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White Paper

Overcoming the cost of being human

(or, The pursuit of anxiety-adjusted returns)

Wealth and Investment Management

Global Research & Investments

BARCLAYS

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Introduction

Dear clients and colleagues:

In our work with investors, we are constantly reminded that individuals consistently struggle to get the sort of investment returns they should. This observation prompted Barclays, in 2006, to make a significant investment in building the capability to diagnose why that occurs and what to do to improve it.

Our interest in behavioural finance

Our investment began with the creation of a dedicated team of behavioural finance specialists, with academic expertise spanning decision science, quantitative finance, behavioural psychology, and experimental economics. Their remit was twofold: first, to draw on their expertise and academic knowledge to improve our understanding of how investors make decisions; and second, to design practical systems to help us – and our clients – improve investment decision making.

Over the years, we have blended this knowledge with original research and extensive practical experience advising investors to forge an entirely new way of bringing behavioural and classical finance together into a single coordinated framework that enables us to:

1. Understand how and where individual investors face the greatest headwinds to achieving their financial goals, and

2. Offer a range of highly practical, and individually targeted, advice for making them sufficiently comfortable with their portfolios to help overcome investing mistakes.

It is very easy to use behavioural finance as an interesting source of anecdotes and stories about how we're all 'irrational' in amusing ways. This white paper outlines how we at Barclays have used this knowledge to create practical investing applications.

Our enhanced approach

Our analysis has led us to fundamentally challenge the traditional idea that investors want the best *risk-adjusted returns*. This notion assumes that investors are concerned only with long-term financial efficiency and that they are able to ignore their very real emotions over the investment journey.

Unfortunately, the evidence suggests that the natural behavioural need for emotional comfort across the investing experience costs the average investor around 3% per year in foregone investment return. For some, the cost can be substantially higher. As a result, actual investor returns are improved by focussing instead on achieving the best *anxiety-adjusted returns*: the best possible returns, relative to the anxiety, discomfort and stress they're going to have to endure over the volatile investment journey.

Investors deviate from good investing practice because good long-term investment decisions are invariably uncomfortable along the way. Our behavioural finance approach is not to ignore this human need for comfort, but to acknowledge it and ensure that we can help each of our clients achieve it as efficiently as possible. Only by having a practical system that addresses their needs for emotional comfort along the journey will investors be able to endure the ride, and get to the end with the sort of returns they should.

Using this groundbreaking synthesis of academic insight and practical application, we help ensure our clients are as comfortable as possible with their investment journey, and as a result are able to stick with their portfolio, despite the periods of exuberance or turmoil, and arrive at a better destination.

Sincerely yours,

Greg B Davies,
Head of Behavioural and Quantitative Finance

Overcoming the cost of being human

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It is easy to talk a good game about investing. Views can be two-a-penny: from idle cocktail-party chatter to the latest pop-scientific bestseller whose author beat the market 'and can show you how!' However – although the guiding principles of good investing have been known for decades – evidence suggests that most investors do considerably worse than they could if they adhered to a few simple principles. And it seems that being human doesn't help.

Our innate need for emotional comfort is estimated to cost the average investor around 2–3% per year in foregone returns.[1] For many, the figure is much higher. This shortfall – referred to as the *behaviour gap* – stems from the fact that the financial decisions that are optimal for the long term are often very uncomfortable to live with in the short term.

The classical principles of good investing are based on the assumption that we are all perfectly calm, unemotional beings, concerned only with long-term financial objectives and, therefore, stick staunchly to the following four principles of good investing:

- Put your wealth to work (being invested),
- Diversify to reduce risk (spreading your risk across markets, asset classes, geographies and industries),
- Ensure you have sufficient liquidity to withstand the journey (avoiding being forced to sell at a time not of your choosing), and
- Rebalance (selling asset classes that have risen in value, and purchase those that have fallen, in order to continually buy low, and sell high over time).

This model is neither new nor complex, but to be able to stick at it, investors must be emotionally comfortable enough to (a) enter the market, and (b) stay in it.

In truth, as human beings our emotions are the biggest driver of our investment decisions and, therefore, our returns. In turbulent times, theory often goes out the window. Depending on the market cycle and how it makes us feel, we may leave large portions of our wealth uninvested; we may be overconfident and overactive with the portion that we do invest; and, in the end, we often give in to our strong psychological tendency to buy high and sell low.

Behavioural finance – an emerging field in the investment landscape – seeks to help investors find a middle ground. This dynamic, new discipline combines psychology with financial theory to understand the interplay between markets and our emotions, personality and reason.

[1] This high-level estimate is arrived at by drawing together the results of many different studies.

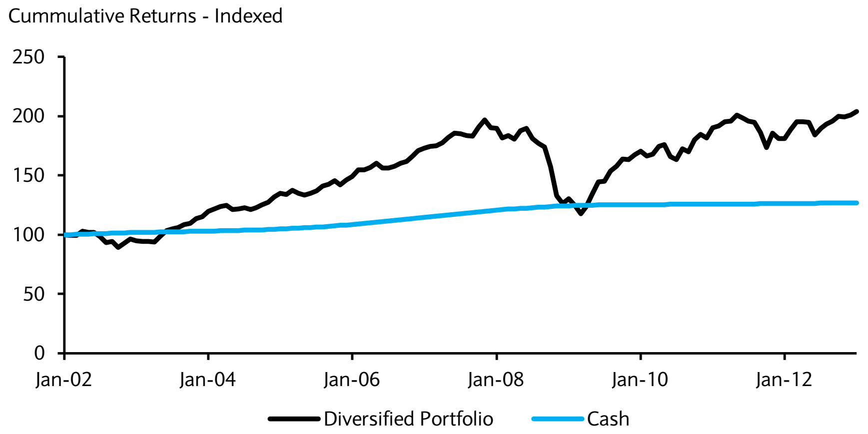
Barclays is unique within the industry because our dedicated team – comprising economists, psychologists and behavioural scientists – has been working with investors since 2006 to actively narrow the *behaviour gap*. We use ideas from behavioural finance to improve our understanding of your needs, and turn this understanding into practical solutions.

In this white paper, we discuss what your emotions could be costing you, and outline how we can work with you to purchase the emotional comfort required to transform your investment journey and, more crucially, achieve potentially better results – by helping you stick to an investment programme over the long term

Why behavioural finance matters

At Barclays, our experience of behavioural finance gives us insight into two aspects of investor behaviour that the industry would have a hard time understanding without it. The first is *reluctance*: individuals often fail to see the potential long-term benefit of investing in a diversified portfolio compared to holding cash. This can cost the average investor 4–5% per year of foregone returns, over the long term. Figure 1 shows the effect of sitting in cash versus investing, over the last 10 years. Even during this turbulent time in the markets, being invested was a clear winner. Indeed, it's only in the depths of the most extreme crisis in living memory that a diversified portfolio dipped below cash, and as long as the investor didn't sell in panic, this situation was very short-lived.

Figure 1: The long-term value of diversified investing



Source: FactSet, Bloomberg, Merrill Lynch and Barclays. Past performance is no guarantee of future results. The Diversified Portfolio, representing nine asset classes, is constructed as the following mix of indices: 7% Barclays US Treasury Bills Index; 4% Barclays Global Treasury Index; Investment Grade Bonds 7% Merrill Lynch Global Broad Market Corporate Index; 11% Merrill Lynch Global High Yield and Emerging Markets Index; 38% MSCI World Index; 10% MSCI EM Index; 5% Dow Jones UBS Commodity Index; 4% – FTSE EPRA/NAREIT Developed Global REITs Index; 14% HFRX. The weightings are rebalanced monthly to maintain the same mix over time. An investment cannot be made directly in an index.

The returns depicted above do *not* represent *actual* portfolios, nor do they reflect trading or the impact of material economic and market factors including fees. Hypothetical illustrations and performance have certain inherent limitations. No representation is being made that any client will or is likely to achieve the hypothetical return represented in the illustration on this page.

