the outcomes at every planned horizon as adopted at the outset. The plan can therefore be constantly reviewed in the light of the changing probable outcomes as well as changes in the client's preferences or circumstances. These reviews follow the same process of the client reacting to new information by visualising the consequences in terms of satisfaction and regret.

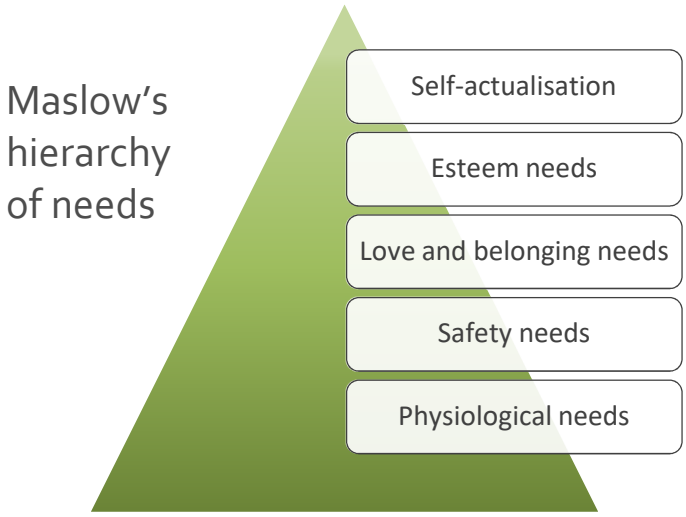
## What will I find different about the Fowler Drew approach to drawdown?

1. It uses all resources contributing to the goal (not just pension accounts), including (where appropriate) notional assets, such as inheritance and trading down
2. It focuses on what I really care about: after-tax real spending rather than just gross investment cash flows
3. It is probabilistic, so it is realistic about all sources of uncertainty (inflation, investment returns and longevity) and gives me complete information
4. Revealing my preferences based on probabilities makes me confident the risk approach is suitable and that any trade-offs involving risk are genuinely mine - confidence I wouldn't get from using proxies such as personality tests and arbitrary risk scores
5. It answers my key questions about how much to spend, when, as well as how much risk I should take
6. I can readily makes these choices just as long as I can visualise the different versions of my future and think about the consequences
7. Which surely anyone can: visualisation is easy and engaging
8. It is forward looking, measuring progress towards my own defined outcomes, rather than just backwards at past performance or sideways at what others are doing
9. All unnecessary activities and costs are stripped away to focus on efficient implementation of the asset exposures generating the planned after-tax outcomes: this has to be sensible
10. I get a completely customised goal-based portfolio, dynamically managed to my own drawdown plan, yet I pay less than I would for standardised investment services or packaged products

## Visualising satisfaction

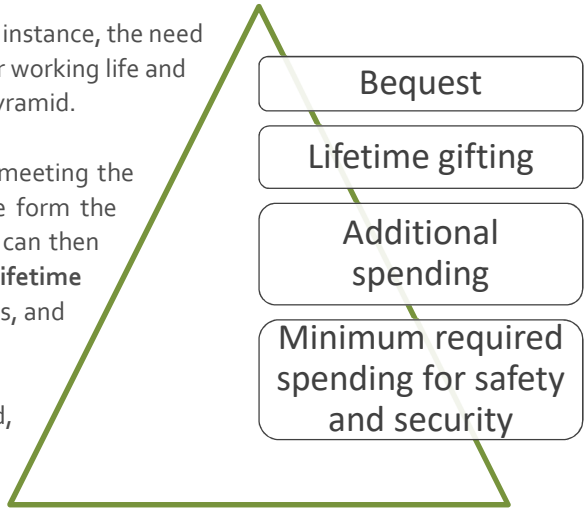
The concept of satisfaction, applied to life goals, is well explained by something called *The hierarchy of needs*, dreamed up by a psychologist called Abraham Maslow.

Maslow stated that people are motivated to achieve certain needs, and that some needs take precedence over others. Our most basic need is for physical survival, and this will be the first thing that motivates our behaviour. Once that level is fulfilled the next level up is what motivates us, and so on. Towards the top of the hierarchy, usually portrayed as a pyramid, are more aspirational motives that can deliver emotional satisfaction as well as material benefit.




Applying the hierarchy of needs to a retirement goal, for instance, the need to spread career earnings to fund spending over both our working life and our retirement is a basic need at the foundation of the pyramid.

