Tilton Conway
FINANCIAL PLANNING

Investment Process & Philosophy

In association with

betafolio
by timeline

0116 2621414

support@tiltonconway.com

Contents

Executive Summary

Tilton Conway Financial Planning has chosen to Betafolio Limited to provide discretionary fund management services to its clients'. Please find below an explanation of the processes and the thinking behind the investment strategies that we suggest. If you have any questions relating to this document, please feel free to contact us at rajesh@tiltonconway.com .

Betafolio Limited provides low-cost, evidence-based discretionary portfolio management services, exclusively to financial planners (who recommend these to their retail clients).

With Betafolio's Turnkey Asset Management Program (TAMP), financial planning firms can access a range of services that enables them to focus on delivering core financial planning and behavioural coaching to clients, while delegating time-consuming tasks, such as research, portfolio construction, rebalancing, performance analysis and tax optimization to a third-party.

What separates Betafolio's TAMP model from traditional discretionary management is the comprehensive range of services that extend beyond managing money and deep collaboration with financial planners. Our approach is to support advisers to promote their own brand, while Betafolio remains in the background.

Betafolio's vision is to offer low-cost institutional level portfolios designed to capture the global market return over the long-term, whilst eliminating unnecessary costs, inefficiencies, and anxiety for firms and their clients. Our robust and disciplined approach to investing is founded upon Nobel Prize-winning academic research, and harnesses sophisticated tools to properly test investment solutions.

Investment Committee Governance & Oversight

Betafolio's Investment Committee is responsible for the regular review of our investment proposition to ensure that our portfolios remain consistent with our philosophy and mandate as set out in this document.

The committee consists of the following core members:

- **Nicki Hinton-Jones** BA, CFA - Chief Investment Officer
- **Abraham Okusanya** MSc, AFPS, MCSI - CEO
- **Karthica Underwood**, BSc, APFS - COO, Compliance & MLRO
- **Daniel Rawlinson** BSc, MSc, IMC - Investment Analyst
- **James Gillespie** BSc - Senior Investment Analyst
- **Emmanuel Asare** BSc - Investment Analyst
- **Reva Bala** MSc, MBA - Investment Analyst
- **Georgios Bouzianis** PhD (c) - Senior Quantitative Analyst

Financial Adviser firms that use Betafolio's services are frequently invited to participate in our investment committee meetings. The adviser firms are encouraged to challenge and critique our investment process, make contributions, and raise questions. However, for the avoidance of doubt, the ultimate responsibility for decision-making lies with the regulated members of Betafolio's investment committee.

The committee meets on a bi-annual basis and documentation, including minutes of the meetings, are produced for review purposes.

The investment committee will regularly review asset allocation, fund selection and overall portfolio management process. While the investment committee will consider prevailing market conditions, our approach and decision making will be guided by a long-term view of capital markets and robust empirical evidence, as detailed in the investment philosophy set out in this document. The committee also works with an external compliance consultant who audits our internal process and documents.

This document is divided into the following sections:

Firm and Client Profile: This sets out a brief profile of the adviser firms that our investment proposition is aimed at. While our services are provided to professional clients, i.e., financial advisers, we are mindful that they are acting on behalf of retail investors. This section also includes notes on the profiles of retail clients for whom our approach would be unsuitable and, therefore, would be best suited with alternative investment solutions.

Statement of Investment Philosophy: This section details our beliefs regarding investment markets and the academic resources underpinning these beliefs. It lays out the general principles that guide the construction of the portfolios, using academic research where possible to support the overall conclusions.

Risk Profiling and Asset Allocation Guidelines: This crucial step maps out the process of reconciling an investor's risk profile (attitude to risk and capacity for loss) and investment needs with our portfolios. It discusses high-level asset allocation and risk parameters (expected return, periodic maximum loss) and the back-testing of portfolios using historical data. By thoroughly back-testing our model portfolios, we can ensure that the portfolios are within the specified risk/return parameters, albeit from a historical standpoint.

Practical Considerations of Portfolio Management: This step details the practical tasks involved in managing the portfolios, including the Investment Committee's monitoring and review process.

About Betafolio

Betafolio works in collaboration with financial planners and our services are only available through an FCA authorised financial advice firm. Advice firms would typically deal with retail investors in both the accumulation and de-cumulation stages of their financial planning journey, although some may choose to specialise in any one of these areas.

It's essential that the firm's views and philosophies are aligned with evidence-based investing, which is the conscientious, explicit and judicious use of current best empirical evidence in making investment decisions.

This document sets out Betafolio's approach to investing, including asset allocation and portfolio construction, based on robust investment principles and risk parameters, which has been set to give the end client the best chance of capturing broad capital market returns.

In order to ensure consistency, our approach is to operate a range of 'Model Portfolios' tailored to the different risk profiles and objectives of typical retail clients described above. However, it is the advisers' responsibility to conduct an in-depth assessment of each client's needs, circumstances and objectives, together with their ability and willingness to accept risk in order to recommend the appropriate solution for them.

With Betafolio, financial planning firms can access a wide range of services that enable them to focus on delivering core financial planning and behavioural coaching to clients, while delegating time-consuming tasks such as portfolio construction, due diligence, rebalancing and tax optimisation to the discretionary manager.

The Service

Betafolio collaborates with the advisory firm on an "agent as client" basis to provide portfolio management services for its clients. Betafolio Limited will therefore have no contractual relationship with the financial advisers' retail clients.

When operating on an "agent as client" basis, the financial adviser (professional client of Betafolio Limited) has a duty to address certain issues with their retail clients, to ensure that they have the requisite authority to instruct Betafolio Limited as agent for their retail clients. The financial adviser also needs to make any other relevant disclosures.

Betafolio's services are only available on advised platforms. The adviser is responsible for identifying clients for whom the portfolios may not be suitable and to consider alternative recommendations by conducting bespoke research to identify products or portfolios to meet these clients' needs.

The financial planner is responsible for conducting an in-depth assessment of each client's needs, objectives and circumstances in order to identify the most suitable solution for them. Accordingly, Betafolio's portfolios are typically suited to advised clients with the following profile:

- Net worth of between £200k and £10m.
- portfolios of between £100k and £5m.
- Seeking income or capital growth or a combination of the two.
- Long term investor prepared to invest for longer than 5 years.
- Pre-retired, at retirement and retired.
- Value and prepared to pay for on-going advice.
- Delegator but engaged with our financial planning and investment process.

We also identify circumstances where our portfolios may not be suitable for some clients, specifically the following:

- We also identify circumstances where our portfolios may not be suitable for some clients, specifically the following:
- Clients with less than £100,000 in investable assets under advice. This is because the ongoing rebalancing and review means that the cost hurdle may be too high.
- Where a client does not want on-going financial advice and on-going reviews of their portfolio.
- Where clients' risk profile, objectives or preference suggests they want any form of capital guarantees or protection on their investments.
- Clients who require or want full self-investment functionality.
- The cost barriers (including Capital Gains Tax implications) from switching assets into the portfolios are too high.

Statement of Investment Philosophy

Betafolio works in collaboration with financial planners and our services are only available through an FCA authorised financial advice firm. Advice firms would typically deal with retail investors in both the accumulation and de-cumulation stages of their financial planning journey, although some may choose to specialise in any one of these areas.

The Investment Committee

The information in this Investment Policy Statement is a result of the research carried out by our Investment Policy Committee. The committee meets regularly to ensure that information remains up to date and relevant.

We believe our independence provides us with the best possible framework for the service that we offer. The information contained within this investment policy statement is based on comprehensive and fair analysis of the market; is unbiased; and unrestricted. This document sets out the philosophy and reasoning behind how we invest and manage clients' capital on their behalf. This document, however, is not a substitute for personal, independent financial advice and should not be relied upon solely as a means of making an investment recommendation.

The Capital Markets Work

The capital markets are far from perfect, but they do a good job of fairly pricing all publicly available information about securities.

Capital markets could be viewed as the vasculature of the global economy, in the sense that they facilitate the movement of capital (the lifeblood) to the places with the greatest affinity for it. Capital tends to flow smoothly through the system, however, as is the case with biological systems, capital markets tend to malfunction from time to time.

Market participants rely on these structures to function properly and are thus taking a risk with their capital when allowing it to enter these channels. It is paramount that investors are aware of the risks they are taking when participating in the markets, just as one would be when bartering in a street market. Whether it be a dusty corner of a market in a third-world country or the floor of a stock exchange, every financial dealing is embedded with its own particular set of risks. And although laws and regulations may protect participants from certain dangers when dealing on regulated exchanges, certain risks will still exist across all investment vehicles and investors must be aware of this.

We believe that the prices of securities reflect the expectation of all market participants (Fama 1970). While stocks may be sometimes mispriced, it is near impossible for anyone to recognise this and systematically profit from these inefficiencies on a consistent basis over the longer term.

It's not impossible to beat the market, but it's very difficult to do so consistently over a long time period. This is primarily because when mispricing occurs, market participants will buy or sell, moving the price back to its natural level. Thus, beating the market often just means being quicker than everyone else. Over any period, some investors will beat the market, but the number of investors who do so will be part of a very small minority.

There is however an emerging body of behavioural finance research which suggests that markets may not in fact be that rational. The reality is that market participants tend to make decisions based upon the fact that certain market events' bear resemblance to those that have happened in the past. Academics such as Shiller (2003) argue that the presence of an asset price bubbles is an indication that markets may not be entirely efficient. However, he admitted:

"…In judging the impact of behavioural finance to date, it is important to apply the right standards. Of course, we do not expect such research to provide a method to make a lot of money off of financial market inefficiency very fast and reliably. We should not expect market efficiency to be so egregiously wrong that immediate profits should be continually available. But market efficiency can be egregiously wrong in other senses. For example, efficient markets theory may lead to drastically incorrect interpretations of events such as major stock market bubbles" (Shiller, 2003, p. 20).

Moreover, Burton (2010) similarly concluded that while asset-price bubbles do in fact exist and are an inevitable occurrence within capitalist systems, they are virtually impossible to identify and thus exploit ex-ante.

We take the view that while there are inefficiencies in the markets from time to time, empirical evidence suggests that the idea that these inefficiencies can be systematically exploited to deliver superior returns to clients just isn't plausible.

