



Multi-Asset Investments

Managing sustainability from a total portfolio perspective

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Whatever the reasons for considering environmental, social and governance (ESG) criteria and sustainability in a portfolio, managing this exposure across multiple asset classes is significantly more complicated than managing it within a single asset class.

As more asset owners move towards the adoption of sustainability objectives, there are a number of important decisions they will need to make at the outset of the construction of a suitably ESG compliant multi-asset portfolio:

1. How far along the sustainability spectrum do they want their assets managed?
2. How much sustainability do they want to incorporate in their overall assets?
3. How will sustainability be implemented? Will it be applied to just some components, all components and/or asset allocation?
4. If sustainability is applied at the asset allocation level, how should this be incorporated?

Little has been written about how to manage ESG, across multiple asset classes, at the total portfolio level. There are many papers on individual investment components (mainly equities) but the complexity and interlinkages involved in the application between asset classes has had less exposure.

In a series of papers we will be looking at ESG in the wider context of a 'whole' portfolio.

In this paper, we discuss how to address the decisions regarding positioning on the sustainability spectrum and setting a sustainability budget.



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Establishing a spectrum of sustainability

The way in which asset classes are implemented within an ESG framework differs significantly from one asset owner to another, yet all could be termed 'ESG investing'. To aid in the process of understanding the various approaches, we define three different levels of ESG implementation along a spectrum of sustainability:

- Screened – Negative screening beyond statutory requirements
- Integrated – ESG analysis is a building block of the investment process. It is systematic and there is a commitment to engagement and stewardship
- Sustainable – ESG analysis is a cornerstone of the investment process. The resulting portfolio has a strong sustainability profile, focused on generating returns that can truly be maintained over the long term.

Regardless of which level of ESG engagement an investor pursues, we believe active (in preference to passive) management is more effective in its application for a variety of reasons¹. Exclusions of companies and sectors at scale (through the setting of broad passive constraints) can substantially change the characteristics of a portfolio. Active fund management can lessen these unintended consequences, while ensuring that risk and return parameters are maintained. In addition, passive approaches fail to delineate and capture companies' ability to adapt to environmental, social and governance challenges.

We have analysed many passive/index-based ESG products and what we found was that they generally oversimplify complex topics through reliance on exclusions. Furthermore, often these exclusions are built on 3rd party ESG measures and complicated by a lack of consistency between data providers (or evidence of alpha generation).

¹ Index-based ESG strategies: key things to watch for, Schroders, August 2018 <https://www.schroders.com/en/sysglobalassets/digital/insights/2018/thought-leadership/e.s.g.-in-passive-final.pdf>.

In Figure 1 we consider the three broad levels of ESG implementation, the advantages and disadvantages of each approach and the likely impact on an investment portfolio. As can be seen, while approaches at the screened end of the spectrum are typically easier to implement, their impact may be to unintentionally increase risk rather than improve returns.

The choice for asset owners as to where on the ESG spectrum their assets are managed depends primarily on the following six factors:

1. Beliefs regarding the importance of sustainable investing and the approach that closest meets these beliefs
2. The availability of investment assets managed using an ESG approach
3. The impact on the overall portfolio of different ESG approaches
4. The skill of the active managers in combining ESG into their processes
5. The timeframe over which a strategy will be evaluated – an asset owner with a longer time horizon has a greater ability to exercise concern about climate issues, for example, while an asset owner with a shorter time horizon may choose to focus on governance issues
6. The cost of implementing an ESG strategy.

Introducing a sustainability budget

Asset owners are familiar with managing multiple budget guidelines simultaneously, including risk budgets and governance budgets. Risk budgeting is a way of ‘incorporating risk and return information to produce more efficient investment decisions’². Good governance has been demonstrated to ‘make a significant incremental difference to value creation as measured by long-term risk-adjusted rates of return’³. We believe that asset owners for whom ESG is an important theme should also consider introducing a sustainability budget. This would be similar to the concept of the risk and governance budgets whereby sustainability features would be identified and implemented with a view to delivering better longer-term risk adjusted returns (as evidenced in Figure 1). A sustainability budget could be measured as a percentage of the relevant capital allocation in the portfolio (we will cover measurement and impact in more detail in our next paper).