But most people have greater aspirations than simply meeting the minimum required spending level in retirement. These form the motivation for risk taking. The payoffs from risk taking can then pay for goals such as **higher spending** on ourselves, **lifetime gifting** to help our children and grandchildren or charities, and **bequests** at death.




Whether these goals apply, and how they are prioritised, is entirely personal and may also change over time. It's the job of financial planning to reveal our own personal pyramid.

If the available resources were sufficient to satisfy the minimum required spending with certainty, and if little value was assigned to either additional spending or gifting (such as if there are no children who might benefit from the payoffs of your risk taking), there would be no point taking any risk. Satisfying the requirement without risk means, for example, not transferring a final-salary pension and so not taking on the risks otherwise borne by the employer. Or it could mean applying your own savings to an annuity at retirement, instead of drawdown – as long as the annuity were index-linked (a cut in spending due to inflation is identical in impact to a cut due to bad investment returns).

Supposing, however, that these riskless options in fact required more capital that was available to meet the required minimum: something now has to give in the plan. Either retirement needs to be postponed, spending expectations lowered or the possibility of running out of capital needs a contingency plan for now or later, such as trading down or equity release. With continued risk taking, these are not necessarily binary trade-offs: there may be several dependencies that can all contribute, in some combination, to a better expected outcome than locking in the certainty of lower-than-satisfactory lifetime spending. But none of these trade-offs would rationally be available if continued risk taking opened up downside risk for spending outcomes that posed intolerable stress on the household, such as not being able to meet core non-discretionary outgoings or facing a risk of not being able to release enough home equity to make the plan work.

The key principle, then, is that the model provides the numerical information that you can use to think about the possible consequences of different outcomes. Visualised consequences then help reveal your 'true' preferences. What makes them true is that they are anchored on complete information (that's the job of the model) and selected by you (not an adviser or anyone else telling you what they would do or what they think you should do).

## What information needs does the drawdown model meet?

Whatever the stage of a plan you see yourself at, the broad answers the model needs to give at every stage are the same:

- How much to spend
- How much risk to take
- How long the plan should last

When planning drawdown, these can be either inputs or outputs. *If I want to spend at least £x, what do I need as capital now or as additional regular savings? If I want to take very little risk, what does that imply for either resources required or spending outcomes? Given our existing resources, how much risk do we need to take to meet our aspirations for both our own spending and to help the children onto the property ladder? If I draw at £x every year how long will the capital last?*

For these answers to be used to develop the best possible plan by iteration, it is critical that they are probabilistic: *you have (say) a 99% chance of being able to sustain spending of at least £x and a 50% chance it will be higher by £y; the probability of needing to trade down as early as age 80 is only 3% and there is a 70% chance you will not need to trade down to sustain the same spending; at 97% confidence the capital will last till age 100 for the younger of you*.

The stage you are at does make a difference to what you will focus on, though. Before you are close to starting to draw on capital to meet spending, you probably only want a rough idea of how much you need, as resources, to satisfy your spending needs and wants. You may need this to work out how much more to add to your savings from earnings, or to plan the age at which you stop working. If you have a short but lucrative earnings career, such as in professional sport, you want to work out a realistic proportion to set aside to cover much more modest earnings, or reliance on capital alone, to meet rest-of-life spending. At this early stage, the model's granular detail may be spurious as the plan only needs approximation to inform both the savings rate and the appropriate approach to risk.

The closer you are to the start of draw, such as at retirement or facing an imminent divorce settlement, the more detailed the information you want about the spending level the capital will support. You have, after all, more detailed information now about your non-discretionary outgoings and about the discretionary amounts that you view as fundamental needs. And at this stage the risk approach is likely to form a much more important part of the process of identifying the trade-offs that maximise satisfaction. So too is adjusting the time profile of spending, if (say) a specified possible decline in spending would be more tolerable at a later stage in life than it would be earlier.

Once in draw, the plan is still adaptable but the information it needs is then more about reacting to either changes in your own circumstances or the progress of the drawdown portfolio relative to plan. Suppose the plan was set up with optionality, because payoffs from risk taking were valued, but without the particular form of that value being specified. Good progress relative to plan now allows those options to be partially exercised, based on whatever is now most highly valued. This can be seen as a process of bringing resources, risk and outcomes back into a better balance. That could involve one or any combination of: altering the risk approach; increasing the level of draw; bringing forward gifting; extending the age at which (on a worst-case basis) the capital might run out.