Risk & Return Are Related

It is a fundamental law within finance that to achieve a certain level of return, you have to accept a certain level of risk. In other words, the potential financial loss you expose yourself to in investing and taking a risk, is also the reason you earn a return. However, risk is not uniform. Risk comes in forms that offer reward for volatility (good risk) and in forms that fail to do so (bad risk).

The reward that one can theoretically receive for taking upon risk however does not come free of charge and so risk can also be perceived as a premium. Our role is first to identify which risks offer consistently higher expected returns, which do not, and then provide exposure to the good risks in a structured, disciplined and cost-effective way.

Asset Allocation & Portfolio Structure Drive Return

We believe the most important factor determining the level of risk and variability of return in a portfolio is asset allocation. In their seminal study, Brinson, Hood and Beebower (1986) demonstrated that 93.6% of the average return variation in US pension plan portfolios from 1974 to 1983 could be explained by asset allocation. Later research by Kaplan and Ibbotson (2000) found that asset allocation explained approximately 90% of the variability of US mutual fund returns over time.

The contribution of asset allocation to overall portfolio return is not only a US phenomenon. Blake, Lehmann and Timmermann (1999) examined the asset allocations of a sample of 364 UK pension funds that retained the same fund manager over the period 1986-1994. They found that the total return is predominately driven by asset allocation. The average return from stock selection is negative, and average return to market timing very negative. More recent research by Scott, Balsamo, et al. (2017) showed that asset allocation was responsible for the majority of portfolio returns across five developed markets: Australia, Canada, Japan, UK and USA.

	 USA	 CANADA	 UK	 AUSTRALIA	 JAPAN	BRINSON ET AL. (1986)
Number of balanced funds in each market sample	709	303	743	580	406	91 (pension funds)
Median percentage of actual-return variation explained by asset allocation.	91.1%	86%	80.5%	89.1%	87.9%	93.6%

Source: Scott, Balsamo, et al. (2017)

Therefore, we believe that asset allocation and portfolio structure are the key drivers of returns, value added from stock picking and market timing is questionable and tends to be negative.

Consistent Outperformance Is Rare

It's an extremely hard task for an active manager to consistently beat the market and it's even harder to predict which manager will manage to do so. Economic uncertainties, random market movements, and the rise and fall of individual companies are all part of financial markets' natural activity and predicting when and to what extent those things will happen is a fool's errand.

As is the case with virtually every game of chance, past events just aren't a good predictor of what will happen in the future. The same is true for fund manager performance. Not only is manager outperformance inconsistent, but research has also shown manager outperformance to have been driven by luck, rather than merit. Studies carried out by Barras, Scaillet and Wermers (2010) show that only 0.6% of US funds delivered positive alpha through skill, as opposed to luck alone, over a 32-year period. Other recent US and UK studies find that at most around 5% of funds have 'truly' positive net return alphas (Kosowski, et al. 2005; Cuthbertson, Nitzsche and O'Sullivan 2005).

In evidence to the Treasury Committee in May 2006, Mr Clive Briault, Managing Director, Retail Markets, at the Financial Services Authority was questioned regarding the merits of actively managed funds and their associated costs.

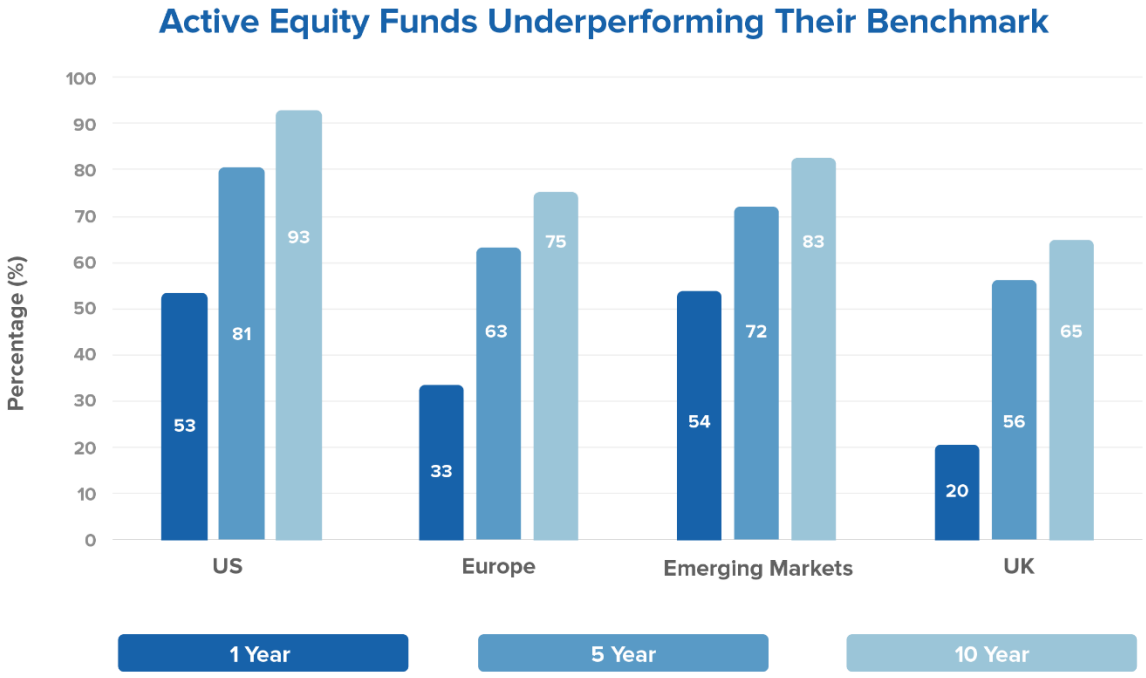
He was asked:

"…is there an assumption that actively managed funds actually make better returns for those investors which outweigh the costs of having more actively managed funds?"

He replied:

"…the research we have undertaken shows there is no evidence that, on average and over time, actively managed funds out-perform tracker funds, taking account of the differential in charges across the two" (Briault, 2006).

Contemporary research conducted by S&P Indices Versus Active (SPIVA) continues to support the claim that active managers fail to consistently outperform their respective benchmarks in both developed and developing markets (S&P, 2021).



Source: S&P (2021)

Given this overwhelming body of evidence, we believe that the most sensible approach for the vast majority of retail clients is to focus on the most efficient and cost-effective way to capture returns from mainstream asset classes over the longer term and through the means of our well-designed portfolios, clients are equipped to do this.

Diversification Is Essential

Akin to the familiar saying "don't put all your eggs in one basket", diversification, in its broadest sense, consists of allocating wealth across several assets.

The concept is not new, examples of the merits of diversification can be found as far back as the fourth century. The Rabi Isaac, in the *Babylonian Talmud: Tractate Bab Mezi'a* suggested:

"…one should always divide his wealth into three parts: [investing] a third in land, a third in merchandise, and [keeping] a third ready to hand" (Troberg, 2015).

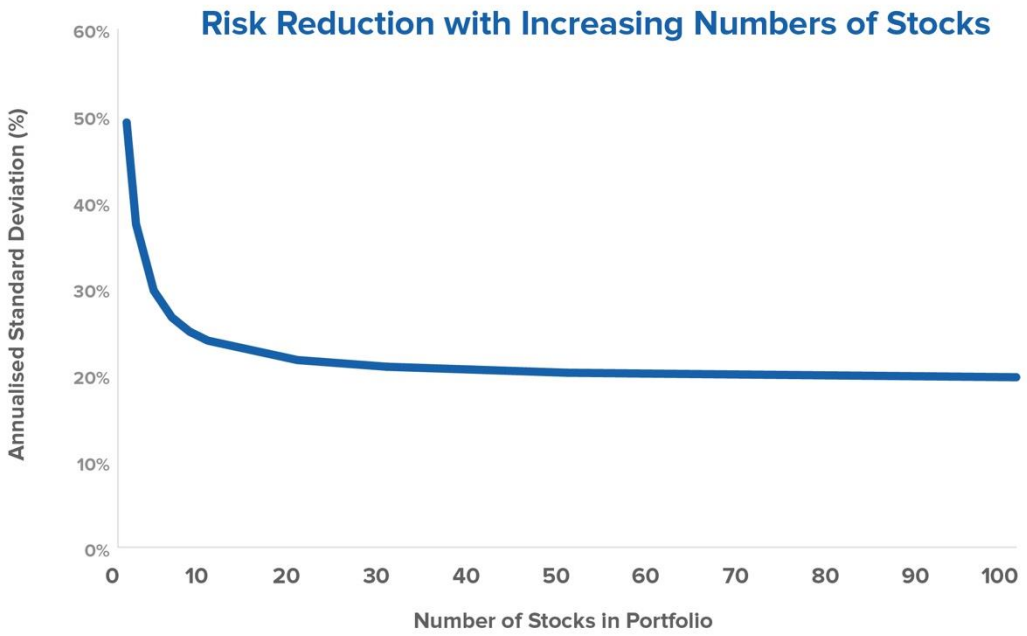
Shakespeare also appeared to understand the importance of diversification. In his play, *The Merchant of Venice*, the character Antonio, after being asked whether his apparent sadness was due to worry, regarding his ships currently at sea, explains:

"I thank my fortune for it, my ventures are not in one bottom trusted, nor to one place, nor is my whole estate upon the fortune of this present year" (Shakespeare, 2006, p. 6).

By owning multiple vessels, Antonio was applying the concept of diversification, knowing that is was possible one ship could be lost but the risk of losing all his ships was unlikely.

However, it was not until the 1950's that academics attempted to quantify diversification. In their seminal work, Markowitz (1952) and Roy (1952) demonstrated in mathematical terms how investment diversification works. This work resulted in Modern Portfolio theory, whereby portfolios are constructed in a manner to minimize risk and maximize expected return. This theory postulates that a combination of two individually risky assets, can be combined to produce a portfolio with less overall risk, without reducing the expected returns, if the two individual assets are not perfectly correlated.

One of the most famous illustrations of the positive benefits of diversification was a study by Elton and Gruber (1977), which investigated how varying the size of a portfolio impacted an investors' risk exposure. The research found that while a single share had a standard deviation of annual returns of 49.2%, the addition of an extra share to the portfolio reduced this to 37.4%, a reduction in risk of 24%.