² <https://www.evestment.com/resources/investment-statistics-guide/risk-budgeting/> and Risk budgeting in pension investment, Urwin, Breban, Hodgson and Hunt, British Actuarial Journal 2001

³ Best practice pension fund governance, Clark and Urwin, Journal of Asset Management, May 2008

Figure 1: understanding the impact of positioning along the sustainability spectrum

Approach on sustainability spectrum	Advantages	Risks	Likely impacts
Screened	<ul style="list-style-type: none"> – Can be done passively – Low cost 	<ul style="list-style-type: none"> – Reduces the opportunity set and increases volatility – The impact on performance will depend on the amount of the index excluded – Data providers do not always agree on definitions, so residual exposure may remain – List of sectors tend to expand over time 	<ul style="list-style-type: none"> – Will vary with what is excluded – Increases volatility over the shorter term⁴
Integrated	<ul style="list-style-type: none"> – Examines not only what environmental, social and governance risks companies are exposed to but how they are mitigating them. – Can generate alpha, when combined with financial analysis 	<ul style="list-style-type: none"> – Difficult to do passively, even using an ESG index – If done passively can introduce quality and developed market biases – Requires ongoing monitoring – May invest in more controversial stocks* if the risks are being managed well and there is a valuation opportunity 	<ul style="list-style-type: none"> – Better risk adjusted returns⁵
Sustainable	<ul style="list-style-type: none"> – Can identify truly long term, maintainable, business models 	<ul style="list-style-type: none"> – Can result in more concentration 	<ul style="list-style-type: none"> – Strong long term returns⁶

⁴ Demystifying negative screens: the full implications of ESG exclusions, Schroders, December 2017. <https://www.schroders.com/en/syglobalassets/digital/insights/2018/thought-leadership/demystifying-negative-screens--the-full-implications-of-esg-exclusions.pdf>

⁵ Source: Stockholder to the Stakeholder, Smith School of Enterprise and the Environment, University of Oxford and Arabesque Asset Management, September 2014 showed that a well governed firm can have an equity cost advantage between 0.8% to 1.32% and that 88% of studies showed a positive relationship between sustainable companies and operational performance

⁶ Sustainable companies (defined as those with above average stakeholder management) have experienced a higher Return on Invested Capital over a 10 year time horizon than companies in general. Analysis based on the MSCI ACWI universe using data from Thomson Reuters. ROIC is ranked relative to ICB industry global peers.