Obviously, if what you are interested in is total spending, you need answers that take into account any underpinning guaranteed income, such as from state pensions. Whether you want to bring into account any other sources of income, such as buy-to-let or a private company, depends on whether you want that capital, and its net income stream, to be a permanent feature of your plan.

If part of the calculation was whether to retain or transfer any Defined Benefit pension rights, you would definitely need a high degree of granularity about the range of possible outcomes given one of two options: either retaining, and managing the 'free' capital to maximise satisfaction, or replacing it and managing the combined capital to provide an even higher level of satisfaction.

As long as spending is being used as the metric that enables you to visualise your future, as informed by the number from the model, you need the answers to make reasonable assumptions about tax, given the amounts involved. This is also granularity that gains in importance the closer you are to draw and the more you earn. To the extent pension accounts contribute to your draw, the tax rules applicable to pensions will also be an important focus for your adviser.

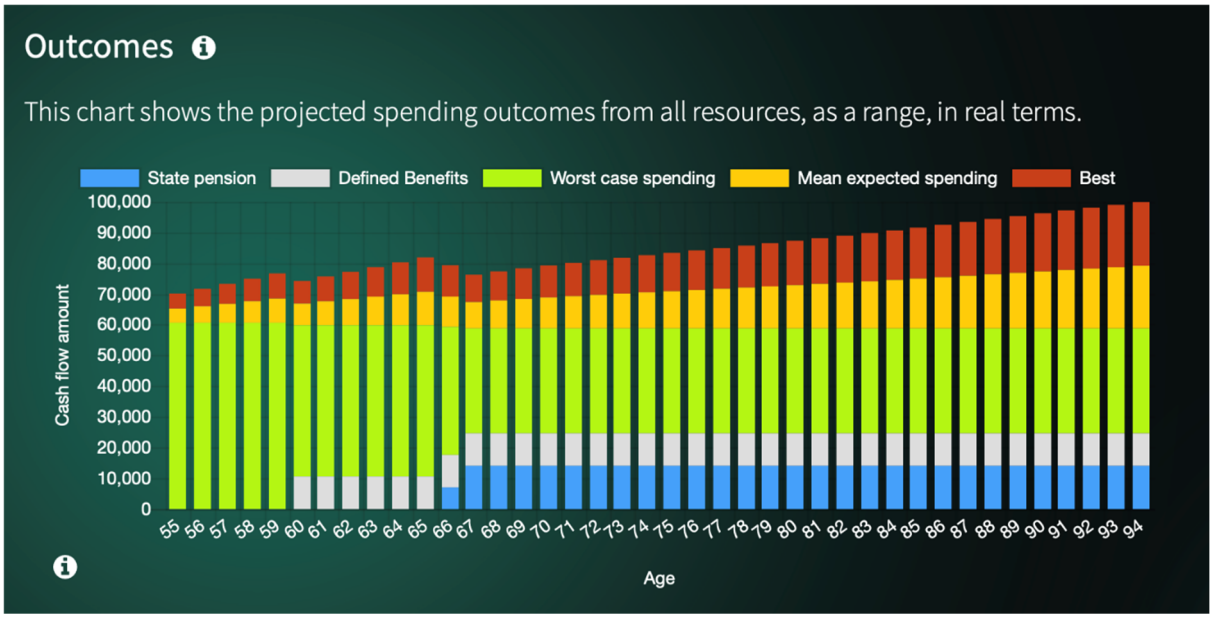
A common misconception about drawdown is that it excludes the option of buying an annuity. This comes from the fact that drawdown is most often talked about as an option attached to a pension product rather than, as we have described it, as a process for managing money holistically. That includes always knowing the price of giving up risk taking, a price derived in part from an annuity quotation.