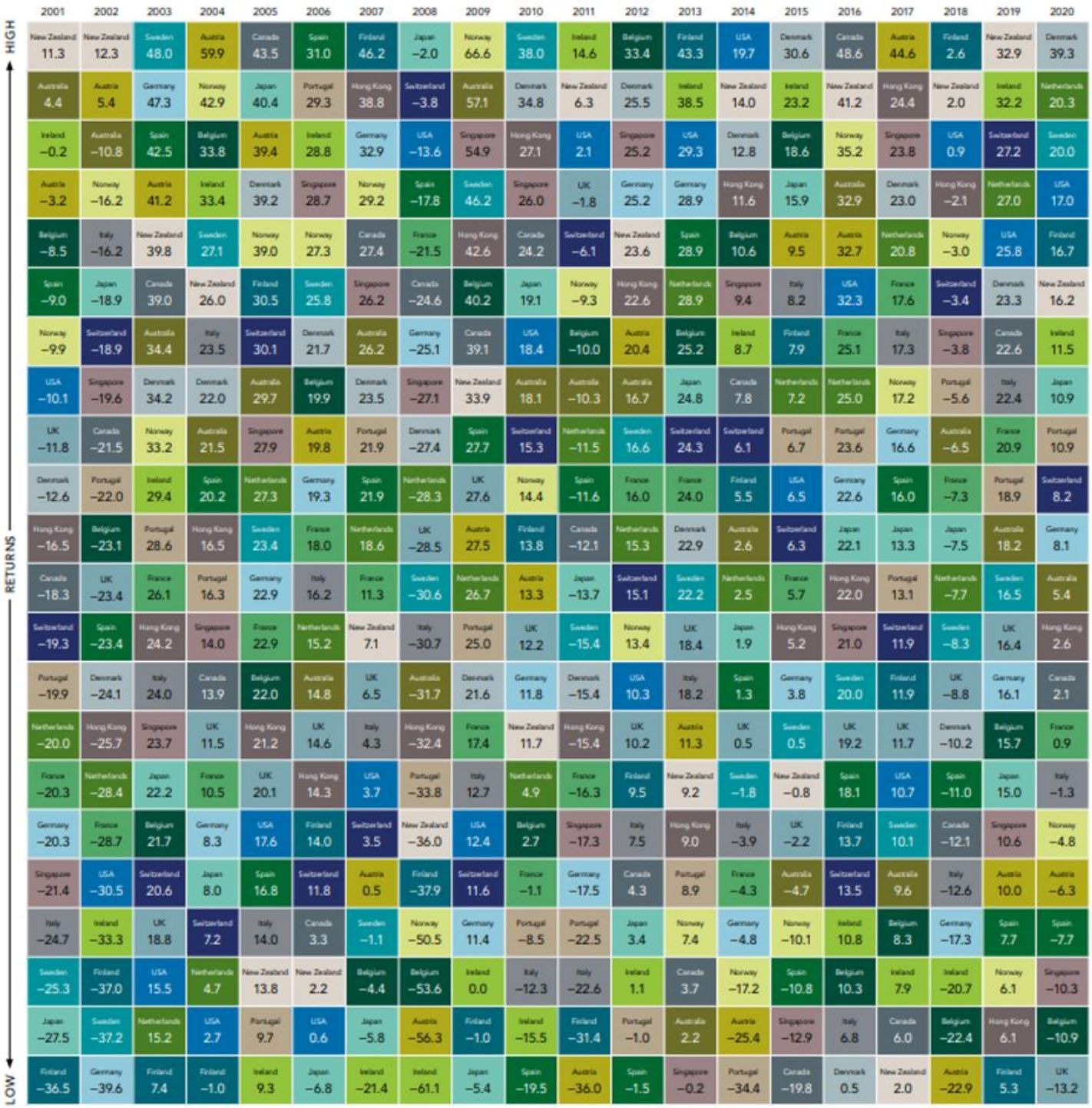
Source: Elton and Gruber (1977)

Sankaran, Krishnamurti and Patil (1999) also demonstrated how increasing the number of securities within a portfolio resulted in higher Sharpe ratios, although the marginal benefit of diversification decreases as the number of securities increases.

The following tables show equity market returns over the last 20 years for various developed and emerging markets, ranked in descending order. The lack of consistency in stock market performance by geography shows the general lack of predictability in markets and should be a lesson to investors who believe that they

can predict which pattern of colours will appear in the column corresponding to next year.

Equity Returns Of Developed Markets



Source: Dimensional Fund Managers (2021)

Equity Returns Of Emerging Markets

Source: Dimensional Fund Managers (2021)

Costs Matter

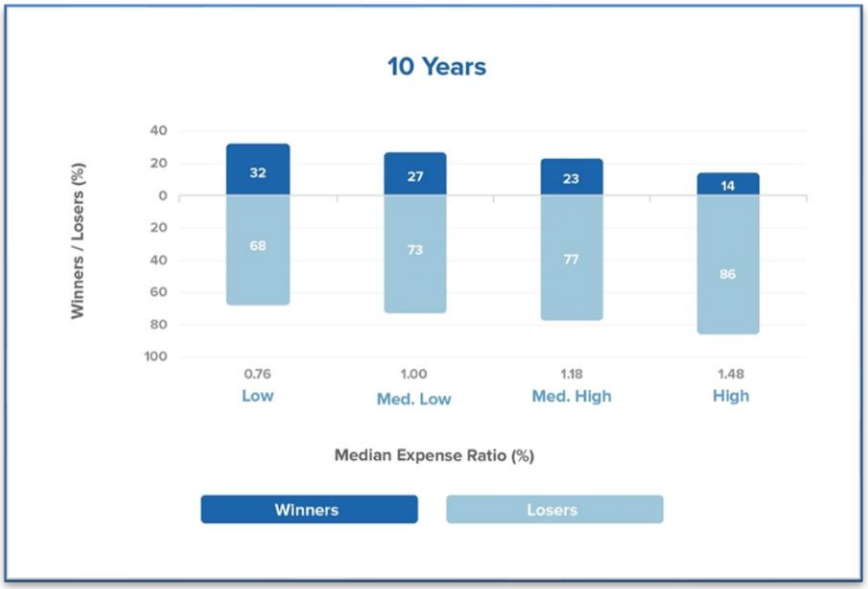
If competition drives prices to fair value, one might wonder why underperformance is so common. A major factor are mutual fund costs. Costs reduce an investor's net return, often to the extent that the additional services associated with the fees do not compensate for the loss in return.

All mutual funds incur costs. Some costs, such as expense ratios, are easily observed, while others are more difficult to measure. The question is not whether investors must bear some costs, but whether the costs are reasonable, and indicative of the value added by a fund manager's decisions.

The data shows that many mutual funds are expensive to own and do not offer higher value for the higher costs incurred. Let's consider how one type of explicit cost, expense ratios, can impact fund performance.

In the chart below, equity funds in existence at the beginning of the ten, fifteen and twenty-year periods are ranked into quartiles based on their average expense ratio. Fund expense ratios range broadly. For the ten-year period, the median expense ratio was 1.09% for equities. In 2021, funds in the lowest quartile cost equity investors an average of 0.76%, compared to the most expensive quartile which had an average cost of 1.48%.

Are investors receiving a better experience from higher-cost funds? The data suggests otherwise. Especially over longer horizons, the cost hurdle becomes too high for most funds to overcome. Over the ten-year period, 32% of the low-cost equity funds outperformed, compared to 14% of the high-cost funds. For fifteen years, 31% of the low-cost funds outperformed, against 8% of the high-cost funds. And finally, over twenty years, 32% of low-cost funds outperformed, in contrast to the 7% of high-cost equity mutual funds.



Source: Dimensional Fund Managers (2021)

Morningstar research into fund expenses and star ratings, as predictors of future fund performance, shows that fund expense ratio is a far more reliable predictor of future performance. The author of the report concluded that:

"If there's anything in the whole world of mutual funds that you can take to the bank, it's that expense ratios help you make a better decision. In every single time period and data point tested, low-cost funds beat high-cost funds. Expense ratios are strong predictors of performance. In every asset class over every time period, the cheapest quintile produced higher total returns than the most expensive quintile. Investors should make expense ratios a primary test in fund selection. They are still the most dependable predictor of performance. Start by focusing on funds in the cheapest or two cheapest quintiles, and you'll be on the path to success" (Kinnel, 2010).

Accordingly, our approach is to select low-cost funds for our portfolios, and to only select higher cost funds where we can demonstrate that additional value is being added. Charges taken by the fund manager can substantially impact fund returns, especially in flatter markets. Costs, like interest, have a compounding effect over time.

Our portfolios have a total ongoing cost of between 0.14% and 0.31% p.a. This is inclusive of fund charges but does not include platform costs or adviser fees, which when added typically result in a total annual charge of between 1.44% and 1.61%.

Investors' Behaviour Is A Key Determinant of Their Long-Term Outcome

We believe that the longer you stay invested, the greater the probability that your investment will generate a positive return. Once an investment strategy has been agreed with clients, it is important to stick to it, in good times and in bad. We don't believe in timing or playing the market.

Data by Morningstar effectively demonstrates this concept in its research on the 'performance gap', which is the difference between the return of an average mutual fund and the return the average investor in that fund experiences. Morningstar found that the typical diversified US equity investor lost 0.61% due to timing over a 10-year period. This is attributed to attempts by investors to chase winners, moving into well-performing funds after their periods of strong performance and dumping funds that haven't performed as well (Kinnel 2019).

Clare and Motson (2010) lend further credence to the importance of adopting a long-term perspective, finding that poor timing decisions by UK retail investors cost them, on average 1.2% per annum over an eighteen-year period. Furthermore, Schneider (2007) showed that the performance gap was as much as 2.43% per annum for UK smaller company funds and 2.06% per annum for growth funds over an 11-year period between 1992 and 2003. The plausible explanation is that investors are chasing past winners and therefore end up buying high and selling low.

It is very difficult to predict the best time to enter or exit the market. The speed at which markets react to news means stock prices almost immediately absorb the impact of new developments. When markets turn, they turn quickly. Those trying to time their entry and exit may miss the bounce.

