IIGCC

The Institutional Investors Group on Climate Change

IIGCC DISCUSSION PAPER:

INCORPORATING DERIVATIVES & HEDGE FUNDS INTO THE NET ZERO INVESTMENT FRAMEWORK

Introduction

Background

The PAII published the Net Zero Investment Framework 1.0 ('the Framework') in March 2021 and established the PAII as a global collaboration with three other investor networks: the Asian Investor Group on Climate Change (AIGCC), Ceres, and the Investor Group on Climate Change (IGCC).

The Framework covered four asset classes: listed equity and corporate fixed income, sovereign bonds, and real estate and the PAII recently led a consultation to incorporate private equity. In 2021, the IIGCC therefore established a working group to consider the implications of including derivatives and hedge funds, the results of whose discussions are published in this discussion paper.

IIGCC is particularly grateful to the co-leads of the derivatives and hedge fund working group, Keith Guthrie, Cardano, and Stefano Piu, Man Group, for steering the work on this discussion document as well as for the ideas and written contributions of all the members of the working group.

The Framework aims to provide a consistent basis for asset owners and asset managers to measure and manage portfolios towards the goal of achieving global net zero emissions by 2050 or sooner. It seeks to provide recommendations for methodologies and approaches to alignment that a broad range of investors can utilise. However, it recognises that investors will set their own specific strategies and undertake actions according to their circumstances and legal requirements. Investors utilising the Framework are therefore expected to do so on an 'implement or explain' basis.

Focus of the discussion paper

This discussion document sets out the analytical issues to be considered when incorporating derivatives and hedge funds into the Framework in a way that is germane to all investors. Consistent with the approach for other parts of the Framework, the intention is for the recommendations to be practical, setting out steps that investors can take now. The paper considers how investors' strategies towards net zero can be enhanced through the use of derivatives as well as discussing possible solutions to the challenges of reporting. It also offers potential recommendations for how hedge funds could approach setting net zero targets and how multi-asset portfolios can incorporate allocations to hedge funds into existing net zero commitments. The document is designed to be read in conjunction with the Net Zero Investment Framework 1.0.

The purpose of this discussion paper is to encourage wider input on the core topics raised by the integration of derivatives and hedge funds into the Framework. The document identifies options or potential solutions and raises a series of questions for consultation to those proposals. IIGCC welcomes contributions by investors and other interested parties. The intention is for IIGCC to develop this component of the Framework through the end of 2022.

The survey can be accessed here and the consultation will close on 10 June. Please contact fturner@iigcc.org for questions relating to the survey.

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1 Executive Summary

Increasingly, investors are committing to achieve net zero portfolio emissions by 2050 or sooner and to ensure their investment strategy is consistent with achieving this goal and driving emissions reduction in the real economy in line with the science-based decarbonisation pathways to achieve that goal. Although it is recognised that most investors do not always have full or direct influence on the emissions of their holdings, it is clear that, through choices in capital allocation, investment strategy, as well as uses of other levers of influence, investors are both facilitating the current emissions in the economy and can also influence the trajectory of future emissions of their portfolios and the individual assets within the portfolio.

While derivatives can generally be considered to be a more 'indirect' form of investment that does not provide direct financing to companies, it is still necessary to consider how they should be included in net zero investment strategies in order to:

- Create a common understanding of the role of derivatives and hedge fund strategies in facilitating emissions and influencing the transition to net zero.
- Ensure derivatives are appropriately accounted for when measuring the alignment of a portfolio and emissions associated with that portfolio.
- Avoid inadvertently creating 'loopholes' or avenues for greenwashing through the relative treatment of derivatives versus cash positions.
- Provide a comprehensive approach to a net zero investment strategy, where all levers for influence are being utilised effectively.

In this discussion paper, IIGCC seeks to provide the analytical foundations for incorporating all types of derivatives in any underlying investment, although we primarily concentrate on derivatives in the context of equity and credit markets. The same concepts that apply to derivatives extend through to many hedge fund strategies, whether these make direct use of derivatives or achieve their exposures through equivalent mechanisms provided by prime brokers. We make a set of proposals for the inclusion of derivatives into the Framework with a particular view to those wishing to incorporate derivatives and allocations to hedge funds into existing commitments. These proposals should ultimately extend to hedge funds themselves wanting to target net zero.