## What are the technical problems the model needs to solve?

Given the answers the model needs to give, it has to be able to solve several problems that are economic or financial in nature:

- Generate expected returns for all the investments in the opportunity set, individually and as a portfolio
- Capture as accurately as possible the full distribution of possible returns, from worst to best
- Make those returns after inflation, allowing for the fact that retail prices have their own very large distribution of probable levels
- To the extent the money is invested outside the UK, ensure the real returns are realistic as to the joint uncertainty about relative inflation and exchange rate movements
- Make all these return probabilities conditional on the time horizon – when each portion of capital will be consumed as spending
- Adjust them for the costs of harnessing those returns in an actual portfolio that requires continuous management, products and custody
- Apply them to a framework in which specific targets or constraints (expressed for either individual years or the plan as a whole) must be met to achieve satisfaction and avoid regret

- Communicate them in ways that make it easy and intuitive for you to use to reveal preferences, with no knowledge of economics or of the language of finance. This includes the use of graphics in a user-friendly interface, as below (see Test drive the Drawdown Planner on our home page)




*A Fowler Drew drawdown plan has defined real spending outcomes at every time horizon. The probable outcomes are shown as a worst-case (at 99% confidence), median and best case. The sustainable draw rate sits on top of any guaranteed income (in this case two state pensions and a final-salary pension that kicks in after draw starts). Here, the plan is set to generate a minimum tolerable level of spending, with optional upside. It has a level time profile through retirement. The variables that can be refined are the profile, the end date, the tax rate and the approach to risk.*

## How we solve the technical problems

The technical skills to solve these problems came from expertise acquired in a quantitative environment in institutional investment, particularly in occupational pension funds, both in the UK and USA. They were first applied by Stuart Fowler and Chris Drew to a model developed in 1999 for retail use (in the so-called 'mass affluent' market) and have been applied to actual portfolios for wealthy individuals since 2004. Both the original and all subsequent solutions have been based on using the same model to

1 generate return probabilities

2 construct dynamically-optimised portfolios and

3 report changing probabilities for total-plan outcomes in the form of sustainable real cash flows.

### A global equity real-return model

A key insight in the original version of the model was that real returns from different equity markets across the world (deflated by their own inflation rates) show fundamentally similar risk and return characteristics, in spite of big differences between them, and through time, in factors such as economic growth, institutional structures, inflation rates, market size, taxation and investor culture. In terms of the numbers required by portfolio theory, this implies the mean real returns and variances over long periods are both similar and relatively stable. Though this global similarity could be purely empirical, there are possible explanations based on equilibrium theories for economies and changing risk aversion behaviour by investors. We did not need to prove a theory to feel confident building on the empirical evidence.

The global model allows future real returns to be modelled directly from historical returns without modelling any of the multiple economic or other factors thought to affect returns. Whereas a single-factor regression approach may simply look easier, it is potentially better if identifying the explanatory variables driving returns is where forecasting errors are typically made. They stem in fact from the inevitable complexity of a multi-factor model as well as the fact that the explanatory power of the different variables can shift materially over time. And modelling nominal returns and inflation separately leaves real return expectations highly exposed to errors in defining the future inflation regime, from deflation to high and unstable inflation.

Making expected returns a function of where the present observed level of cumulative real returns sits in relation to its own long-term trend is entirely intuitive. But investors have a choice how to interpret it. It could be that investors are 'correctly' predicting a fundamental change in the behaviour of markets not observed in the data histories – so this time it really is going to be different. Or the prediction is not correct and so the deviation from trend is instead telling us future returns will be higher than the trend rate (if the current level is below trend) or lower (if above trend). The lesson of the data is that the equity real-return 'system' is in fact much more adaptive than investors give it credit for and it does not fundamentally alter. That is the bet we prefer to make, if only because, if we are wrong, the implications for all investments, including supposedly risk free, are equally dire. It invites a contrarian approach, but that is what the evidence suggests is rewarded.

## Currency in a real-return model

A second key insight was that foreign 'engines' for generating real returns in sterling terms are in form the same as UK equities, once currency movements are taken into consideration. This insight relied on a presumption that, in the world of floating exchange rates since the 1970s, the theory called 'purchasing power parity' does hold. This has been borne out, such that the inflation-adjusted real exchange rates of different countries with large investable equity markets can now be seen to have long-term means close to zero: inflation differences have, on average, offset the exchange-rate differences. Currency exposure via non-UK equities adds risk (the error term in that regression) but is perfectly suitable as a means of funding the sterling liabilities of a UK saver. Deviations from mean are therefore predictive at longer time horizons, also in a contrarian fashion.

## Portfolio separation theory

The third key insight was that portfolio risk could be tightly controlled by combining a mix of globally-diversified equities with a risk free asset, matched to the nature, date and amount of the spending liabilities, or draw. For UK investors, various forms are available: a 'ladder' of index linked gilts with maturities matching the cash flows; rolling over 3- and 5-year index linked National Savings Certificates and, for nearer liabilities where cumulative inflation is less of a risk, cash.