Therefore, Betafolio maintains a disciplined approach and stays the course even during extreme market conditions. All too often, investors let their emotions get the better of them with dire consequences for investment returns. Planners using the portfolios are expected to work with their clients to maintain a disciplined approach, especially in extreme market conditions, both up and down.

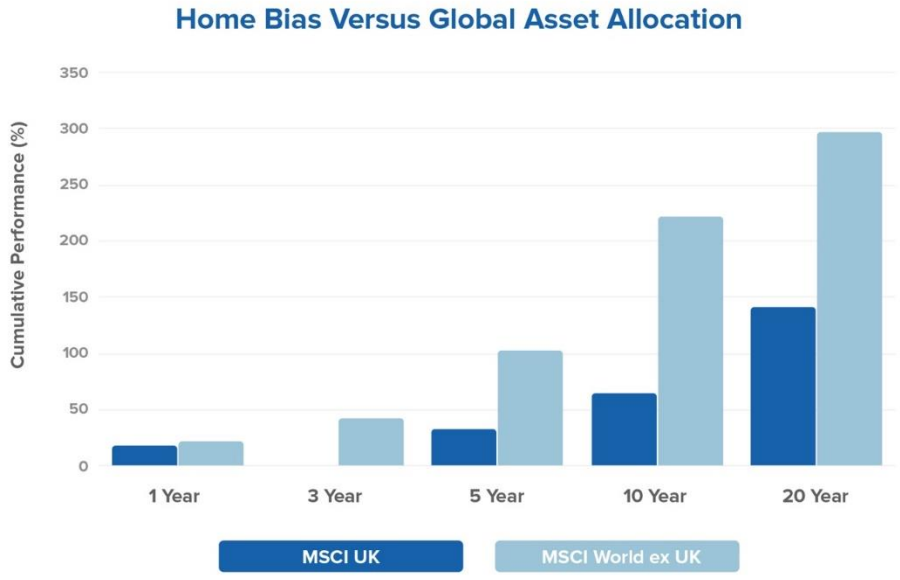
Asset Allocation Guidelines

Diversification is a core principle of Betafolio's investment philosophy and therefore we include equity to provide growth and fixed income to provide defensive qualities. Cash is not included as an asset class as it is not suitable to use it strategically in our models, whereby clients would incur platform fees for cash balances that could be held without charge in other accounts. A low cash weight of 2% will be held in each model to provide a buffer allowing for charges and settlement date mismatches when trading.

Our asset allocation approach is led by the proportion of risky and defensive assets in a portfolio and is consistent with the definitions used in the adviser's risk-profiling questionnaire. The model portfolios have been designed to meet a range of risk profiles and objectives. The portfolios are designed to maximise the potential investment returns, given the level of volatility a client is comfortable with. This is achieved through a robust strategic asset allocation, combining different asset classes to create portfolios with the highest potential return expectation for a given level of risk.

Home Bias & Global Asset Allocation

Home bias refers to the tendency for investors to cluster their holdings in domestic markets. This has been well documented in the literature and although not fully understood, the reasons for this behaviour are believed to be explained through a combination of rational and behavioural factors (Ardalan, 2019). By concentrating their investments in one country, investors not only miss out on the opportunity to invest in faster growing economies, they are also more vulnerable to volatility in that market. The implications of investing heavily in the UK can be seen in the table below.



Source: FE Analytics (2021)

Therefore, in line with our views on the importance of international diversification and supported by the findings of Driessen and Laeven (2007) and Scott, Balsamo, et al. (2017), Betafolio takes a global approach to asset allocation.

While population numbers, gross domestic product, exports, and other economic measures may influence where people invest, a look at market capitalisation provides a different way to view the universe of equity investment opportunities. If markets are broadly efficient, global capital will migrate to destinations that offer the most attractive risk-adjusted expected returns.

By focusing on an investment metric rather than on economic reports, the chart further reinforces the need for a disciplined, strategic approach to global asset allocation. Of course, markets are dynamic and the geographical targets of the global stream of investment money will change over time, however we believe it is advantageous to base decisions on the simple fact that money will flow to the regions that offer the most favourable returns.

World Equity Market Capitalisation

Source: Dimensional Fund Managers (2021)

*As of 31 December 2020. In GBP. Market cap data is free-float adjusted and meets minimum liquidity and listing requirements.

Equity Allocation - Size & Value Tilting

Research has shown certain risk premia are present across the globe (Fama & French, 1995). The following chart demonstrates the higher expected returns offered by small cap stocks, value stocks and profitability stocks in the UK, Europe (ex UK), US, and emerging markets.

Source: Dimensional Fund Advisors (2021)

*Note that the international and emerging markets data are for a shorter time frame.

As you can see, value stocks deliver greater returns than their growth counterparts, because the prices of value stocks (as the name would suggest) don't reflect the strength of their fundamentals, but instead present good value, which tends to lead to better returns. Growth stocks, although designed to appreciate, tend to do worse on average, given the fact that they tend to already be relatively expensive, with little room left to rise. The latter is also the reason for the outperformance of small cap stocks, given that they have more room to rise and demonstrate increased volatility, for which investors are rewarded.

Fixed Income Allocation

Since Tobin's Separation Theorem (Tobin, 1958) for which he was awarded the Nobel Prize for Economics in 1981, financial actors' perspective on investment portfolios have changed. It is now common knowledge that each investment must be considered within the context of the entire portfolio, which is why fixed income assets are used to mitigate portfolio risk stemming from equities.

Given their low correlation with equities, fixed income instruments naturally will decrease the level of risk inherent in a client's portfolio. They also serve over the long-term to protect against inflation, although longer term fixed-income securities do have a potential to deviate more in value. Some evidence shows that securities with longer maturities do not deliver adequate returns considering the increase in risk (Berndsen 2003; Schrøder and Sørensen 2010). However, clients with lower risk portfolios (and hence equity allocation) may want to hedge against inflation with long-term fixed income assets.

Global Bonds

Investing in global bonds allows investors to gain exposure to a greater number of fixed income securities, and associated risk factors. Akin to equity investing, by taking a global perspective with regards to fixed income, events affecting bonds in other markets will be different to events affecting bonds in their own local market.

Therefore, a global allocation to bonds has the potential to reduce an investor's risk without necessarily reducing expected return (Phillips & Thomas, 2013).

The diagram below illustrates the benefits of holding a globally diversified bond allocation. The relatively low correlations of government bond yields across markets for the last 50 years suggests that local risk factors such as inflation, interest rates and yield curves tend to cancel each other out.

Source: Schlanger, Walker and Roberts (2018)

Betafolio's view is that a global approach to fixed income investing is most appropriate, lowering systematic risk via increased diversification.

Hedging

Our portfolios are designed to withstand some amount of foreign currency risk through the hedging of our bond funds. Given the modest returns of fixed income securities, they are more susceptible to fluctuations in exchange rates, whereas with equities we take the view that the emphasis should be on delivering growth of a greater amplitude that far outweighs any potential foreign exchange risks.

Our globally diversified portfolios also mean that for those funds that are not hedged, we are invested through the medium of a diverse set of currencies, which we consider to provide a reduction in currency-specific risk and to be another valuable source of diversification in our portfolios.

Environmental, Social and Governance (ESG) Considerations

While traditional financial analysis considers only quantitative financial and economic data to evaluate returns, ESG portfolios incorporate consideration of Environmental, Social and Governance issues into the investment decision making process and analysis.

Gone are the days when ESG was viewed as a niche area in the investment field. In current times when we go into an investment discussion, ESG is always in the agenda if not the main agenda point.

Following ESG's growth spurt in the year's leading to the pandemic, the general view was that interest in ESG would reduce. But on the contrary, if anything the pandemic has fuelled ESG growth. Stocks that scored high in ESG were the choice of investors at the beginning of the outbreak which was one of the worst quarters in financial history (Morningstar, 2021).

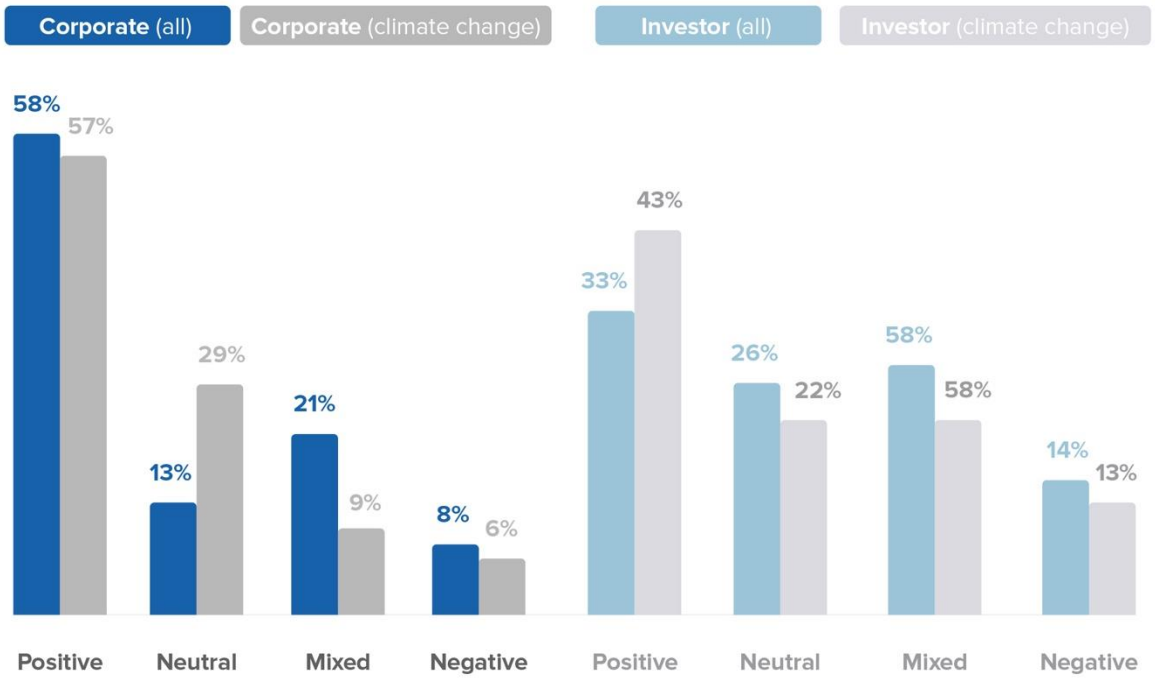
By 2025, total global AUM is projected to reach $140.5 trillion and ESG is projected to take more than 1/3rd standing at $53trillion (Yeoh, 2021). This is quite a conservative assessment, not following the rapid growth trajectory of the last 5 years. This growth is being driven globally, while Europe is the current forerunner in ESG investing, US is expected to surge past by the end of the year and strong ESG growth is also projected in Asia, led by Japan.