Source: Schroders

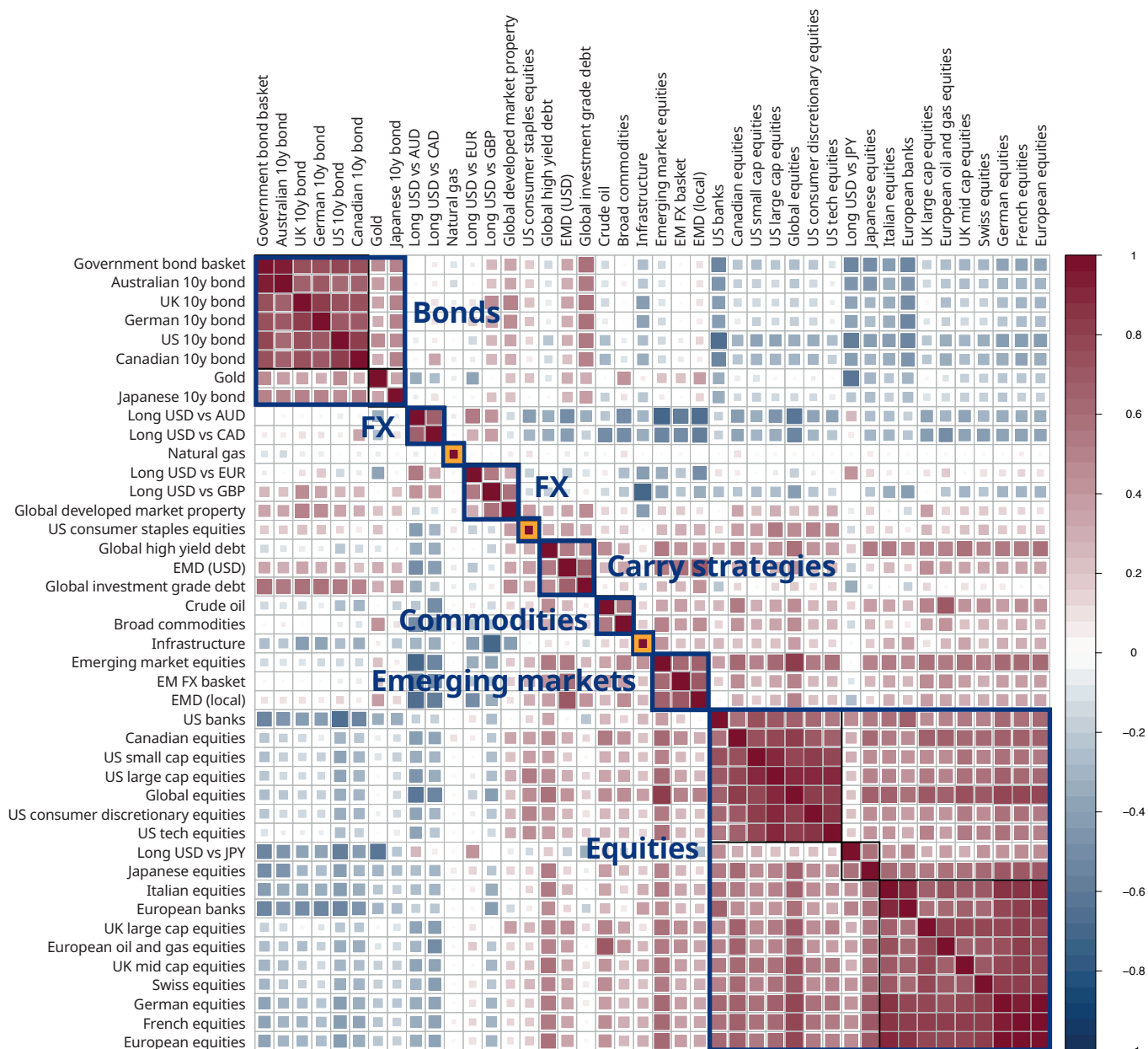
* Example: an investor may choose to invest in a mining company if felt that it is a well run company, managing its stakeholders competently and paying for residual ESG risks (e.g. on decommissioning costs or long term commodity prices). Alternatively, an investor may choose to invest in a diesel-emissions “controversial stock” if the management of the company is addressing the emissions scandal in an appropriate way.

Many asset owners already implicitly have a sustainability budget as a result of having a portion of their assets managed with an ESG approach, perhaps as a result of being a Principles for Responsible Investment (PRI) signatory. Other asset owners may feel strongly that by committing to an ESG philosophy, all their assets should be managed with a sustainability biased slant. However, if such an approach is applied to all assets, this could restrict the ability of the investment manager to manage the portfolio efficiently.

By limiting the universe from which investments are selected, the asset owner needs to be cognizant of the impact on diversification. For example, if commodities (which are often regarded as more difficult to manage from an ESG perspective) are removed from the opportunity set for a multi-asset portfolio, the impact could be significant, depending on the size of the allocation and correlation with other asset classes. In a similar way, the impact of each type of investment asset (bond, equity, commodity etc.) should be analysed before it is removed or limited in a portfolio's construction.

To understand how the removal of a component can affect the overall portfolio, we have analysed the correlation between different asset types in a typical multi-asset portfolio. Figure 2 shows a correlation matrix for a hypothetical portfolio that contains 42 positions across multiple asset classes including equities, bonds, currencies and alternatives. The portfolio also diversifies across multiple regions and sectors. However, those 42 distinct positions collapse down to just 10 clusters (shown by blue squares). If, for example, we were to remove just one of these blue risk clusters on sustainability grounds, the portfolio would be much more highly concentrated in the other clusters. Clearly, the impact on portfolio diversification of simply excluding an asset class from the investment opportunity set is greater than initially apparent. Diversifying within equities or within bonds is not enough. The correlations between investments within these asset classes are too high. Therefore, less correlated risks such as commodities, currency strategies and emerging market strategies are critical for diversifying portfolio risk.