The separation of portfolios into 'hedges' and a return-seeking (or risky) component is a core feature of how modern occupational pension schemes are managed, also for reasons of controlling risk more reliably. It dramatically shrinks the required opportunity set should you want to simplify it. Which we did. Portfolio separation increases certainty by reducing the dependence of the portfolio return on the correlation or co-movement of the assets included in the opportunity set. Diversification across a richer mix of risky-asset types is the triumph of hope over experience, because the correlation structure is so changeable. This plays havoc with the interdependence of the draw rate and the investment approach.

## Time-driven dynamics

Once we adopted the portfolio-separation approach, the dynamics of an outcomes-driven portfolio were fairly straightforward. The presence of constraints for spending, and therefore draw or cash flows, meant the proportion of hedges had to increase at the expense of equities the closer the consumption time horizon. Unchanged equity exposure would breach the constraints. This is easy to present as an expected 'glide path': the gradual reduction of equity exposure as each consumption point is approached and as the average maturity of the remaining consumption points gets shorter.

Ultimately, whatever the chosen risk approach, time precludes risk. At that stage the portfolio can only hold 100% hedges. In a drawdown context, this is equivalent to either a DIY annuity (the ladder of index linked gilts) or an actual inflation-linked annuity. (In the later stages of the plan, when the portfolio may look like a DIY annuity, the model would show which provides the better outcomes, after costs. Though directly-held gilts, even when funding added years to cover the longevity risk, can be shown to compete favourably with the irrationally-high product costs of inflation-indexed annuities, the addition of annual adviser charges may make the managed solution suboptimal.)

## A clearer way to identify risk attitudes

Portfolio separation pointed to a final insight: the distribution of horizon-specific outcome itself serves as a measure of risk tolerance. As a whole-plan number or score, once adopted, the model would be able to adapt the level of risk to both market conditions and time. The attitude to risk could remain constant but the level would change. The risk score is necessary to the maths but is not itself meaningful to a client. It's the modelled spending outcomes at every stage that matter, because this is what the investor is reacting to in order to reveal preferences.

## Other practical challenges

All models have practical deficiencies and it was important ours should not affect the uses it would be put to. Here we relied on some convenient effects.

First, we knew that equity returns are not normally-distributed at short horizons. This did not affect us as long as horizons out to about 7-10 years are anyway funded largely by risk free hedges, because of the glide path.

Second, it required us to communicate the short-term nominal portfolio volatility as well as the range of modelled real outcomes. Our approach clearly invites a trade-off to be made between the outcomes you get to spend and the experience of living with the portfolio that would generate those outcomes. You could think of outcome risk as being the uncertainty of what you end up with as actual spending, and volatility as the path risk, the nominal variations in portfolio values along the way. Though the two measures are not entirely independent, they are significantly different mathematically and also in terms of possible consequences. They are not resolvable mathematically and so call for a trade-off. In our target market, we find clients are well able to comprehend and make those trade-offs largely because they already have some experience of living with equity risk.

Finally, the division (behind the scenes) of the drawdown plan into discreet years (or 'time slices'), each with its own resources and asset allocation, means that we did not need to model formally the dependence of the sustainability of a given level of real draw, or its chance of success relative to the planned end date, on the 'sequence of returns'. This is the reverse of the phenomenon when saving, that regular contributions smooth differences in market conditions by averaging them over many different entry points. With drawdown usually being shorter than the accumulation phase, and with equity exposure declining anyway with shortening duration, particularly if draw rates are set higher early in retirement, there is less scope for averaging exit points than there was entry points. A sequence or run of good markets or bad markets therefore can have a material impact on whether the capital lasts. Separately funding each time slice is intuitively conservative and deals with sequence risk.

What a risk-taking model cannot do is manage longevity risk other than by funding the possibility of a very long life by assigning sufficient resources and enough time slices. It cannot replicate the longevity risk sharing inherent in a pool of insured lives, as is the case for an annuity. But as noted above, the shortening duration of the plan at a later stage could eventually make an annuity the obvious choice. Delaying an annuity is still efficient, as longevity risk only dominates capital-market and inflation risks at a late stage. Which is why embarking on drawdown is optimal for most people who can confidently meet their minimum needs for safety and security.