The second issue that behavioural finance sheds light on is the *behaviour gap*. Multiple studies have confirmed that the average investor underperforms a simple buy-and-hold strategy over long periods of time. Most credible research on individual (as opposed to institutional) investors finds this underperformance to be between 1% and 2% per year, on average (although this can be substantially higher). And the *behaviour gap* is purely attributable to market-timing decisions, not costs or fees.

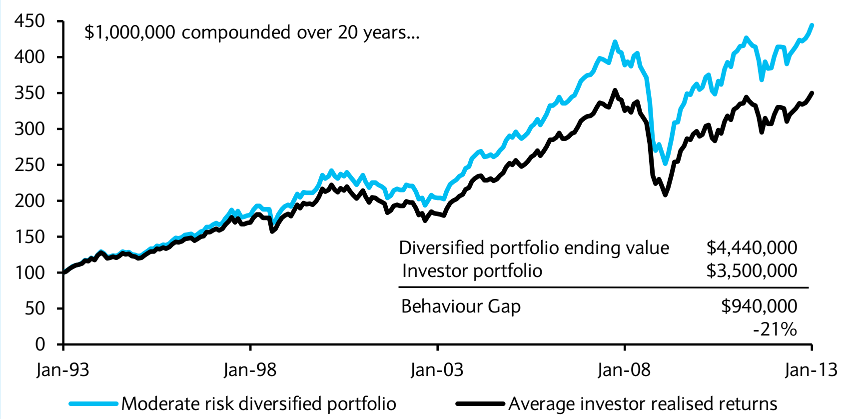
Estimating the *behaviour gap*

The *behaviour gap* describes the difference between actual investor returns and the returns an investor might have achieved had they doggedly adhered to classical principles.

A recent study by Cass Business School – which used data from investors in actively managed UK equity funds over a 20-year period – concluded that, relative to a buy-and-hold strategy, the average investor conceded 1.2% annually by moving in and out of funds. This percentage may not sound like much, but it amounts to a significant difference in final wealth when compounded over 20 years.

In the example below, we take the Cass study's *behaviour gap* of 1.2% annually – many other studies have found investor behaviour gaps to be substantially higher – and apply it to a hypothetical Diversified Portfolio. An investor who invested $1mm in a moderate-risk diversified portfolio would have $4.44mm after 20 years. A *behaviour gap* of 1.2% per year would, over two decades, reduce this to $3.50mm, a difference of $940K or 21%.

Figure 2: The long-term impact of the *behaviour gap*



Source: DataStream and FactSet. Study commissioned by Barclays at Cass Business School, Clare & Motson (2010). "Do UK retail investors buy at the top and sell at the bottom?"; UK equity funds from 1992 to 2009 recorded by the Investment Management Association. Past performance is no guarantee of future results.
The Diversified Portfolio is represented as the following mix of indices, all in US dollars: 7% - Barclays US Treasury Bill; 4% - Barclays Global Treasury; 7% - Barclays US Corporate Investment Grade (1 Jan 1992–31 Dec 1996), then Merrill Lynch Global Broad Market (1 Jan 1997–31 Dec 2012; 11% Merrill Lynch USD High Yield & Emerging Market Sovereigns (1 Jan 1992–31 Dec 1998), then Merrill Lynch Global High Yield and Emerging Markets (1 Jan 1999–31 Dec 2012); 38% - MSCI World Index; 10% - MSCI EM Index; 5% - Dow Jones UBS Commodity TR; 4% - Real Estate by FTSE EPRA/NAREIT; 14% - HFRI fund of Funds Composite (1 Jan 1992–31 Dec 1997), then HFRX Global Hedge Fund (1 Jan 1998–31 Dec 2012). The weightings are rebalanced monthly to maintain the same mix over time. Changes in indices were made based on availability of historical index data.
The returns depicted for the hypothetical Diversified Portfolio above do *not* represent *actual* portfolios, nor do they reflect trading or the impact of material economic and market factors including fees. Hypothetical illustrations and performance have certain inherent limitations. No representation is being made that any client will or is likely to achieve the hypothetical return represented in the illustration on this page.

It is important to note that the Cass study's *behaviour gap* is an *average*: Some investors did better, but some did worse. For a first-time investor who entered the equity markets in a state of emotionally charged enthusiasm at the peak in November 2007, and later sold in terror at the beginning of March 2009, a mere 1.2% *behaviour gap* would have been extremely soothing. Assuming this investor had put everything into the MSCI World index, his or her return would have been -54% in 16 months, before costs!

Anxiety-adjusted returns

There is much that is right about the traditional financial models – the result of decades of research, discussion, and debate – but they are only completely right for the hyper-rational investor, the so-called *Homo economicus* (an ideal investor who simply doesn't exist). It assumes that once an individual has agreed upon an optimum investment solution, they not only can implement it, but they can also persevere with their strategy over long periods of time, making rational adjustments regardless of what they have to endure along the way. It also assumes that all investors care about is risk-adjusted returns. They don't. What investors really want is the best returns they can achieve for the level of stress they're going to have to experience. Some of this stress does come from taking risk, but a great deal of anxiety arises from emotional responses to fluctuations along the investment journey, which are quite independent of risk. As a result, what investors truly want is, what we at Barclays call, '*anxiety-adjusted returns*': the best possible returns, relative to the anxiety, discomfort and stress they're going to have to endure over the volatile investment journey.

But to throw away decades of research on the grounds that the models invoke some simplifying assumptions is to throw the baby out with the bath water. We believe the conflict between behavioural and classical finance is misplaced. There are aspects of the classical investment model that have served us well. Therefore, at Barclays, we have taken the best of classical finance and sought to *behaviouralise* it.

This may sound strange but by focussing on something other than long-run financial efficiency, we are actually able to get closer to it. The answer to this seeming paradox is to realise that, without looking after our short-term need for emotional comfort, we may find it very difficult to enact and stick with the 'right' solution; ultimately, these investors will aim for perfection, but fail, and fail expensively. As investors, we devote some portion of every decision to securing the short-term emotional security that we crave, and which makes the pursuit of the longer-term objectives possible … but at a cost to the perfectly efficient long-term investment choices.

Classical finance's response to this problem is to label it 'irrational' and ignore it. At Barclays, we acknowledge that the need for comfort is not going away – after all, it is what makes us human. Instead, we seek to provide this comfort in targeted, efficient and planned ways, rather than via the unplanned and expensive methods investors employ with knee-jerk responses along the journey.

Our approach to behavioural finance allows us to pinpoint in advance which investors are most likely to harm their long-term returns through this behaviour, and in what ways. We don't just tell stories or spin anecdotes. Instead, we use our proprietary Financial Personality Assessment™ to measure six stable personality attributes that distinguish one investor from another.

These six dimensions allow us to tailor the advice we give to each investor to provide them with not only a sound long-term solution, but one that helps them better manage and control their investment decisions along the way. This may mean slightly sidestepping the classical solution, and purchasing the emotional comfort that all investors require. But when these deviations are targeted to the personality of the individual, they enable the investor to achieve a better result in practice.