Though the interest in ESG has increased multi-fold over the last few years, the question over the potential trade-off still lingers. There have been numerous research works exploring the correlation between financial performance and ESG, and the outcome has varied between positive, neutral, negative and mixed. The number of studies in the last 5 years has increased exponentially and equals nearly all of those before 2015, just stressing the importance ESG has gained.

A meta-analysis by Whelan, Atz, Van Holt and Clark (2021), of over 1000 research works focusing on ESG and financial performance in this period (2015 to 2020), has invariably favoured ESG. Amongst these, corporate studies focussed on ROE, ROA & stock price show positive or neutral relationships between ESG and financial performance in 71% of the cases as opposed to 8% showing negative results. Investment studies focussing on risk adjusted attributes (alpha or Sharpe ratio) show positive or neutral relationships in 59% of the cases and only 14% found negative results.

A similar trend tilting the favour to ESG has been observed in meta-analysis of studies focussed on climate change or low carbon. A key summary in this research has outlined "Improved financial performance due to ESG becomes more marked

over a longer time horizon". This augments the previous work carried out in 2015 by Busch, Friede, and Bassen, a meta-analysis of ESG research prior to 2015, which concluded that applying ESG factors has a positive impact on financial performance.

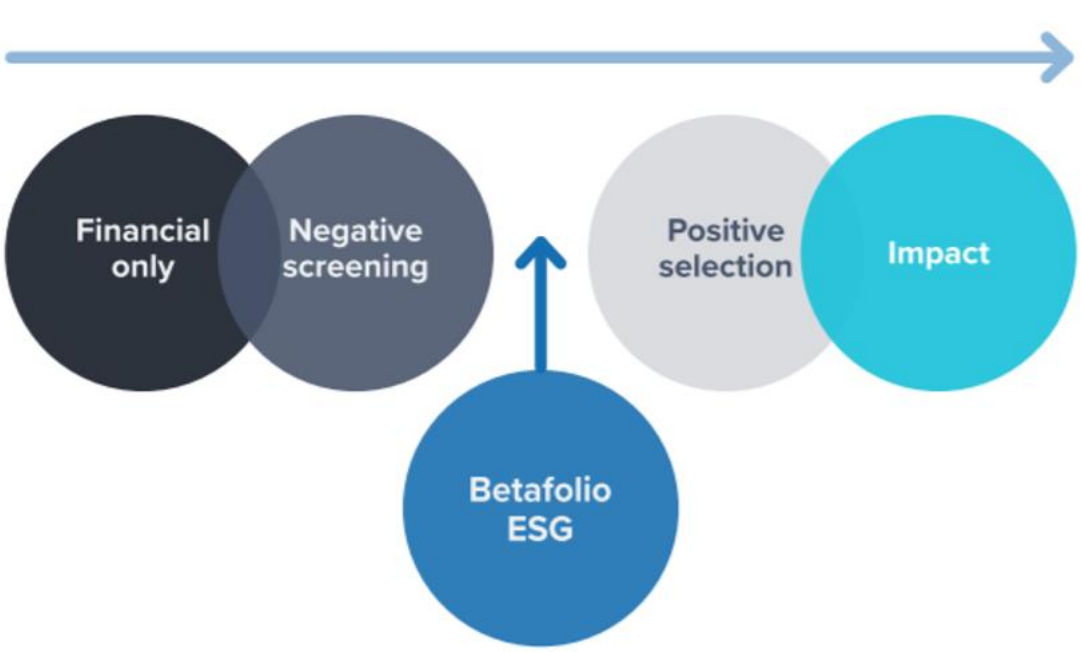


Source: Whelan (2021)

The boundaries of ESG investing are still not always well-defined. What qualifies as an ESG investment and the screening processes are evolving as companies and investors are finding their feet and more research in this area progresses. Indeed, government regulations are still evolving.

There are differing approaches to ESG that can be viewed as a continuum:

We at Betafolio have a pragmatic approach, where in, greater emphasis is given to companies that have high ESG standards but not necessarily excluding companies that don't adhere to all ESG standards. This is sometimes referred to as a "light green" approach. This way we can find the middle ground, achieving the best of ESG and maintaining our lost cost philosophy.



This does not necessarily mean reduced diversification, our models hold a minimum of 10,000 securities and around 25,000 multi-asset portfolios. Our fund screening starts with the entire market of retail investment products that have a sustainable or ethical focus, which includes OEICs/Unit trusts (onshore & offshore), Investment Trusts and ETFs.

Excluded Asset Classes

Virtually all non-traditional asset classes and investment strategies (gold, commodities, private equity, currency etc.) are omitted from our core portfolios.

Gold

We consider investments, like gold, that do not have the capacity to deliver any kind of income (from which value is derived) to be speculative. Gold's value, much like all commodities in their original form, is derived solely from finding a counterparty to a trade, so even if somebody owns all of the gold in the world, it's worthless if they cannot find a buyer. There might be a place for speculation at the fringes of an investment portfolio, but we do not believe speculative instruments should play a major role in our core portfolios. We therefore concentrate on equities, bonds and cash.

Futures

Futures have demonstrated benefits of diversification historically, however, the discussion on the benefits of holding these securities over the long-term is still highly contested. As a result, we cannot advocate the usage of these instruments in our core portfolios, considering the lack of compelling empirical evidence.

Alternative Strategies

Common alternative investment strategies such as hedge funds and private equity do offer certain advantages. This stems from their low correlation with traditional market forces and thus with commonly held instruments like equities and fixed income.

Another proposed benefit of these strategies is that they deliver exposure to talent. Given the discretionary-based salary of professionals within private equity and hedge funds, this exclusive sector of finance attracts extremely qualified professionals, and so naturally an investor would want their money in the hands of these people.

However, when investing based on this premise, an investor opens themselves up to risk based both on selection of manager and the selected manager's consistency of results, which as we discussed in previous sections, is not the most reliable strategy to pursue.

The exclusive, private nature of these entities also brings lack of information disclosure and thus relatively opaque structures, resulting in difficulties conducting any significant amount of due diligence on the investment vehicles they produce. Complex investment products which drive high costs and the lack of liquidity also contribute to a level of risk for the investor that we believe isn't palatable and so we justifiably omit these vehicles from our portfolios.

Portfolio Design & Testing

A client's tolerance for risk is fundamental to our portfolio-construction process.

As detailed previously, our use of psychometric tests enables us to accurately pair clients' risk profiles with one of our core portfolios. In addition to this, we back-test our portfolios to ensure they conform with the boundaries set by our psychometric test providers.

From our experience, while many of the psychometric risk-profiling questionnaires successfully gauge clients' perceptions about risk, often there can be a disconnect between how clients feel they will respond in the future and how they actually respond to the prospect of part of their life's savings evaporating into thin air. Clients do also tend to equate their feelings on financial risk to their ability to stomach risk when engaging in other pursuits (sports etc.). This too creates disparities between the results and reality as people tend to view the financial stability of their family when it's at the beck and call of an unpredictable financial market as somewhat more important, than, let's say the structural integrity of a leg when mountain biking.

Thus, while we strive to provide clients with the most suitable solution, the ultimate determining factor will be how the client responds to risk in real-life.

Fund Selection & On-Going Screening

As an independent, whole of market advisory firm, our screening of funds starts with the entire market of relevant retail investment products, which includes OEICs/Unit trusts (onshore & offshore), Investment Trusts and ETFs. Using FE Fundinfo, we apply a set of well-defined criteria to identify the most appropriate funds. These criteria include:

- **Investor Protection:** This step details the practical tasks involved in managing the portfolios, including the Investment Committee's monitoring and review process.
- **Index-Replication Method:** As a rule, we invest in funds that physically replicate the index being tracked, i.e. the fund is invested in the underlying securities, as opposed to replicating the performance with derivatives that pay the return of the index (referred to as synthetic). This avoids the added element of risk stemming from the financial security of the financial institution (counterparty) that enters into the derivative contract with the fund house and ensures returns are provided regardless of the financial failure of one organisation.
- **Fund Track Record:** We examine the track record of the fund, with respect to lifespan, tracking error and performance
- **Fund Expense:** Given the importance of cost as a predictor of performance, we attempt to minimise cost where possible.
- **Transparency:** Our approach is to select funds with transparent charging structures and exclude funds with opaque structures from our selection process.
- **Fund Size:** With greater assets under management comes an increase in economies of scale, efficiencies and greater liquidity even in the event of a sell-off. Thus, we aim towards funds with a fund size of greater than £100m.
- **Securities Lending:** Once we have shortlisted funds that meet our criteria, we carry out further due-diligence on the shortlisted providers to explore possible counter-party risks through securities lending. We exclude funds if we are unable to satisfy ourselves of the stock lending policy of the fund provider.
- **Platform Availability:** It's important that we are able to trade the fund in a cost effective and efficient way and therefore we ensure that the fund is widely available on main adviser platforms. We do not limit ourselves to any particular platform, but instead ensure that the fund is widely available to retail investors.

Our Fund Screening Process and Criteria document details how we apply these criteria in practice.

Platforms & Product Wrapper

Platforms offer a range of tools which enable us to more effectively manage client transactions and custodial matters. However, we recognise platforms may not be suitable for all clients, so we will also consider off-platform solutions, where appropriate.

Our Platform Selection Documents detail our platform-selection process, which we review annually as part of our due diligence process.