Figure 2: truly understanding the impact on risk helps to understand the compromises to diversification



Source: Schroders, for illustration only

Removing one of these clusters from the opportunity set, on sustainability grounds, can significantly compromise diversification. The orange squares represent positions that appear to be completely uncorrelated with the rest of the portfolio – these are valuable diversifiers in the portfolio context.

Another way to think about the sustainability budget is by drawing a parallel with the risk budget. An asset owner requires some volatility in order to generate a return. It is unlikely that sustainability can be applied to all components of the portfolio without undermining the ability to manage the portfolio effectively.

Having decided on the size of the sustainability budget, asset owners need to address two further, interlinked, points: the extent to which the sustainability budget impacts the risk and governance budgets; and how the sustainability budget can be implemented.

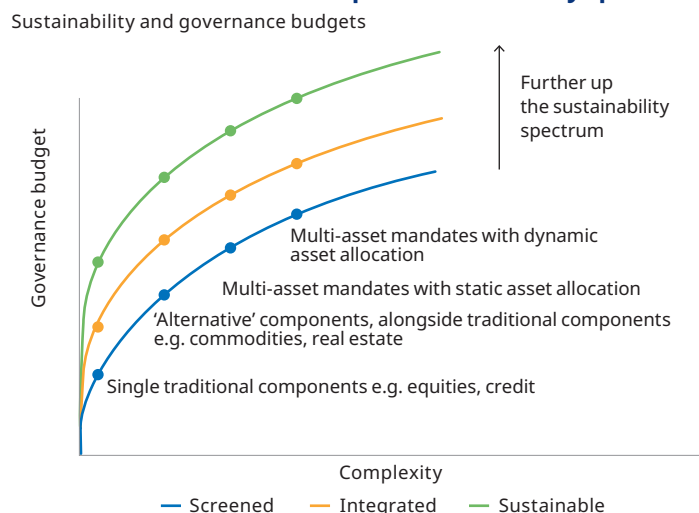
Interaction between the governance budget and the sustainability budget

A governance budget is the time, expertise and commitment available to manage the assets. The way in which the assets are managed should ‘match its governance budget, wherein both investment strategy and governance are sensitive to the resources available for effective management’⁷. This research also states that ‘the governance budget should be seen as an investment in the long-term performance of the institution’, which is also consistent with the time-horizon for sustainable investing.

The further along the sustainability spectrum that assets are managed, the larger the governance budget that will be required to manage those assets in a sustainable way. Even at the ‘screened’ end of the spectrum, initial thought/expertise needs to go into defining the screens, assessing the impact of screening out certain industries and companies and to ensuring that the analysis is maintained and reviewed. In addition, as the number of components (asset classes) that are managed sustainably increases, so a larger governance budget will need to be assigned. Further governance budget will be required if the asset allocation is also required to incorporate sustainability.

⁷ Innovative models of pension fund governance in the context of the global financial crisis, Clark and Urwin, *Pensions: An International Journal*, 2010

Figure 3: the governance budget will need to increase as asset owners move further up the sustainability spectrum



Source: Schroders, for illustration only

In Figure 3 we show the likely interaction between the governance and sustainability budgets. The further along the sustainability spectrum an asset owner would like to go, the more governance is likely to be required (i.e. moving from the blue to orange to green lines). For example evaluating how the fund managers of individual components are integrating ESG in their portfolios, at a time when standards and definitions remain fluid, is challenging. Resources will need to be devoted to due diligence, comparative analysis, and ongoing monitoring in this fast moving area of investment.