Later in this paper, we will discuss how we use our investment philosophy (a combination of emotional and scientific dimensions) and the following categories of tools to tailor client solutions:

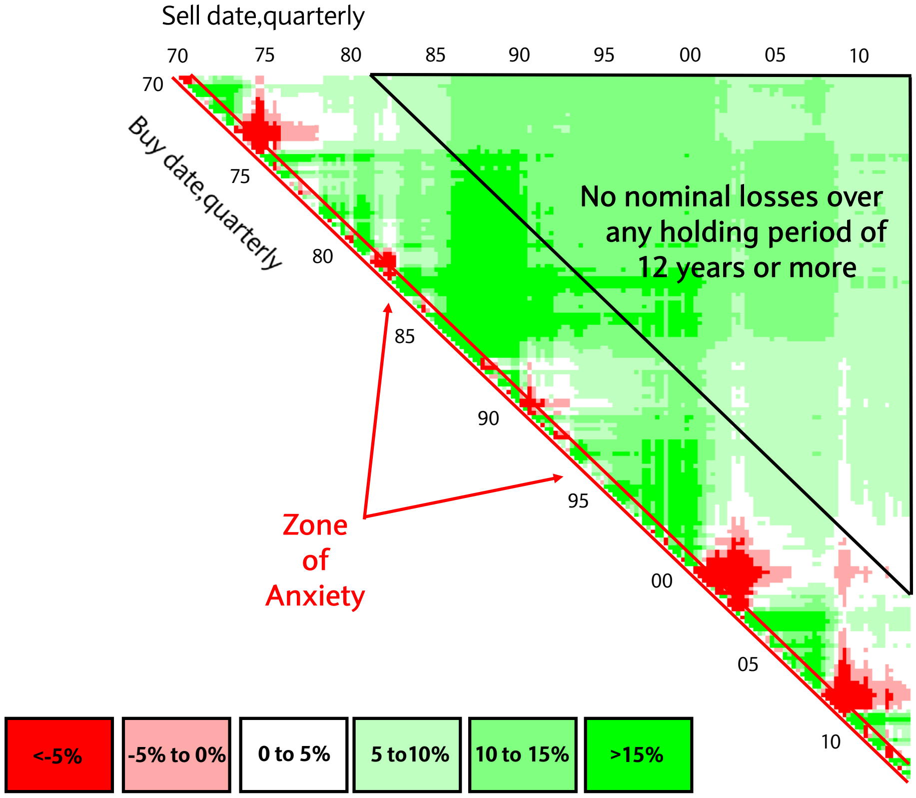
- Education
- Constraints
- Risk targeting
- Involvement
- Trading off efficiency for comfort
- Management style
- Investment frameworks.

These tools are specifically designed to help investors navigate their way through the so-called *zone of anxiety* – the point at which most investment losses occur. If we are to turn this knowledge into practical, useful advice, we need to be able to reliably identify, in advance, which investors are naturally prone to seek emotional comfort in particular ways, and when.

Welcome to the zone of anxiety

None of us lives in the long term. We all, to our perpetual discomfort, live in the present, in what we call the *zone of anxiety* where we are always buffeted – financially and emotionally – by short-term uncertainty. In the heat map below, most of the red losses coincide with holding periods of under five years, but there are no nominal losses in any holding period of at least 12 years. The challenge we face though, is that it can take some tough emotional sledding to remain invested in order to get there.

Figure 3: MSCI World Index annualised returns



Source: MSCI World Index, 1970–August 2011, Barclays.

The benefits of long-term investing

To illustrate some of the inefficiencies that may blight our investment journey, consider a real-world example: an investment in the MSCI World Index of developed equity markets in 24 countries. This would be considered highly risky as an allocation for your entire wealth, but it will serve as a simple case study to illustrate our point.

The heat map (Figure 3) shows the average *annual* returns that investors would have received from this market for any combination of quarterly purchase date and sell date since 1970.[2] The long diagonal line from top left to bottom right shows every possible quarterly purchase date over the period; the dates along the top represent each point at which the investor could have sold. Thus, the red clusters close to the long diagonal

[2] We focus here on nominal returns because these are what influence our perceptions of risk and return most strongly. Investors are prone to *money illusion*, which means they often fail to perceive the effects of inflation on financial returns. However, the key messages hold regardless of whether we examine the data in real or nominal terms.

show the negative average returns that investors would have suffered if they had bought into falling markets and sold shortly after, e.g., during stagflation of the 1970s, the collapse of the internet-bubble in the 2000s, or the 2008 financial crisis.

While the crises represented by the red clusters are interesting, more crucial is the observation that they are all concentrated along the long diagonal, which shows the annualised returns from buying the index and then selling just *one quarter later*. As we examine diagonals further up and to the right, we see the effect of longer holding periods. The proportion of red dots diminishes and the fluctuations between high and low annualised returns are substantially dampened. For holding periods longer than 12 years, there is no red, regardless of the purchase date. This indicates that, in a sufficiently diversified portfolio[3] over the long term, the expected returns are positive; that is, investors earn a risk premium.

As long as you can hold for the long run (*i.e.* in excess of 12 years), and are in a diversified portfolio, it also doesn't matter too much when you buy. There are certainly better and worse times to get into the market, but over the very long term, good and bad events average each other out and the effect of the purchase price will be diminished.[4]

As obvious as this may be, our need for short-term emotional comfort can cause us to be reluctant to invest, or be too active when we do finally find a compelling reason to enter the market. Frequently we are both too passive and overactive at the same time with different portions of our wealth. Of course, not every investor gives away returns through active decisions along the journey; in the same way, not every investor leaves wealth languishing on the sidelines. But most of us do both to some extent, and some of us do one or the other to an extreme degree depending on where, in the investment cycle, we find ourselves.

As we've seen, investments are much more risky and volatile when viewed in the short term than the long term. When we approach investment decisions with a myopic short-term perspective – despite our objectives being long term – our perceptions of greater risk will lead to inappropriately high caution.

[3] The MSCI World Index we use as an illustration is highly diversified across geographies and sectors in 24 developed equity markets, which is necessary to ensure a long-term risk premium as any one sector or country could fail permanently. However, this still represents investment into a single asset class, so diversification could be considerably improved from this example by combining equities with other asset classes, as we recommend in our Strategic Asset Allocations.

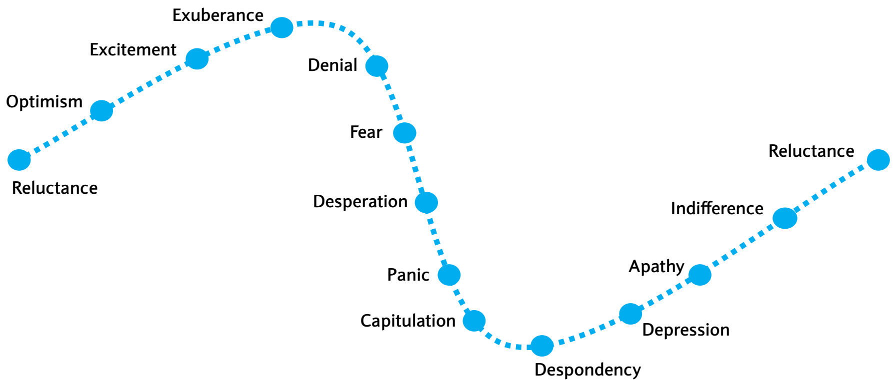
[4] By contrast, the point at which you sell, or are forced to sell, can make a huge difference to long-run average returns. If you run out of financial liquidity, or more often emotional liquidity, at a time when markets have crashed, you will undo much of the good of even decades of sensible investing.

Cycle of investor emotions

To illustrate our emotional responses to the short-term environment, we have adapted a much-used diagram to map out the investor's probable response to the rise and fall of his/her investments. The version below is the result of more than half a decade of studying investor responses to extreme market conditions.[5]

At each point along the cycle, investors make specific trade-offs between emotional comfort and long-term returns, all of which have connections to our Financial Personality Assessment™ and to the specific actions we recommend to tailor investment solutions to each unique investor personality.

Figure 4: Cycle of investor emotions



Source: Barclays.