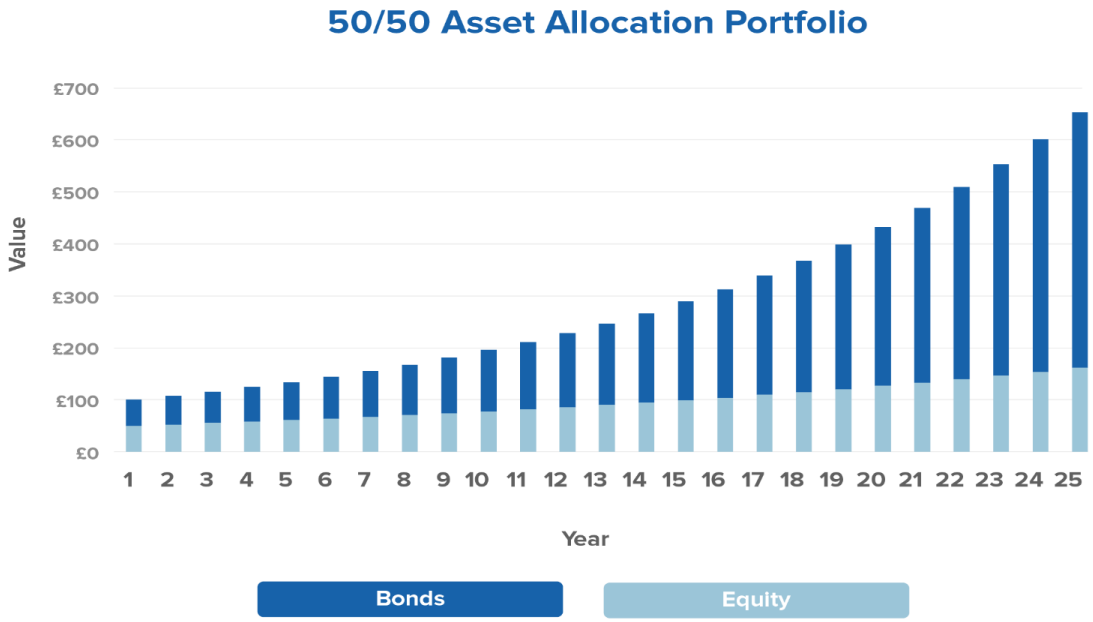
Client Communication & Education

It's important that our clients understand how their funds are invested. We communicate our investment approach to clients and keep them informed about our investment process in the following ways:

- Platform Availability
- Adviser Meetings
- Client Reports (including recommendations and reasoning)
- Regular Updates and Commentary
- Access for advisers to our online database Control Centre

Rebalancing

Rebalancing is designed to realign the investments held within a portfolio to their original target allocations. The necessity to rebalance is a consequence of long-term varying levels of performance between asset classes. For example, assuming over the long-term equity was to grow by 10% per annum while bonds grew by 5% per annum, a portfolio consisting of an initial allocation of 50/50 to bonds and equity, would drift to an allocation of 25/75 over a 25-year period.



Source: Kitces (2015)

As illustrated above, left unchecked a portfolio's composition may no longer meet clients' risk profiles as higher performing and more risky assets such as equity become an ever-increasing proportion of the portfolio. To mitigate this problem, we monitor and when necessary, rebalance portfolios. Rebalancing involves selling higher performing assets and replacing them with lower performing assets. This may seem counterintuitive, and one could rationally argue, from a purely performance-based perspective that a portfolio should never be rebalanced as to do so reduces long term return. However, with investments, risk and return are never considered in isolation.

The optimal rebalancing approach is to capture a proportion of the performance of the outperforming assets, while at the same time mitigating the increased risk of moving too far from the portfolio's target asset allocation.

There are a number of approaches to rebalancing (Daryanani, 2008) Arguably, the most common and simplest approach is "calendar rebalancing", whereby portfolios are rebalanced at fixed points throughout the year regardless of actual movements in asset prices. This is a sub-optimal approach to re-balancing and serves not only to

reduce the ability for investors to capture upside performance but also increases trading costs for the investor which further decrease returns over the long term.

After a review of the literature together with our own in-house analysis, our portfolios will be rebalanced using a "tolerance-based" approach. This involves monitoring each fund held within the portfolio, on a daily basis. Our tolerance level is 10%. This means that once any fund or asset class as a whole increases or decreases by more than 10%, the portfolio will be re-balanced, with all funds reset back to their initial target allocation. Compared to other tolerance levels, such as 15% and 20%, whereby overall return would be higher, we believe that such drifts expose investors to excessive risk.

Rebalancing Rule	Annual Return	Min Return	Max Return	Cumulative Return	Volatility	Drawdown	Real End Balance
5% Band	9.4%	-13.1%	41.8%	330.5%	12.3%	-23.1%	£4,498,913
10% Band	9.5%	-13.3%	41.5%	332.6%	12.4%	-23.3%	£4,562,756
15% Band	9.6%	-13.8%	42.0%	337.6%	12.6%	-23.8%	£4,729,446
20% Band	9.8%	-14.2%	42.8%	342.1%	12.9%	-24.5%	£4,853,069
None	10.4%	-17.8%	44.5%	363.5%	14.1%	-32.4%	£5,366,691

Source: Betafolio (2020)

*Data sourced from a median scenario using a £1m balanced 50/50 portfolio of Bonds and Equity. Data: 1915 - 2019, 35-yr monthly rolling scenarios. This table contains mean metrics for all the 840, 35-yr monthly rolling scenarios.

During periods of volatile markets, discretion will be used as to the frequency of rebalancing to reduce unnecessary trading and associated costs. In addition to this, we consistently review clients' risk preferences to determine whether any changes should be made.

Due to varied platform functionality, please refer to our individual platform process documents (made available on request) for a detailed operational breakdown on how our optimal rebalancing strategy, outlined above, works on each platform.

Fiduciary Duty

In addition to any legal responsibilities, we believe our duties to the client include the following.

Providing perspective, facilitating the type of sound, responsible investment decisions that somebody working with a financial adviser expects and deserves to experience. We believe in 'structure, process and discipline', and while that might not sound like the most exciting or colourful motto, it has yielded success for like-minded planners and advisers, which the empirical evidence supports.

We feel it is our responsibility to construct clients' portfolio in a responsible, calm and efficient manner. By focusing on things that can be controlled, rather than unpredictable market fluctuations, we promote and enable the client to follow this thought process and avoid making irrational decisions.

With this perspective on markets and investing, the future looks bright. With methodologically crafted portfolios, founded on fair, objective research, clients can focus on building legacy and wealth, rather than becoming preoccupied by market activity.

Managing Costs Effectively

Clients should avoid getting carried away by the excitement of chasing the next best manager and hot tips, but instead ensure that their costs are minimised. Small differences in returns, due to costs, compound into large differences over extended periods of time, which can materially affect future lifestyle choices.

Costs Come in All Shapes and Sizes

Fees

Given the body of research dedicated to the relationship between high costs and poor returns, we seek to minimise the costs associated with our core portfolios. To achieve this, we use high quality, low cost, passive (index/tracker) funds that simply capture the performance of the market.

Emotional Costs and Opportunity Loss

Keeping a level head when markets become turbulent is a tough task. When the financial implications are large, it's easy to become engulfed in the financial press' coverage of securities of interest, which can lead to over-emotional decision making and selling assets at inopportune times. Not only does this result in increased transactional costs, but also the abandonment of future capital gains can irk even the most seasoned of financers, resulting in more irrational decisions made down the line.

Clients' Responsibilities

A relationship based on mutual trust and responsibility is key to a successful investment experience. Accordingly, it is expected that clients familiarise themselves with and understand the conditions of the relationship. Clients are expected to:

- Have read and understood the Investment Policy Statement.
- Inform us in writing if any divesture from equity-linked investments is expected within the following 5-year period, to facilitate the continuation of our holistic approach to portfolio management.
- Familiarise themselves with the investment literature to a level of understanding that is sufficient to make investment decisions upon.
- Inform us in writing of any absolute ethical restrictions regarding investment in certain industries.
- Maintain proper correspondence to ensure the timeliness of investment-related actions.

Centralised Retirement Proposition (CRP)

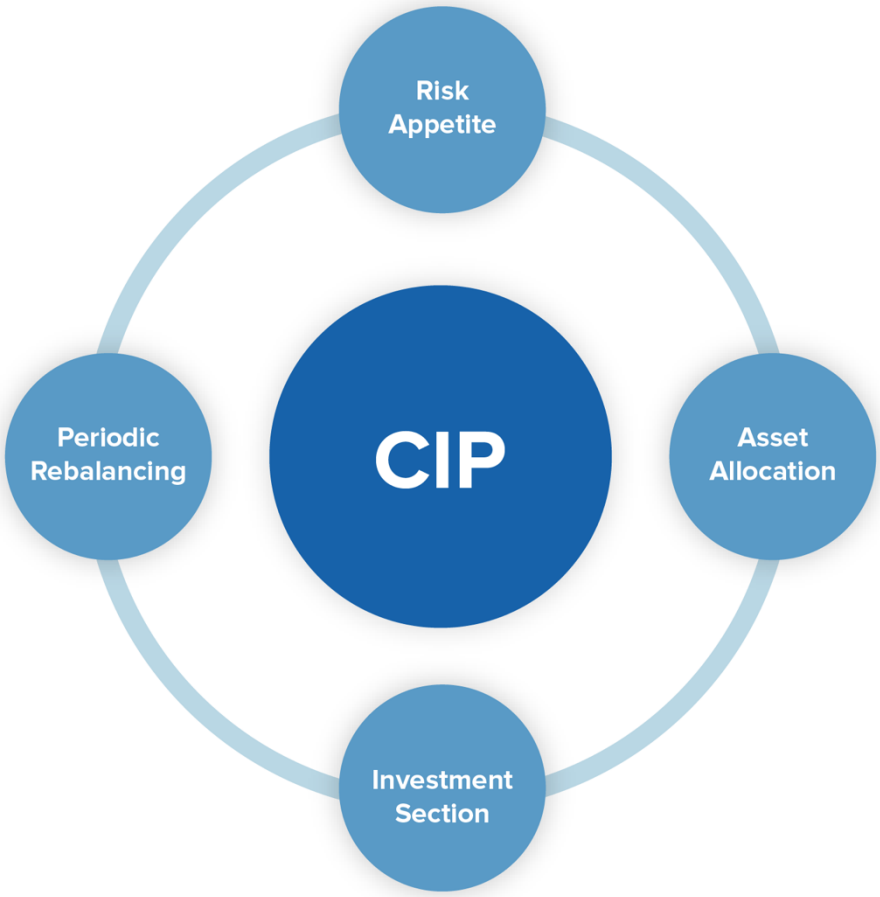
Supplementary to the Centralised Investment Proposition provided by the model portfolios is the Centralised Retirement Proposition (CRP).