Uses of derivatives

Derivatives are financial contracts (for example, futures and options) whose value is derived from another asset. Whereas, in principle, cash securities can confer rights to ownership or income payments indefinitely, a derivative contract defines a set of financial rights and responsibilities between two parties (neither of whom may have any direct relationship with the underlying security) for a pre-determined period. This indirect exposure to an asset means that when considering the integration of derivatives into the Framework we need to reassess the concepts used.

Derivatives are used in a variety of ways by asset owners and asset managers. In particular, derivatives may be used for:

Portfolio management:

- To augment or reduce strategic or tactical market exposure at an asset class level
- To achieve exposure to specific securities, either long or short
- As part of a systematic risk management process
- To achieve or offset exposure to a stream of returns associated with a particular risk factor

Liability management:

- Derivatives may be used in addition to or instead of cash securities to implement a strategy to offset a long-dated liability
- Derivatives may be used to manage conditional exposure to an individual risk event

Leveraged investors:

- Derivatives can be used by hedge funds and other investors to create leveraged exposure to a security or market (exposure larger than the investor's capital). They allow the fund manager to scale leverage, to reduce or eliminate exposure to directional market moves or to finesse the expression of a particular view.

A key insight when incorporating derivatives into the framework is that derivatives allow the separation of financial risk management from net zero portfolio alignment.

This aligns to the concept of double materiality: investors have traditionally focused on risk-reward management of portfolios through their portfolio exposures. And in a traditional long portfolio with no shorts or derivatives, this has been synonymous with the potential impact and influence of those portfolios on the real economy. In the context of the use of derivatives and short positions, however, investors can separately target and manage financial risk from their potential influence and impact on the real economy. The Net Zero Investment Framework, first and foremost, aims to assist investors to maximise their real economy influence to transition to net zero.

Although the concept of double materiality does not mesh perfectly with the existing Framework, there are three core components of that Framework that need to be reviewed for how derivatives and hedge funds should most appropriately be integrated. In this way, those with existing net zero commitments can readily interpret the implications of incorporating derivatives and hedge funds. Using the nomenclature of the Framework, these are:

- **Portfolio measurement:** for cash positions, this applies to emissions associated with the investment portfolio (financed emissions) as well as how individual assets are managed to be consistent with the net zero portfolio objective. In considering the inclusion of derivatives:
  - One important issue concerns the attribution of carbon emissions. Derivatives allow the separation of the risk exposure to an entity from the ownership of the entity: which of these perspectives should form the basis for attribution? In addition, because total market exposure across derivatives nets to zero, there is a clear danger of double counting depending on how derivatives are treated.
  - A second important issue arises from the fact that derivatives do not, for the most part, directly finance an entity but can influence its cost of capital. Relative to the existing Framework, this suggests there may be different levels and directions of influence for cash and derivatives exposure. For this reason, we advocate clearly measuring and reporting separately gross long, gross short and net portfolio exposures and emissions, and cash and derivative exposures.
  - Finally, the way in which the concept of financed emissions has come to be used in the market (typically incentivising decreases in portfolio emissions without necessarily reducing real economy emissions) creates specific incentive problems for allocators that need to be considered. A portfolio with low financed emissions will typically not have a large degree of influence over high emitting companies. Exposure to some high emitting companies may be appropriate and necessary to increase an investor's level of influence over future emissions. Depending on the approach adopted, these incentive problems could be exacerbated for users of derivatives and hedge funds, or derivatives and hedge funds could be part of the solution.

It is therefore important for both current and forward-looking metrics to be reported clearly. The body of the document sets out possible approaches discussed in the working group.

- **Asset alignment** is concerned with how to approach the definition of different types of assets (as to how far they align with net zero) for each asset class, as well as the importance of setting targets for 'aligned' and 'aligning' assets, as defined in the Framework. It also encompasses setting targets for investments in climate solutions, for example, the share of green revenues in a portfolio, as well as for targets for engagement with companies in material sectors.
  - In incorporating derivatives, alignment metrics may play a particularly important role. This paper shows how an expanded range of metrics can capture a far broader range of investor influence than financed emissions alone and why this is particularly important for the assessment of some types of strategies adopted by hedge funds.

- **Portfolio management** considers how to enhance an investor's influence with particular focus on portfolio construction, engagement, stewardship as well as the cases where selective divestment may be appropriate.
    - The key development when incorporating derivatives, shorting and hedge funds into the framework is that a clear separation of financial risk management from portfolio alignment on the real economy net zero ambition is facilitated. This allows setting clear objectives around both.