The baseline: *reluctance* and myopic loss aversion

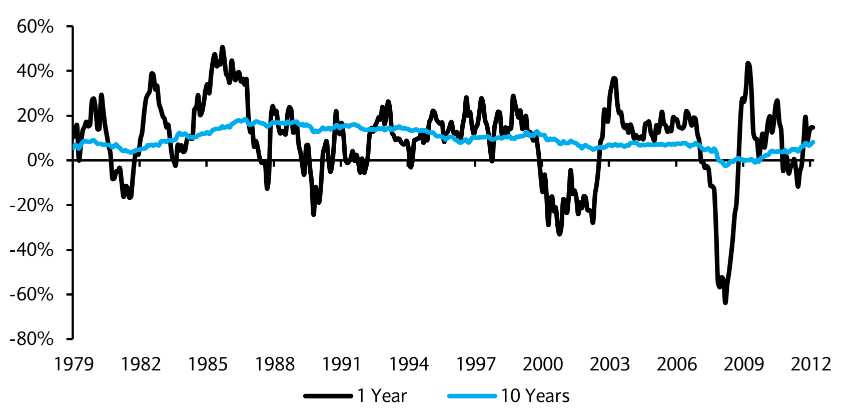
It is worth starting with the word that occurs at both the start and end of the chart: *reluctance*. This is the 'default' state of most investors. In normal circumstances we fear taking a risk and getting it wrong, more than we fear missing out. This *reluctance* to get involved is compounded by another strong behavioural effect: *loss aversion*. Simply put, when we make decisions, "losses loom larger than gains"[6] – we believe we will feel more emotional pain from losing a certain amount than the pleasure we experience from gaining the same amount. This may seem intuitive, but it has huge implications for investors. The proportion of loss we perceive *for the same portfolio* can be manipulated by how returns are presented to us.

[5] This chart is frequently used to describe the emotions of the market as a whole. However, very rarely does the entire market share a single, clearly identifiable emotional state. Rather, this cycle should more appropriately be used to understand the emotional progression of individual investors, each of whom may be at a different stage in the overall cycle, depending on their own unique history.
[6] The phrase is from the famous 1979 Prospect Theory paper of psychologists Daniel Kahneman and Amos Tversky, which later won Kahneman the Nobel Prize for Economics (Tversky had passed away by the time the prize was awarded). Kahneman, D.; Tversky, A. (1979). "Prospect theory: An analysis of decisions under risk". *Econometrica* 47 (2): 263–291.

Anxiety goggles

Let's look at the issue from a slightly different angle. Our decisions, made in the frenetic short-term environment – the *zone of anxiety* – create a very different investment experience to one that is focused on the long term.

Figure 5: Annualised returns as seen through long-term and short-term frames



Source: FactSet. Past performance is no guarantee of future results.

The chart above shows the annualised returns that an investor in the MSCI World Index would have experienced over time, depending on whether they focused on long- or short-term returns. The smoother (blue) line shows a rolling window of annualised 10-year returns. This line illustrates the returns perception along the journey that *should* inform our decisions. Ninety-six per cent of the time, the 10-year returns are positive; only turning negative in the catastrophically bad times at the depth of the credit crisis.

Contrast this with the more extreme line, which reflects rolling 1-year returns, which is much more akin to the actual perceptions of investors along the cycle (although, these tend to be even more extreme). In general, the same investment can feel completely different depending on the time frame over which we observe it. As evidenced in the diagram, investors experience vastly more volatile returns if they use a short-term horizon; unfortunately, as we all live in the present, short-term is our natural psychological default. And this comparison between 10-year and 1-year returns understates the magnitude of the problem.

One year is investors' typical evaluation horizon only in calm times. In times of stress, investors' emotional horizons can be much shorter. And 10 years may well be on the short side of when many investors actually *need* to withdraw their capital; for many, investing is about growing a capital base indefinitely.

Failing to invest completely is the first way in which we naturally purchase short-term emotional comfort at a cost to long-run returns. It provides this comfort in a very simple way – you cannot lose if you don't get involved – but at a very high price. The expected cost depends on the expected returns from each investor's ideal portfolio. But it is helpful to look at an investor with moderate Risk Tolerance in a globally diverse multi-asset class optimal portfolio. The expected returns beyond what you'd get from cash for a well-designed, moderate risk portfolio are around 4–5% per year averaged over the long term.[7] This is the amount that investors with cash sitting idle pay for their

[7] Low Risk Tolerance investors will forego smaller gains over time, while high Risk Tolerance investors may forego 6% or 7% through being too passive.

emotional comfort. Leave half of your wealth un-invested and on average you'll forego gains of 2–2.5% of your total wealth every year. An immensely expensive way to sleep better at night.

Some investors who are naturally prone to *reluctance* do manage to find ways of getting into the markets comfortably, but this also typically comes at a cost relative to a perfectly efficient portfolio. Such investors will often sacrifice financial efficiency for comfort, for example, by investing only in familiar or local assets, by paying for unneeded financial protection against short-term dips, or by phasing the investment in gradually over time. These inefficiencies would never be recommended by classical finance professors, but can make a great deal of sense (if not taken too far) for investors who would otherwise be too reluctant to invest at all. What all of these hesitant investors have in common is that they offer a convincing narrative – in some cases in addition to real protection along the journey – that enables the reluctant investor to get into the market.

Unfortunately, our desire for a convincing narrative can be dangerous: The story that is often most successful in overcoming *reluctance* is a sustained market boom. With the economy booming, and the stock market posting gain after gain, it can start to feel as if losses are highly unlikely. This, combined with being invested in concentrated assets that we think cannot lose, can lead us to chase past success, buying investments with a good recent track record or chasing 'hot' funds (with good accompanying stories … tech stocks, anyone?). The evidence tells us that these almost invariably lead to poor performance, but despite the clear dangers of 'buying high', jumping in at the top of the market is the way many investors finally overcome *reluctance*.

Post-investment: trading can be hazardous to your wealth

Overcoming *reluctance* early is one of the keys to better investing. Unfortunately, getting actively involved doesn't mean it is then easy to reap the long-term benefits of being invested. Investors still need to feel comfortable *while* putting their wealth at risk, and usually incur further costs relative to the long-term optimum through being too active with the wealth they do invest. Our strong tendency is to *do too much*. As we've seen, being invested in the *zone of anxiety* is uncomfortable. One response is to opt out, but frequently those who do invest will make themselves comfortable by being excessively active; by over-trading; constantly trying to adjust their portfolios and take advantage of perceived patterns in the market; and by increasing risk when they feel comfortable, but decreasing it when they feel uncomfortable.

Of course there are good reasons not to be completely inactive in managing one's investment portfolio. The chief one is *rebalancing* periodically to reduce the weight of assets that have risen considerably, and increase those which have fallen (this also ensures that the risk of the portfolio doesn't change dramatically over time).

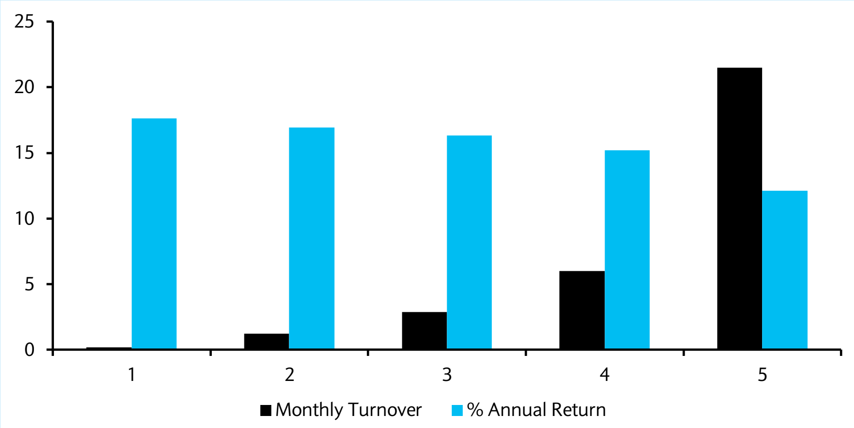
But frequently, trades are enacted more in response to random market movements than to genuine changes in the risk-return expectations of assets. At best this drags down performance due to high transactions costs. But the effect can be considerably worse: the short-term emotional component of these decisions tends to lead us to take on more risk when it feels comfortable to do so (when times are good and markets are rising), and to pull away from risk when things feel uncomfortable and markets are low. In other words, when responding actively to the investment journey, our natural psychological tendency is to buy high, and sell low![8]

[8] And according to the Trading Paradox unearthed in our research and presented in Wealth Insights Vol 13: The Role of Control in Financial Decision Making, it is precisely those investors who are most convinced of the need to buy and sell often and time the markets to get good returns, who are also those to control the extent to which they do this. Meddling in your portfolio is addictive!