The term initially introduced by asset managers to market decumulation fund solutions has come to encapsulate a far more holistic way of viewing risk when a client retires, and a portfolio enters decumulation.

Our view of decumulation is that the most important issue is sequence risk. Now, while attempts have been made to mitigate this through focusing on client portfolio volatility or by holding cash buffers or separate accounts, the only way of truly mitigating the issue is through a centralised retirement proposition.

The structure of a Centralised Retirement Proposition is built around the Centralised Investment Proposition described above, which we have conceptualised diagrammatically as follows:

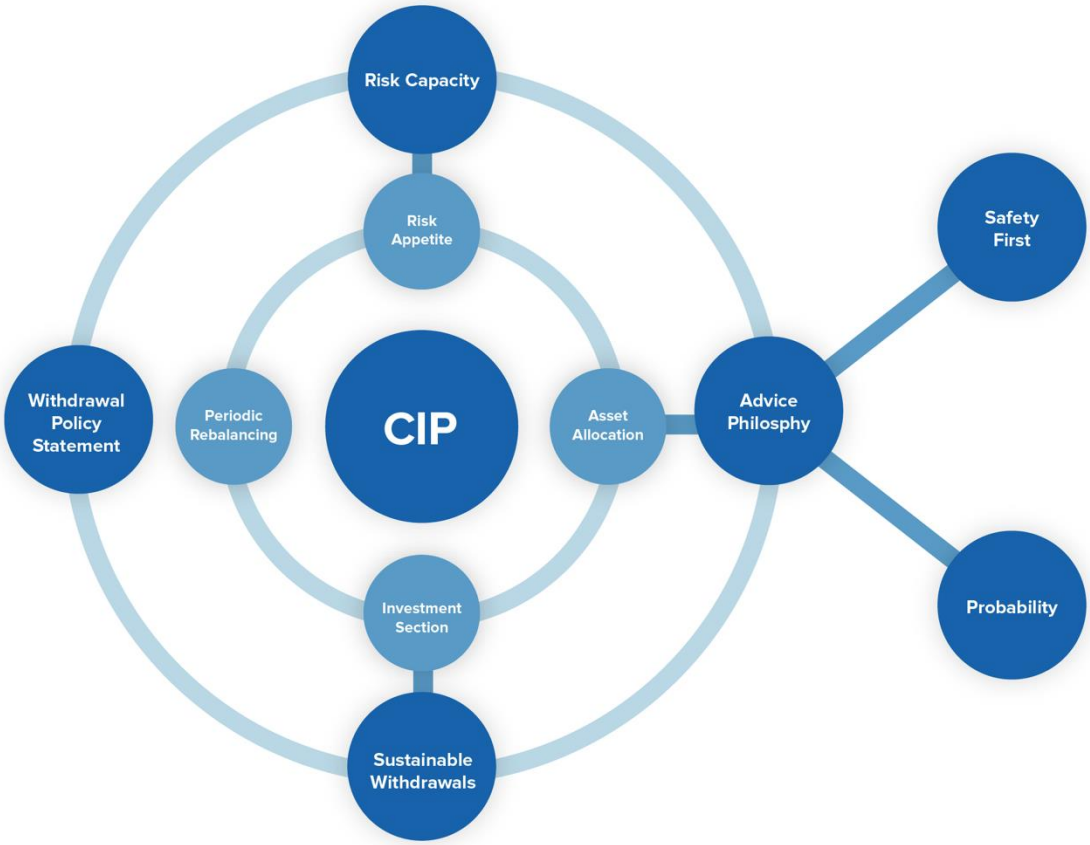
Centralised Investment Proposition Structure



We see the main four considerations in designing an investment proposition as: determining risk appetite, determining the appropriate asset allocation, selecting the optimal investments and periodic rebalancing to keep in line with a client's risk preferences.

Now, where the CRP differs from this, is inherently linked to the client's newly gained dependence on the capital markets, mediated by their investment portfolio. As such, we will see on the next page how the CRP addresses these issues conceptually.

Centralised Investment Proposition Structure



The diagram above, represents wider factors and processes that link into the core CIP.

Given the importance of decumulation clients' portfolios to their lifestyle, a CRP involves revaluating a client's risk appetite. The threat of sequence risk also must be accounted for through establishing sustainable withdrawal strategies, which need to be documented accurately. Finally, the overall philosophy of the process must be evaluated considering capital market returns, whilst ensuring no excessive risk is assumed.

This is an issue that requires deep understanding of clients' personal situations, but one that we enhance by using long-term historical market returns data and a probabilistic approach to determining withdrawal sustainability.

This is achieved through the usage of the Timeline App, which takes market returns over the course of the last 90 years and enables the advisor to gauge the sustainability of future withdrawals and their sequence risk, based on a multitude of different scenarios which can be chosen based on optimism regarding future returns.

Decumulation Strategy

Decumulation strategy is built on two key elements:

1. Calculating a sustainable withdrawal based on the client's asset allocation This means the level of withdrawal would be sustainable even in the event of poor sequence of return i.e., the historical worst-case scenario.
2. Having a dynamic withdrawal approach that reduces withdrawal to protect the client's interests in a worse than worst case scenario.

There are different approaches to asset allocation and drawdown in the retirement phase. Using a cash buffer is quite popular as it reduces/removes the need to raise income when prices have fallen. However, evidence shows remaining "fully invested" and withdrawing to meet income needs provides the best outcome.

Betafolio's very own Okusanya (2017) built upon the earlier research by Bengen (1997) to understand the impact of different cash buffer strategies in a fully invested scenario. Starting with a 50% global equity and 50% global fixed income, multiple iterations were carried out substituting cash for equity and substituting cash for global fixed income. Of the two scenarios, the iterations with substituting cash for equity had a negative impact on longevity or success rate of the portfolio, while substituting global fixed income for cash had a comparatively little impact on the longevity of the portfolio.

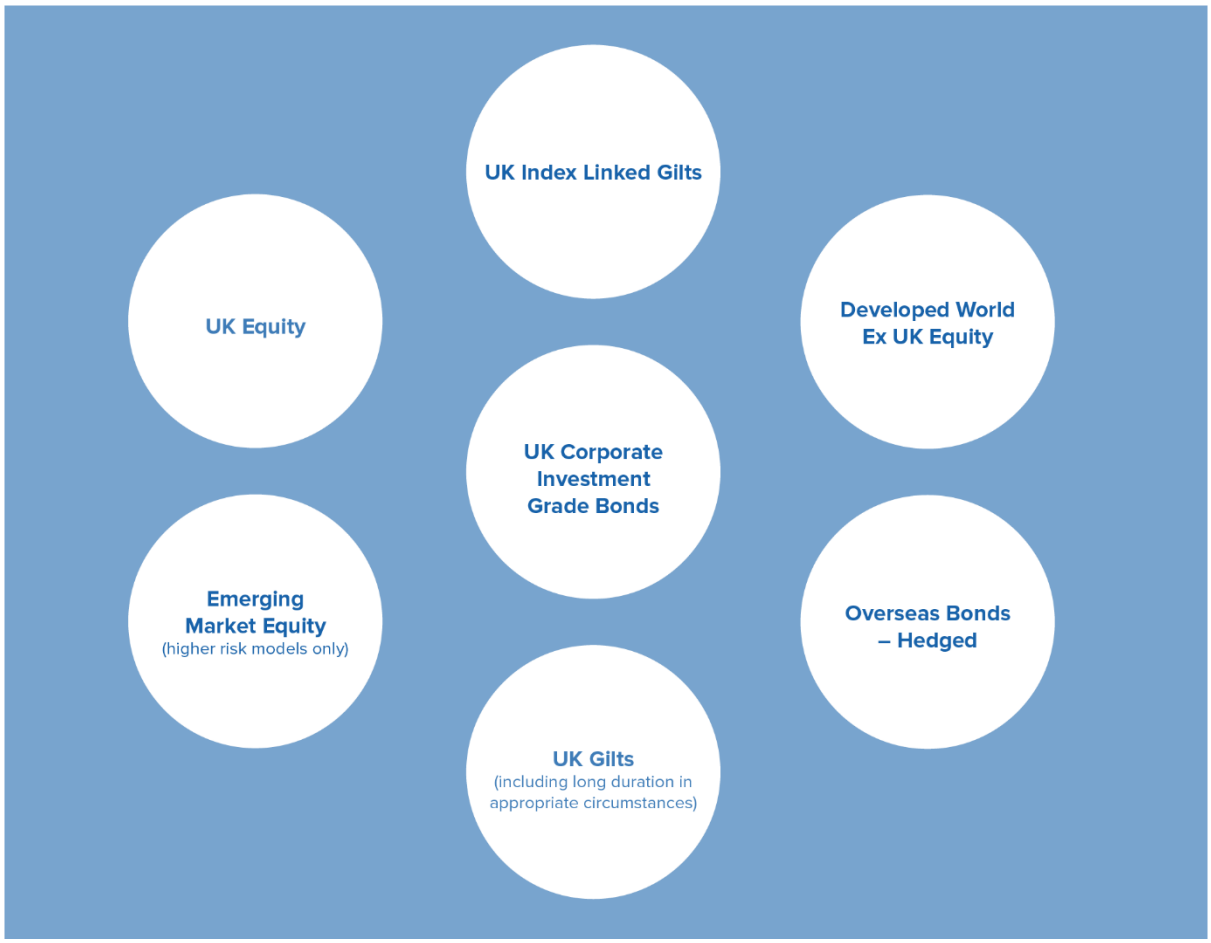
Like the fully invested approach another popular cash buffer approach is "bucketing". Bucketing involves holding several years of cash in one bucket while the remaining are held in buckets invested in capital markets. The cash bucket is replenished by selling from the capital market buckets. Estrada (2018) researched on Harold Evensky's work to study different cash bucketing approaches. Bucketing proved effective by avoiding the need to sell assets when prices have fallen. But, the downside to bucketing is it fails to take advantage of buying low priced assets through "rebalancing".

To sum up, our modelling and research has found that holding no buffer and rebalancing using a tolerance-based approach provides superior outcomes.