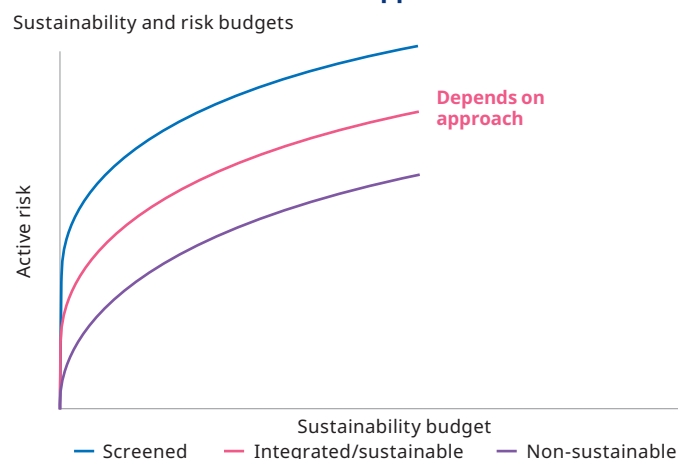
The choice about where on the sustainability spectrum assets should be managed is a function of the six factors highlighted earlier, the governance budget and the risk budget.

Interaction between the risk budget and the sustainability budget

When the interaction between the risk budget and the sustainability budget is considered, there is a less clear impact. Intuitively, as fewer companies and asset classes are included on sustainability grounds, it follows that less breadth in the portfolio will result in a higher risk profile. However, it could also be argued that by focusing on companies that are likely to be positive from a sustainability perspective, risk in the portfolio will be reduced over the longer term. For example, by positioning a portfolio to be protected against climate change, traditional measures such as tracking error are likely to increase compared to an ‘unprotected’ portfolio because sectors and companies will have been removed/reduced from the available universe. However, over the longer term, the portfolio is likely to be better insulated against these risks.

Investments diverging from the benchmark result in risk relative to the benchmark (termed ‘active risk’). Introducing a sustainability ‘overlay’ to the investment decision-making process provides an additional source of deviation from the benchmark. Without making an assumption about whether introducing sustainability is a good idea or not, incorporation of sustainability is likely to increase active risk, relative to a non-sustainable benchmark, over the timescale by which most asset owners measure the performance of their asset managers. At this stage it is not clear whether moving further up the sustainability spectrum results in more active risk – it depends on the actual approach taken and specifically whether it restricts diversification in the portfolio (as shown in figure 4).

Figure 4: Screening results in higher active risk than a non-sustainable investment approach



Source: Schroders, for illustration only

Increasing the number of screens will increase the volatility at a portfolio level and the opportunity set across component asset classes. Additionally, the choice of screen(s) can also impact the risk budget. We showed⁸ that screening out fossil fuels from a global equity portfolio, for example, had a far larger impact on volatility of returns relative to the index than screening out tobacco stocks.

It could also be argued that by focusing on companies that are likely to be positive from a sustainable perspective, risk in the portfolio will be reduced over the longer term. This goes to the issue of how risk should be measured in the context of sustainability – it may be more appropriate to have different measures for short and long term risk. As discussed above, constraining the investment opportunity set – for whatever reason - is likely to compromise the degree of diversification in the portfolio. As such, exposure to acute shorter-term risks resulting from unexpected shocks, may be higher for portfolios that take a sustainable approach to investing. If the asset owner's time horizon is long enough, however, then such risks are of lesser importance. Indeed, the advantages of sustainable investing are expected to be realised mostly over the longer term⁹. For asset owners who have a high sustainability budget, as long as the longer term risk metrics are not violated, it may not matter that short term risk metrics are compromised. This is akin to giving up liquidity in a private assets portfolio.

⁸ Demystifying negative screens: the full implications of ESG exclusions, Schroders, December 2017 <https://www.schroders.com/en/sysglobalassets/digital/insights/2018/thought-leadership/demystifying-negative-screens--the-full-implications-of-esg-exclusions.pdf>

⁹ See panel later in this paper 'Spotlight on climate change'. Mercers found that across a total portfolio, the impact of climate change was less significant over the next 35 years than at individual asset class level because of the combination of positive and negative effects. However, for periods of more than 35 years, a 4°C scenario would have 'increasingly large negative impacts on returns at the total portfolio level'.

Deciding how to implement sustainability in a portfolio

Having made the decision about how much sustainability an asset owner wants to incorporate in a portfolio, the next consideration is how to implement it. Many papers have been written about management of the individual component asset classes in relation to ESG considerations, especially equities and fixed income. Rather than revisiting those issues in detail, we have summarised in figure 5 how the different asset class components can be managed along the sustainability spectrum. We will investigate each of these components further in our next paper.