The turnover test

One famous study grouped real investors into five groups according to the proportion of their portfolio they turned over every month. The bottom group barely traded at all, while the top group changed nearly 25% of their portfolio every month. This is a massive difference, and one reasonable interpretation is that the most active investors are presumably those who are reading the financial pages, paying attention to their portfolios, and staying informed. In other words, these are the experts. It would be reasonable to expect that this group did better from their investing than those who are not paying attention at all. But when the researchers looked at the returns of each of the groups, they found quite the opposite: The less investors traded, the better they did.

Figure 6: Trading can be hazardous to your wealth



Source: Barber & Odean 2000.

We've seen, therefore, the costs of being perennially reluctant or perennially overactive. This does not mean that the investor is either only one or the other. Most of us are both simultaneously: leaving too much capital doing nothing on the side, but dabbling constantly with that portion of wealth invested. What action we take can change with the twists and turns of the market cycle. And both tendencies are costly ways of making ourselves comfortable in the short term. The vast majority of investors would do much to reverse this balance by putting all of their long-term wealth to work (*i.e.*, excluding wealth that they need to meet cash flows in the short to medium terms) and then largely leaving it alone.

Changing responses through the cycle

As we describe below, the phases that investors pass through along the Cycle of Emotions can each be mapped to specific responses.

Optimism to (irrational) exuberance: herding and fear of missing out

As markets pick up and the economy enters a positive phase, our natural state of *reluctance* diminishes. Enough good news stories about successful investments, and friends telling you how well they've done in the markets, and our fear of failure quickly turns into a fear of missing out. Our natural aversion to loss may now cause us to take action to increase short-term emotional comfort, this time by entering the market. This now feels comfortable because we're with the herd, not against it; and because the sustained period of positive results has helped to blur our recollections of losses and perceptions of risk (ironically, just when markets have furthest to fall). The more psychologically immediate loss is now the thought of not getting great returns when everyone around you is profiting from their investments.

In one sense the costs of this enthusiasm can be less detrimental than perennial *reluctance*. Buying high certainly reduces returns, but as long as you subsequently stick with it, eventually average returns will turn positive, which is better than the zero excess returns of being out of the market altogether. However, buying at the top also has the effect of making subsequent short-term experiences far more unpleasant, increasing the chance of compounding these costs with further emotionally driven decisions.

Denial to panic: reference points and endowment effects

The point at which we enter the markets fixes in our minds a *reference point* against which we judge further gains and losses. Should we enter at the top, a great deal of our future experience will be of loss. Since we're so averse to losses, this frequently means that at the very point when objective evaluation of negative information is most useful to us, we take steps to shield ourselves from it.

So at the top, investors often have high expectations and decisions have a high emotional component. When reality starts to intervene, investors start to shield themselves psychologically from the bad news, and move into denial. This *reluctance* to sell often has the effect of keeping markets artificially high for a while, allowing the bad news to accumulate. No one wants to sell at a loss and so instead of falling, volumes dry up. This is particularly evident in markets for large, indivisible, illiquid assets that form a significant part of investors' total wealth, and which have a strong emotional component – that is, residential property. But sooner or later some investors will be forced to sell, bursting the dam and precipitating falling prices. Investors then move on from denial to fear, desperation and panic.

Capitulation to *reluctance*: expensive comfort and the anxiety premium

On the way down, loss aversion and denial tends to cause investors to hold on to their investments. As their portfolio plummets, the emotional pain of selling at a loss increases too, but at a diminishing rate. Losing 5% hurts, but the first 5% hurts the most. Once you've already lost 30%, the difference between -35% and -30% feels less significant than the difference between -5% and no loss at all.[9] Meanwhile, the emotional stress of sticking with falling investments, combined with the fear of even greater losses ahead, builds up and takes its toll.

Some investors sell at a loss because they're forced to by a lack of liquidity, inducing the forced sales that often precipitate the rapid decline.[10][11] But most of the time when investors sell in crises, it is not because they have run out of financial liquidity (at least, seldom to the extent of needing to liquidate their entire portfolio). More often the investor, rather than running out of financial solvency, depletes their reserve of *emotional liquidity*, and lacks the emotional resilience to hold their investments through the stress, fear and anxiety. Eventually the depletion of emotional liquidity, anxiety and fear of further losses trumps the aversion to realising losses already sustained.

In crises, we sell far more because we are scared, stressed and anxious than genuinely in need of our wealth to be in cash. This is not 'irrational' – it is perfectly reasonable to capitulate in order to remove the extreme anxiety of staying invested in a falling market – it's just really, really expensive. Once you exit the market for emotional reasons, you

[9] This law of *diminishing sensitivity* away from a reference point is a feature of many aspects of perception, including those of temperature, loudness, brightness, etc.
[10] This can happen when there is a loss of income, investors lose their job, or there is some unanticipated surge in expenditure. Assets then have to be sold to fund ongoing needs and cash flows. To protect against such unexpected cash needs, the optimal solution is targeted insurance against specific events, rather than the rough and ready (and costly) insurance gained by not investing at all.
[11] Lack of liquidity is particularly dangerous when leverage is backed by underlying asset values. When asset values drop, loans are recalled, which forces the investor to sell assets. This then reduces asset values further and can lead to a forced sale of substantial portions of the portfolio.

can't quickly and easily get back to optimism, but have to gradually claw your way back through despondency, depression, apathy, indifference … and *reluctance*. This can take many years, and in the process you miss out on the recovery from the bottom, which can often be both fast and powerful.

And, unfortunately, it is when markets are panicked, anxious or fatigued that the potential upside is greatest. Those investors who can overcome these short-term needs can capitalise on the anxiety and myopia of the rest. But, of course, it is at such times when this is most difficult. **After a costly ride through the emotional cycle, we end up once again at *reluctance*, the baseline we started from, which causes us to forgo returns by not putting our wealth to work.**

Know thyself: identifying your financial personality

Each investor will bear the behavioural costs to long-term performance outlined above to different degrees.

- Some will have greater natural *reluctance* to enter the markets, some less
- Some will have a greater need for familiarity
- Some will need to be confident that the worst case is limited
- Some will find it difficult to stick with a volatile portfolio
- Some will be nervous if they don't retain control of the investment decisions
- Finally, there are the rare individuals who know about all these failings and yet are able to control them with apparent ease

Most of us need some assistance in attaining comfort as cheaply as possible.

Changing investors' behaviour for the better requires practical actions that have tangible results. This requires understanding our emotional needs, and our behavioural proclivities. Only when we have an objective understanding of what makes one investor respond differently over a market cycle from another, and how their needs for short-term comfort differ, are we in a position to make bespoke changes to their portfolio solutions that provide the necessary short-term comfort intentionally, directly and efficiently. This is the cornerstone of our use of behavioural finance at Barclays: to use our knowledge of investor psychology to make targeted and implementable changes to actual portfolios that most cheaply provide the emotional insurance investors require, thus improving both their eventual returns, and their satisfaction.

But to do so we need an accurate means of identifying the ways in which they are likely to reduce their own returns in the quest for short-term comfort, and we use our proprietary Financial Personality Assessment™ to help with this. This marks a substantial shift away from the traditional approach to investment portfolio design, which focuses almost entirely on the investor's tolerance for risk and ignores other, equally important, factors that were difficult to assess.