Summary

The model portfolios will be invested in equities for growth and fixed income, for defensive qualities. Asset allocation strategies will be set according to client risk/return profiles. Equity market cap weights will be used as a starting point.

The model portfolios will invest in the following sub-classes of asset:



References

Ardalan, K. (2019). Equity Home Bias in International Finance: A Place-Attachment Perspective. London: Routledge; 1 edition.

Barras, L., Scaillet, O., & Wermers, R. (2010). False Discoveries in Mutual Fund Performance: Measuring Luck in Estimated Alphas. The Journal of Finance, 179-216.

Bengen, W. P. (1997). Conserving Client Portfolios During Retirement, Part III. Journal of Financial Planning, 84-97.

Berndsen, J. (2003). Does Duration Extension Enhance Excess Returns? Denmarks Nationalbank Working Papers, No. 10. Retrieved from http://www.nationalbanken.dk/en/publications/Documents/2003/04/WP_10_2003.pdf

Bhardwaj, G. (2010). Investment Case for Commodities? Myths and Reality. Vanguard Group.

Blake, D., Lehmann, B., & Timmermann, A. (1999). Asset Allocation Dynamics and Pension Fund Performance. The Journal of Business, 429-461.

Briault, C. (2006, May 18). Treasury Select Committee. (D. Waters, Interviewer)

Brinson, G., Hood, R., & Beebower, G. (1986). Determinants of Portfolio Performance. Financial Analysts Journal, 39-44.

Burton, M. (2010, January). Bubbles in Asset Prices. Retrieved from Princeton University: https://www.princeton.edu/ceps/workingpapers/200malkiel.pdf

Busch, T., Friede, G., & Bassen, A. (2015). ESG and Financial Performance: Aggregated Evidence from More than 2000 Empirical Studies. Journal of Sustainable Finance & Investment, 5(4), 25. Retrieved from https://papers.ssrn.com/sol3/Delivery.cfm/SSRN_ID2699610_code2486463.pdf?abstractid=2699610&mirid=1&type=2

Clare, A., & Motson, N. (2010). Do UK Retail Investors Buy at the Top and Sell. Cass Business School. London: City University. Retrieved from https://openaccess.city.ac.uk/id/eprint/16846/

Cuthbertson, K., Nitzsche, D., & O'Sullivan, N. (2005). Mutual Fund Performance: Skill or Luck? Journal of Empirical Finance, 613-634.

Cuthbertson, K., Nitzsche, D., & O'Sullivan, N. (2010). Mutual Fund Performance: Measurement and Evidence. Financial Markets, Institutions & Instruments, 95-187.

Daryanani, G. (2008). Opportunistic Rebalancing: A New ParadigmforWealth Managers. Journal of Financial Planning.

Dimensional Fund Advisors. (2019). Mutual Fund Landscape. Retrieved from https://hub.dimensional.com/exLink.asp?40838454OC19S68I88753842

Dimensional Fund Advisors. (2021). Matrix Book, Historical Returns Data - British Pounds.

Driessen, J., & Laeven, L. (2007). International Portfolio Diversification Benefits: Cross-Country Evidence from a Local Perspective. Journal of Banking & Finance, 1693-1712.

Elton, E., & Gruber, M. (1977). Risk Reduction and Portfolio Size: An Analytical Solution. The Journal of Business, 415-37.

Estrada, J. (2018). The Bucket Approach for Retirement: A Suboptimal Behavioral Trick? IESE Business School.
Fama, E. (1970). Efficient Capital Markets: A Review of the Theory and Empirical Work. Journal of Finance, 383-417.
Fama, E. F., & French, K. R. (1995). Size and Book-to-Market Factors in Earnings and Returns. The Journal of Finance.
Friedman, M. (1970, September 13). The Social Responsibility of Business is to Increase its Profits. The New York Times. Retrieved from https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html
International Monetary Fund. (2019). Global Financial Stability Report: Lower for Longer. International Monetary Fund. Retrieved from https://www.imf.org/~/media/Files/Publications/GFSR/2019/October/English/text.ashx?la=en
Kaplan, P., & Ibbotson, R. (2000). Does Asset Allocation Policy Explain 40, 90, 100 Percent of Performance? Financial Analysts Journal, 56(3):16-19.
Kinnel, R. (2010, August 9). How Expense Ratios and Star Ratings Predict Success. Retrieved from Morningstar: https://www.morningstar.com/articles/347327/how-expense-ratios-and-star-ratings-predict-success
Kinnel, R. (2019, August 15). Mind the Gap. Retrieved from Morningstar: https://www.morningstar.com/articles/942396/mind-the-gap-2019
Kitces, M. (2015). How Portfolio Rebalancing Usually Reduces Long-Term Returns (But Is Good Risk Management Anyway). Retrieved from Kitces: https://www.kitces.com/blog/how-rebalancing-usually-reduces-long-term-returns-but-is-good-risk-management-anyway/
Kosowski, R., Timmermann, A., Hal, W., & Wermers, R. (2005). Can Mutual Fund "Stars" Really Pick Stocks? New Evidence from Bootstrap Analysis. Journal of Finance.
Laurent, B., Scaillet, O., & Wermer, R. (2005). False Discoveries in Mutual Fund Performance: Measuring Luck in Estimated Alpha. FAME Research Paper No. 163.
Markowitz, H. (1952). Portfolio Selection. The Journal of Finance, 77-91.
Morgan Stanley. (2019). Sustainable Reality, Analysing Risk and Returns of Sustainable Funds. Retrieved from https://www.morganstanley.com/pub/content/dam/msdotcom/ideas/sustainable-investing-offers-financial-performance-lowered-risk/Sustainable_Reality_Analyzing_Risk_and_Returns_of_Sustainable_Funds.pdf
Morningstar. (2021, April). Which Countries Lead on ESG. Retrieved from Morningstar: https://www.morningstar.co.uk/uk/news/211424/which-countries-lead-on-esg.aspx
Okusanya, A. (2017, December 14). Cash reserve buffers, withdrawal rates and old wives' fables for retirement portfolios. Retrieved from FinalytiQ: https://finalytiq.co.uk/cash-reserve-buffers-withdrawal-rates-old-wives-fables-retirement-portfolio/
Phillips, C., & Thomas, C. (2013). Fearful of rising interest rates? Consider a more global bond portfolio. Retrieved from Vanguard Group:

https://www.vanguardcanada.ca/documents/fearful-rising-interest-rates-tlrv.pdf
Renneboog, L., Horst, J. T., & Zhang, C. (2008, September). Socially responsible investments: Institutional aspects, performance, and investor behavior. Journal of Banking & Finance, 32(9), 1723-1742.
Roy, A. (1952). Safety First and the Holding of Assets. Econometrica, 431-449.
S&P. (2021). SPIVA: Statistics and Reports. Retrieved from S&P Dow Jones Indices: https://us.spindices.com/spiva/#/reports
Sankaran, J., Krishnamurti, C., & Patil, A. (1999). On the Optimal Selection of Portfolios Under Limited Diversification. Journal of Banking & Finance, 1655-1666.
Schlanger, T., Walker, D. J., & Roberts, D. R. (2018, Aptil). Going global with bonds: The Benefits of a more global fixed income allocation. Retrieved from Vanguard Group: https://personal.vanguard.com/pdf/ISGGLBD.pdf
Schneider, L. (2007, July). Are UK Fund Investors Achieving Fund Rates of Return? An examination of the differences between UK fund returns and UK Investors' returns. Thesis.
Schrøder, S., & Sørensen, C. (2010). Do Long-Term Bonds Offer a Higher Return? Denmark Nationalbank. Retrieved from https://www.nationalbanken.dk/en/publications/Documents/2010/07/mon_2qtr_2010_web.pdf
Scott, B. J., Balsamo, J., McShane, K. N., & Tasopoulos, C. (2017, January). The Global Case for Strategic Asset Allocaiton and an Examination on Home Bias. Retrieved from Vanguard Group: https://www.vanguard.co.uk/documents/adv/literature/strategic-asset-allocation.pdf
Scott, B. J., Stockton, K. A., & Donaldson, S. J. (2019, February). Global equity investing: The benefits of diversification and sizing your allocation. Retrieved from Vanguard Group: https://www.vanguard.com/pdf/ISGGEB.pdf
Shakespeare, W. (2006). The Merhcant of Venice. (B. Raffel, Ed.) London: Yale University Press.
Shiller, R. (2003). From Efficient Markets Theory to Behavioural Finance. Journal of Economic Perspectives, 83-104.
Stockton, K. (2007). Understanding Alternative Investments: The Role of Commodities in a Portfolio. Vanguard Group. Retrieved from http://www.vanguard.com/pdf/s552.pdf
Tobin, J. (1958). Liquidity Preference as Behavior Towards Risk. The Review of Economic Studies, 65-86.
Troberg, R. (2015). Smart Beta: Alternative Concepts in Passive Portfolio Management. Hamburg: Anchor Academic Publishing.
US SIF Foundation. (2018). Report on US Sustainable, Responsible and Impact Investing Trends. US SIF Foundation. Retrieved from https://www.ussif.org/files/Trends/Trends%202018%20executive%20summary%20FINAL.pdf
Walker, D. J., Kinniry, F. M., & Philips, C. B. (2012). Dynamic correlations: The implications for portfolio constructions. Vanguard Group. Retrieved from https://www.vanguard.co.uk/documents/adv/literature/dynamic-correlations.pdf

Whelan, A. V. (2021). ESG AND FINANCIAL PERFORMANCE: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published between 2015 – 2020. NYU - STERN - ROCKEFELLER.

Yeoh, M. G. (2021, May). World Economic Forum - investing-to-curb-climate-change-rising-what-you-need-to-know. Retrieved from weforum.org: https://www.weforum.org/agenda/2021/05/investing-to-curb-climate-change-rising-what-you-need-to-know/

Past performance is no guarantee of future return. The value of investments and the income from them can go down as well as up. You may get back less than you invest. Transaction costs, taxes and inflation reduce investment returns.

Please contact support@betafolio.co.uk for further assistance

1 Cradock Street, Leicester, LE5 3AW

0116 2621414

support@tiltonconway.com

www.tiltonconway.com

betafolio
by timeline