The influence of sustainability on asset allocation

If an asset owner believes that sustainability-related risks manifest through individual securities, or that the way investors can positively contribute to a more sustainable world is through selective exposure to individual securities, sustainability assessment is applied bottom up. In this case, asset allocation would not take into account sustainability factors.

However, fundamentally the risks and opportunities encompassed by ESG, are real world ones – such as climate change and demographic shifts. The nature and possible impact of these issues means that many asset owners will feel that they should also be incorporated (or at least, considered) at an asset allocation level. As can be seen from the climate change panel on the next page, just by taking one sustainability factor into account at the asset allocation level (in this case climate change) can have a significant impact on the risk/return profile of a portfolio.

Figure 5 – how different investments can be managed along the sustainability spectrum

Component	Screened	Integrated	Sustainable
Developed market equities	✓	✓	✓
Emerging market equities	✓	✓	✓
Government bonds	✓	✓	
Investment grade credit	✓	✓	✓
High yield debt	✓	✓	
Commodities	✓		
Private equity	✓	✓	
Real estate		✓	
Insurance Linked Securities	✓	✓	
Direct lending	✓	✓	
Securitised debt	✓		
Derivatives	Sustainability spectrum not applicable to derivatives used for dynamic/tactical asset allocation purposes (see later in paper)		
Cash	Not applicable		

Source: Schroders

Spotlight on climate change

Climate change is widely acknowledged as one of the largest sustainability risks for investments. Both the FCA (Financial Conduct Authority, UK) and EIOPA (European Insurance and Occupational Pensions Authority) currently have open consultations on the topic. The challenge is multi faceted, the immediate physical risk from rising climate related extreme weather events, the medium term transition impacts from policymakers acting on emissions, and the long term consequences of action not being effective enough.

Mercers¹⁰ investigated the likely impact of climate change on the risk and return profile of portfolios over a 35 year period. Their research found that from a return perspective, a 2°C scenario could see a negative impact on returns from developed market equity and private equity (especially in the most affected sectors such as utilities and materials) but that there could be return benefits for emerging market equities, infrastructure, real estate, timber and agriculture. Under a 4°C scenario, chronic weather patterns (long-term changes in temperature and precipitation) pose risks to the performance of asset classes such as agriculture, timber, land, real estate, and emerging market equities.

Growth assets are more sensitive to climate risks than defensive assets. In a low-return environment, the impacts are particularly meaningful. However, when considered over a 35 year period, Mercers found that ‘across a total portfolio, the results were less significant because of the combination of positive and negative effects’.

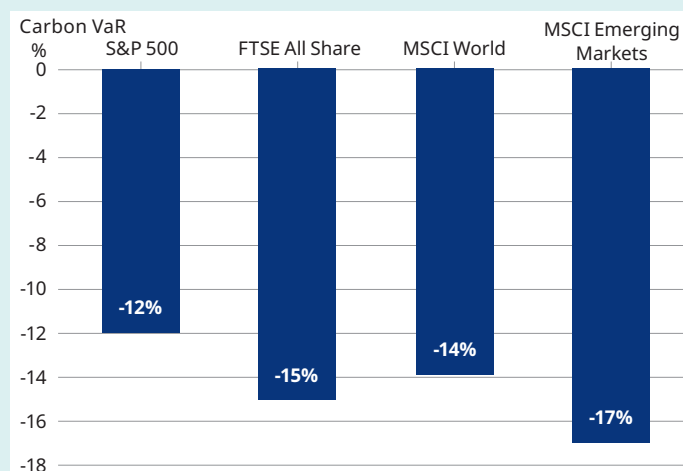
In 2017 we conducted our own analysis¹¹ that focused on the transition risks for corporates. The methodology, called Carbon Value at Risk, models the impact on a company's cost base if direct and indirect emissions (e.g. those in the supply chain) are taxed at \$100 dollars a tonne. We then used data on the elasticity of demand to determine the extent to which companies could pass on this cost increase to customers, and the likely resulting effect on profits.