The Financial Personality Assessment™ (FPA) is a proprietary research survey that measures six different aspects of an individual's personality, each of which relates to their financial behaviour and decision-making. It was developed to paint a more complete portrait of each investor's inherent responses to financial decision making, which in turn enables us to develop more effective individual investment solutions. These solutions are deeply tailored, taking into account the vagaries of the investment journey, and thus can provide a better return. In essence, the FPA helps us to determine which emotional needs are most important to each client, and to identify which costs they are most in danger of incurring. We can only help investors get closer to their long-term financial objectives if we understand these factors at the beginning of the investment process, *before* they enter the market.

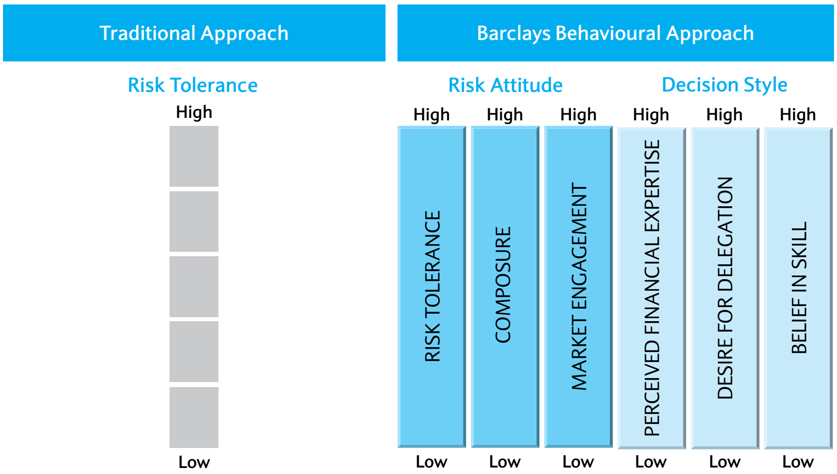
We developed and calibrated the Financial Personality Assessment™ tool using data from over 3,000 individuals worldwide and tested hundreds of questions before arriving at the final set. These questions have been selected using strict principles based on scientific evidence of what works and what doesn't in eliciting personality traits. For example, to be useful to guide investment recommendations, we want the scales to be reflective of stable, underlying psychological responses to risk and uncertainty over the investment journey. We don't want them to be a test of intelligence, investment knowledge, education or numeracy. For this reason, none of the questions require knowledge of finance, and none require calculation or probabilistic reasoning.[12] Also, because we want the scales to reflect investors' proclivities throughout the cycle, and not just their current emotional response to the market environment, none of the questions refer to current economic conditions, or require predictions or future asset returns.[13]

Since launching our Financial Personality Assessment™ in 2007, we have deployed it around the globe and it is key to how we advise high net worth individuals. This period has been one of the most turbulent periods in living memory for investors, and has provided an extreme testing ground for observing investor behaviour and, crucially, for stress testing our tools and framework. Though we have made tweaks to the questionnaire as a result of our continued testing, analysis, and experience, the dimensions have proved to do what they were designed to do: provide stable and objective assessments of financial personality traits, even in extreme environments.

Describing financial personality

Figure 7 illustrates the difference between the profiling approach of traditional finance, and our Financial Personality Assessment™. The traditional industry approach measures only the investor's long-term financial willingness to trade off risk and return, and largely proceeds on the basis that this is the only valid objective for an investor to have. Our approach still places Risk Tolerance at the heart – after all, long-term financial performance is what investing is essentially about – but we also measure five other aspects of financial personality that enable us to help an investor get as close to the long-term optimum as possible.

Figure 7: Know thyself – Financial Personality Assessment™



Source: Barclays

Of six dimensions measured by our Financial Personality Assessment™, three explore *risk attitude* (something academics have known for decades can't be understood as a single concept), and three relate to the investor's decision style.

[12] A robust finding of research into decision science is that even highly numerate people make mistakes at probabilistic reasoning, and responses to questions asking for trade-offs between risk and return of hypothetical future portfolio outcomes are extremely unstable and largely meaningless as measures of true risk taking.
[13] For further information on the design of such surveys see *http://www.barclayswealth.com/Images/Optimal_Behaviour_July08.pdf*.

Risk attitudes

It is these dimensions that most strongly reflect the proclivities for investors to seek emotional comfort along the investment journey, and allow us to optimally purchase emotional comfort.

Risk Tolerance

Risk Tolerance is an expression of the long-term financial objectives that classical finance, and the majority of the financial services industry, considers to be the only objective investors either do, or should, entertain. Risk Tolerance helps to determine which combination of asset classes is optimal to attain the highest expected returns for the level of risk that the investor is prepared to take on. Measuring Risk Tolerance, however, is where many of our peers stop. For us, it is merely the start.

Composure

Composure describes an investor's degree of emotional engagement with the short term, and the degree to which emotional responses in the *zone of anxiety* may come to dominate long-term financial objectives. Investors with a high level of Composure are relatively unaffected by the temporary ups and down of the market, and can keep their focus firmly on the longer term. They are less likely to over-respond to events, and less prone to buying high and selling low.

All investors, however, need some emotional security – just some less than others. High Composure doesn't mean that one is immune to the temptations of security in the short term. When markets are turbulent, or in crisis, even the most composed individual can feel discomfort and run out of emotional liquidity.

The high Composure investor tends to pay too little attention to market movements, and may not change their holdings to react to those changes. They may fail to rebalance effectively, and may well be in a portfolio that is an unconnected clutter of individual assets acquired over the years, with no assurance that these function together as an efficient whole. One solution for such an investor is to hand over the portfolio to a discretionary manager: you pay for the management but this can often be substantially cheaper than the forgone upside of a poorly constructed portfolio. However, this is only a solution if the investor is also comfortable with such a high level of Delegation – one of the other personality dimensions.

For a low Composure investor, lack of involvement is less likely to be a problem – they may be all too engaged, but their reservoir of emotional liquidity may deplete faster than others' in response to bad times. Their anxiety levels are likely to be higher for any given level of risk or volatility. To acquire the comfort they need to cope with such intense involvement with the short term, they are likely to be tempted to buy high and sell low.

Market Engagement

The third risk attitude dimension is closely related to our baseline levels of *reluctance*. It refers to our ability and willingness to enter the markets in the first place.

Low Market Engagement can also lead to inefficiency through what we invest in, as such investors source the comfort they need to invest by costly actions such as:

- Concentrating the portfolio in assets that feel familiar (familiarity bias)
- Phasing investments in only gradually (e.g., dollar cost averaging)
- Giving up the premium they could earn from accepting lower liquidity, even when they don't need high levels of liquidity
- Excess belief in convincing investment stories
- Paying for short-term protection in order to attain the comfort to get in

As long as these costs are less than the 4–5% per year the investor would on average receive from an efficient[14] moderate risk investment portfolio, the investor is still better off. However, there may well be more efficient ways of buying that comfort.

High scores on Market Engagement are not always benign either, and may indicate a little too much readiness to invest. 'Cocktail party' investing occurs when the investor has high Market Engagement, and is too keen to take part. Such investors often respond too enthusiastically to tips, buying because those around them are doing so rather than on the basis of risk and return. Frequently, such tendencies result in portfolios that are insufficiently diversified and, in particular, are over-concentrated in investments which have a good narrative, or are well publicised. All too often those investments with the most-engaging stories are those that have done well in the recent past, leading investors to buy high, and chase past performance.

Decision style

The next three dimensions identify the tools that are most appropriate for each portfolio based on the investment style most suitable to the client.

Perceived Financial Expertise

This is a measure of investors' degree of comfort with, and confidence in, their own ability to make good financial decisions. Investors with a high rating on this scale will be more comfortable making complex choices, considering more information, and weighing the options. Investors low on this scale will prefer simple solutions with clear reasons for why these are suitable, rather than having to weigh the pros and cons of many options. They will also feel more comfortable with their portfolio if the advisor has taken the effort to ensure they have provided adequate explanations and information or financial education at the appropriate level. They may also be more prone to all the needs for comfort outlined above due to nervousness, and lack of certainty of the right approach, exacerbating inaction or inertia, depending on the rest of their personality makeup. However, overconfidence can be just as dangerous when coupled with the short-term focus of low Composure, or the trigger-happy nature of high Market Engagement.

[14] *I.e.*, a moderate risk portfolio which doesn't incur any of these efficiency costs.

Delegation

Some investors are happy to delegate management of their portfolios, reducing anxiety by sharing or outsourcing the emotional burden of decision making, while others are only comfortable if they retain close control themselves. For those with high Delegation scores, handing over the decision making to a professional manager can be a very good solution. However, the important observation is that these personality dimensions interact with each other in some subtle ways. For example, a discretionary portfolio can help the high Composure investor overcome inaction or apathy, and can do the same for a nervous investor who has low Perceived Financial Expertise. On the other hand, the greater emotional distance from the portfolio movements, decisions, and details that come with Delegation can also be useful in eliminating the short-term stress of a low Composure investor. For those with a low desire for Delegation, the solutions need to come from elsewhere, and be more direct.

Belief in Skill

The Belief in Skill section of the analysis looks at the degree to which the investor is innately comfortable with paying for potential outperformance of the market. Those with high scores will want to seek out skilled managers who will achieve higher returns. They are also likely to be more comfortable with stronger tactical shifts in the portfolio to take advantage of medium-term opportunities afforded by the changing environment.

Those who are low on the scale are likely to be uncomfortable with any such efforts, and are certainly more reluctant to pay a premium for them. They typically prefer low-cost index funds, and stable asset allocations.

One step ahead of yourself

Knowing your financial personality is valuable information, but by itself it is not enough to improve long-term performance. It is essential to use what we now know about investors' behavioural tendencies to make targeted and practical changes to portfolios, with the aim of providing the emotional insurance that each investor requires to maintain their commitment to the long-term strategy. Some of the changes we aim to implement may be at odds with traditional theory; however, a deviation from classical investment techniques is not 'wrong' if it helps investors to overcome greater costs elsewhere. It will increase anxiety-adjusted returns.

Here, we take you through some of the interventions that we would consider making based on the outcomes of our work with each client. The table below lists and categorises some of the targeted ways of keeping our emotional reservoir full, and indicates the potential effectiveness of each in mitigating the main costs that investors impose on themselves over the journey. The middle columns of the table show how effective each action can be in mitigating the behavioural costs due to (a) *reluctance*, and (b) the *behaviour gap*. A single '+' means 'slightly effective'; '++' is 'effective'; and '+++' is 'highly effective'. There is also one cell with '--', which is there to indicate that, while locking investors into low liquidity assets is somewhat effective in reducing the costs of the *behaviour gap*, it can be quite harmful in that it may make investors even more reluctant to invest.

In the sections below, we discuss each category of interventions in turn, and give some idea of the practicalities and effectiveness of each.

Figure 8: Practical actions to provide emotional insurance

Category	Action	Reluctance	Behaviour gap	Comments
Education		+	+	Particularly for low Perceived Financial Expertise and low Delegation
Constraints	Lock in to low liquidity assets	--	+	Prevents short-term selling, but very stressful
Risk targeting	Reduce Risk	+	+	Blunt, and costly to long term performance
	Smoothing	+	+++	Targets short-term risk, particularly 12-month drawdown
	Downside defence	+++	++	Targets short-term tail risk
	Phased investment	++		Requires pre-commitment to systematic investment program
Involvement	Discretionary management	+	+++	Requires high Delegation. Also effective to combat excess Composure and overconfidence
	Advice	+	+	Provides comfort but may require above-average Delegation
	Reduce information frequency and detail	+	++	Good for low Composure, low Perceived Financial Expertise and above-average Delegation
Trading off efficiency	Increase liquidity	+	+	Forgoes liquidity premium for comfort
	Familiarity bias	++	+	Dangers of concentrated portfolio (particularly home region or industry)
	Deliberate action bias	+	+	Comes with temptations
Management style	Active versus passive	+	+	No right or wrong, but enhances comfort if aligned with Belief in Skill
	Strategic versus tactical	+	+	No right or wrong, but enhances comfort if aligned with Belief in Skill
Investing framework		+++	+++	Takes time, effort and thought

Source: Barclays

Education

We can take control to some extent by improving our knowledge. By knowing more about a wider range of investments, we become more comfortable with asset classes and markets. While education alone can only accomplish so much – *i.e.*, knowledge does not eliminate our need for comfort – education can nudge us toward good actions, particularly for less-confident investors with low Perceived Financial Expertise (this is a factor that we will discuss in more detail later).

Constraints

To manage one's wealth effectively we know that 100% of long-term capital should be invested and that you need to be committed to the journey. An extreme way of preventing short-term emotional responses is to lock yourself into investments so that in times of turmoil you can't respond by jumping ship – often at the worst time from an investment point of view. However, this strategy requires considerable self-awareness, and is not for the faint hearted as it removes your ability to achieve comfort at precisely the time you're most anxious! For this reason we don't advocate liquidity constraints as a solution for low Composure investors. Better to turn to the range of other options (some of which we discuss below) that improve decision making by seeking comfort, rather than constraining options.

Risk targeting

The lower the risk in your portfolio, the smoother the journey, and the lower the demands on your emotional liquidity. As a result, you're going to be less tempted to sacrifice long-term performance for short-term comfort. The simplest way to purchase short-term comfort and reduce anxiety is to reduce risk (provided, of course, you have come to grips with the reduced opportunity for growth that comes with it). Increasing cash levels and choosing a less risky asset allocation will reduce *reluctance* and the *behaviour gap*, but this is a very blunt tool that imposes high costs on long-term performance.

For the majority of investors it is better to be fully invested in the markets and find more efficient ways to achieve comfort. Fortunately, there are ways of precisely targeting the risks that give rise to short-term discomfort, while minimising the drag on long-term performance. These include:

Smoothing

These are interventions that specifically target short-term downside risk, without a wholesale reduction of risk in the portfolio. They may include the use of derivatives to dampen volatility; dynamic portfolio insurance; use of active fund managers who perform particularly well in down markets; and structured products which access risky underlying investments, but with some downside mitigation. These all cost something, but because they specifically target aspects of short-term performance that most induce anxiety, this cost comes with significant emotional benefits.

Downside defence

Smoothing focuses on the experience of the whole journey. However, some investors are relatively calm through most of the journey, but worry intensely about the chance of calamitous market crashes. This is particularly prevalent for investors with low Market Engagement, who may avoid investing at all, for fear of experiencing a large crash. The targeted intervention for these investors is to purchase downside protection. This insurance will guard against the worst-case scenario and allow greater emotional comfort by removing the potential for extreme market loss and, as importantly, the fear of an extreme loss (anticipated regret).

Phased investment

Another means of persuading reluctant investors into the market is to engage them through a program of phased investment. Classical finance warns us against such strategies (known as dollar cost averaging) because they leave wealth un-invested during the phasing period and, therefore, drag down expected returns. This is true – phased investment is suboptimal when compared to theoretical perfection; but only slightly, and compared to the returns of an investor who is otherwise too nervous to invest at all, gradual phasing in is an effective way of purchasing emotional comfort cheaply.

Involvement

During periods of stress, people seek comfort from others. Friends, family, colleagues, advisors and professional investment managers can all help investors through times of anxiety. However, this can be costly: at best you sacrifice some autonomy or pay management fees, but improve both your journey and your returns. At worst, you place your faith in poor advice, which offers a comfortable journey that goes nowhere, or worse. One crucial precondition for using others to improve your experience of the journey is that you have the personality that makes this possible. This requires a high Delegation score, unless the client may find that relinquishing control will just make them more stressed. As a result, involvement comes in varying degrees of intensity:

Discretionary management – delegating

Discretionary management can be a very effective way of imposing control at a relatively low cost because it yields returns that are higher than they would have been. In effect, by handing responsibility to a third party, the investor is buying pre-planned emotional insurance and greater expertise at an acceptable price.