¹⁰ Investing in a time of climate change, Mercers, 2015

¹¹ Climate change: redefining the risks, Schroders, September 2017, <https://www.schroders.com/en/sysglobalassets/global-assets/english/pdf/climate-change---redefining-the-risks.pdf>

This methodology can be aggregated up for individual markets, and shows varying degrees of impact for different geographical regions. As shown in Figure 6, globally earnings are reduced by 14%, but there is a 5% gap between how the S&P is hit compared to emerging markets, a sharp contrast to the results reached by Mercer.

Figure 6: The impact on companies of direct and indirect emissions is negative for all equity markets, particularly emerging markets



In 2018 we extended the analysis to corporate debt. Here our results chimed more closely with Mercer's views that defensive assets are more resilient. Overall the impact on corporate debt is less dramatic but we see real pressure for the materials sector which effectively moves from investment grade classification into high yield territory, as shown in Figure 7.

As with any complex risk, there is no simple solution towards insulating portfolios from climate change risk, or indeed any ESG risk. Importantly, as the sustainability budget increases to manage this risk, the governance budget will also need to increase in order to monitor investments on an ongoing basis (for example through regular stress testing).

Figure 7 - The impact on corporate debt varies significantly by sector

Sector	Credit rating chg	PostCVAR credit rating	PreCVAR credit rating	PostCVAR credit rating	PreCVAR credit rating	CVAR
Materials	0.73	BB+	BBB-	10.5	9.8	-23.6%
Utilities	0.18	BBB	BBB	8.9	8.7	-3.8%
Energy	0.12	BBB+	BBB+	7.8	7.7	-11.1%
Industrials	0.07	BBB+	BBB+	8.3	8.3	-4.0%
Real Estate	0.07	BBB+	BBB+	7.8	7.7	-3.2%
Consumer Discretionary	0.06	A-	A-	7.1	7.1	4.4%
Consumer Staples	0.04	A+	A+	5.2	5.2	-1.6%
Communication service	0.00	A-	A-	7.1	7.1	-0.4%
Financials	0.00	BBB	BBB	8.7	8.7	-0.1%
Health Care	0.00	A+	A+	5.4	5.4	-0.3%
Information Technology	0.00	AA	AA	2.6	2.6	-1.7%

If an asset owner decides to incorporate sustainability at the asset allocation level, a number of dilemmas need to be addressed, such as whether it is appropriate to include ethical factors in the evaluation of government bonds; whether there is any point to underweighting a non-sustainable sovereign bond issuer if there is no forum for engagement. We will cover these dilemmas in more detail in the next paper.

Use of derivatives and the sustainability budget

In many multi-asset portfolios, derivatives are used for hedging or for efficient portfolio management. Derivatives are based on broad indices e.g. FTSE 100, S&P500 which by their nature have exposure to all the stocks in the index. If such derivatives are employed in

an ESG investment strategy, a portfolio which had no/limited exposure to 'bad' ESG stocks, may now have some/more exposure. However, there is no physical investment of capital into the 'bad' stocks, and the investor has no voting rights attached to them.

Derivatives are also typically used over short time horizons to adjust exposure rather than to commit capital for an extended period. We therefore suggest excluding derivatives from the sustainability budget calculation (while still permitting them in sustainable portfolios for hedging or efficiency purposes). Of course, this does not mean derivatives should be used solely to get explicit exposure to otherwise undesirable sectors or stocks!

Conclusion

We believe that asset owners should consider ESG in the context of the entirety of their assets, rather than having a piecemeal approach to implementation through individual components. This requires decisions about the extent to which ESG considerations should be taken into account and how they should be implemented. While we have not considered the detail of implementation of total-asset approaches in this paper, we have suggested a sustainability spectrum along which asset owners can be positioned.

Asset owners manage a number of different budgets including governance and risk budgets. We believe that it is worth considering the introduction of a sustainability budget, alongside these other budgets, in order that the governing group (board/trust) can evaluate the appetite for sustainability in this competing setting. Evaluating the likely impact and trade-offs between the budgets will take time and discussion, but we believe that it is worthwhile to agree a position with regard to ESG for a whole asset portfolio.

With additional thanks to: **Belinda Gan** and **Ben Popatlal**

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