Using advisors – the benefits of a second opinion

Seeking advice can help to ease the emotional burden of investing one's wealth. A second opinion can reduce your inherent biases such as being overly optimistic, or too prone to investing in a particular sector.

Controlling information – focussing on the big picture

People have different appetites for information. Some can happily look at their portfolios only infrequently; others watch incessantly every day. Bearing in mind that effective wealth management demands a long-term approach, it can be discomforting and distracting to receive information too often. Limiting the frequency and detail of information makes it possible for investors to shift their focus from the expensive short term to a cooler medium- or long-term view.

Trading off efficiency for comfort

As we've stated, small inefficiencies can be beneficial if they help investors to overcome *reluctance*, or reduce the *behaviour gap*. However, the best solution is to only sacrifice financial efficiency for comfort in a planned way, and with full awareness of the trade-offs, to ensure that comfort is purchased as efficiently as possible.

Increase liquidity

Locking yourself into investments can be a dangerous way of preventing emotional responses to the short term. However, reducing liquidity not only prevents investors getting out of investments, it is also typically rewarded by higher returns – the liquidity premium – which repays investors for providing liquidity, and taking on the associated anxiety. For high Composure investors, this is a good way to boost returns, but for nervous investors, forgoing this premium and only entering highly liquid investments will help in maintaining emotional liquidity.

Home/familiarity bias

When investors have low Market Engagement, the inclination is to steer toward the comfort of what they know (familiarity bias) and local assets (home-country bias). They will then invest too heavily in familiar assets to the detriment of performance. The net result is a less efficient portfolio with its emphasis on local regions and industries, and its concentration of asset returns correlated with the investor's employer, local economy and their personal income stream. In extreme cases this can be extraordinarily costly when employees pour their savings into shares of the company they work for (quite possibly the most easily avoided example of bad investing).

However, for those with low Market Engagement it can be very helpful to introduce some limited familiarity bias or home bias onto the technically perfect portfolio.

Deliberate action bias

When things go wrong and we find ourselves invested in the depths of a crisis, the temptation to act – usually to exit – can become overwhelming. However, selling at such times is one of the most costly financial decisions an investor can take. For someone strongly inclined to the action bias, inaction can make a stressful time even worse. In these circumstances a good strategy is to deliberately look for small changes that one can make to the portfolio, in effect, tidying up. Better a little action, mostly harmless, than costly capitulation.

Management style

One of the main considerations for a portfolio is whether it should be actively or passively managed. The choice should be guided by the profile of the investors. Should you use active managers who will hopefully beat the market, or buy cheaper index funds which don't try? Should you stick which a cheaper static long-term strategic asset allocation, or a more costly and active tactical approach that attempts to improve performance by constantly adapting to the market environment? There are passionate advocates for both sides, but our Belief in Skill personality dimension gives a clear indication of which will make any investor most emotionally comfortable. At Barclays, we don't take a dogmatic stance. We maintain a full platform of both passive and active solutions, and aim to build portfolios that best suit the personality of each investor.

Investment framework

All of us can acquire the focus we need to invest successfully, but we need to put in the effort to construct a considered framework of rules and guidelines to govern our own investing behaviour.

One of the key reasons why individual investors systematically underperform professional investors is not that they are inherently worse investors, but simply that professionals have greater 'self-control' imposed on them through a strong set of institutional rules. To match this, individual investors can develop their own personal investment constitution, providing the rules that we often need to guide our behaviour in times of turmoil.

These rules need to be individually tailored to each investor's circumstances, experience and knowledge. They can limit the proportion of wealth held in cash or short-term instruments, and set a time period in which to invest cash in order to avoid being under-invested. They can fix levels of long-term holdings and the minimum diversification of the portfolio. A rule mandating a cooling-off period between the decision taken and the execution can also allow essential breathing space for reflection for big investment decisions. When markets are turbulent, rules can guide the investor to be deliberately inactive to avoid rash decisions. They can also set out triggers that will prompt the investor to rebalance the portfolio to maximise returns. And because it is a formal way of investing, the investor will find it less difficult to execute.[15]

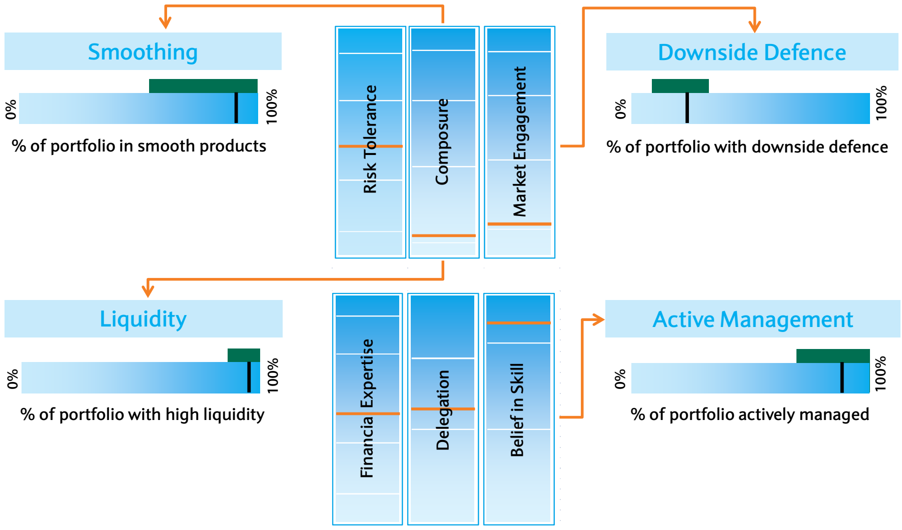
[15] Many such self-control strategies and rules were examined in our *Wealth Insights: Risk and Rules: The Role of Control in Financial Decision Making*(See http://www.barclayswealth.com/insights/library.htm)

Let's get started …

The full range of actions is complex, but the trade-off between the costs and benefits can be subtle. At Barclays, we have systematised the theories outlined above, to make it easy to deliver the most effective and simple interventions to each and every client.

Every product on our platform is allocated, not just according to asset allocation, or risk, but also according to a number of secondary characteristics, each of which can be directly connected to investors' Financial Personality Assessment™ scores. These dimensions will be familiar from the discussion above, and the figure below shows how these measures enable us to steer any client's portfolio into the 'sweet spot' (in green) for each investor's unique pattern of personality measures.

Figure 9: Financial personality to portfolio characteristics



Source: Barclays.

This practical mapping technique nudges the overall portfolio toward the characteristics that make each investor as emotionally secure as possible, with minimal divergence from the long-term 'financially optimal' solution. Our *Investment Philosophy* lifts behavioural finance out of the abstract and enables it to make a simple and practical difference to the portfolio of each client.

To find out more about how we can design your investment portfolio around your personality profile and priorities, contact your Barclays relationship manager.

Resisting the Sirens' song

In Homer's Odyssey, when Ulysses is sailing home from Troy, he is warned that he will sail past the island of the Sirens. Their singing is fabled to be so compelling to sailors that – unable to control their rapture – they jump overboard to their deaths.

This story holds a very close parallel to the experience of investing. If you try to achieve optimal risk-adjusted returns without being aware of your probable emotional responses along the journey, you're likely to end up failing, and failing expensively. Unlike his predecessors, Ulysses understood that he was human and fallible, and probably unable to control his response to the Sirens' call. So he asked his crew to bind him to the mast with ropes. And so, when the time came, he could hear the Sirens' call, but do nothing about it. In short, he took practical steps to ensure that he had sufficient emotional controls in place to withstand the short-term pressures, and so make it to the end of his journey.

Their actions had costs – the sailors missed out on hearing the wonderful Sirens' song, and Ulysses had to endure the agony of being unable to act on his desperate desire to jump – but these costs were a small price to pay to avoid the, admittedly substantial, *behaviour gap* (death), and attain the best possible anxiety-adjusted returns.

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