1.1 Setting out the approach

Theory of Change

Following the guiding principle of the Paris Aligned Investment Initiative, the working group developed a 'Theory of Change' for how investor activity creates real economy influence. This theory spans the range of primary and secondary market activities and cash and derivative securities. It proposes a hierarchy that distinguishes between direct and indirect influences as well as variations in their intensity, which can then be used to help prioritise activities to improve real economy influence towards net zero emissions.

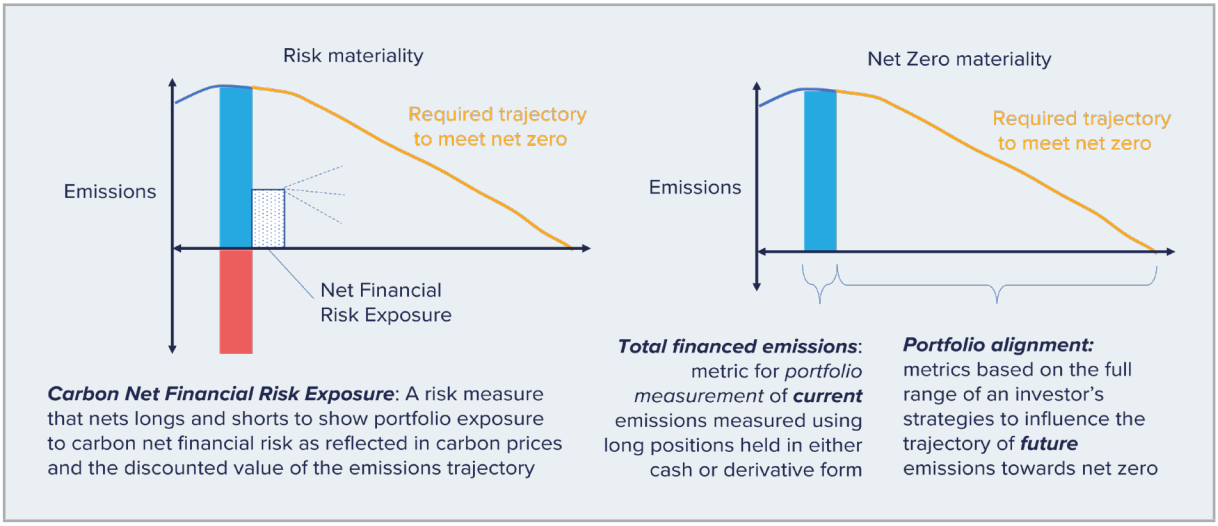
This component carries a significant weight on the rest of the document and as a result was the subject of extensive discussion in the IIGCC working group. There were differences of opinion in the working group concerning the relative contributions of different investor activities which will doubtless be reflected across the market. The questions for consultation identify this as an important topic for feedback.

Double materiality

A central component of the document lies in breaking down the double materiality that extends from a financial transaction, i.e. an investor considers separately the carbon net financial risk exposure of a position from its influence and impact on emissions in the real economy. In this context, how a metric is used is as important as how it is defined.

Some of the discussion in the document addressing these issues are technical and detailed. The chart below shows how different measures relate to one another in the context of an investor's portfolio exposure to emissions, how they sit within the Net Zero Investment Framework and how they compare with measures of a portfolio's financial risk.

Double materiality of reporting metrics on the approach to net zero



Carbon Net Financial Risk Exposure: A risk measure that nets longs and shorts to show portfolio exposure to carbon net financial risk as reflected in carbon prices and the discounted value of the emissions trajectory

Total financed emissions: metric for *portfolio measurement* of ***current*** emissions measured using long positions held in either cash or derivative form

Portfolio alignment: metrics based on the full range of an investor's strategies to influence the trajectory of ***future*** emissions towards net zero

In particular, the metrics that we refer to regularly in the document are:

Carbon net financial risk exposure is calculated using the net of longs and shorts across cash and derivative instruments and is designed to capture the portfolio's sensitivity to transition risk as reflected in changes in carbon prices or risk premiums based on the current emissions of the underlying exposures. It can be used for cash and derivatives portfolios alike, hence its application in investors' portfolios would be unchanged by the incorporation of derivatives into the Framework.

Net zero measurement and alignment metrics: these consist of a snapshot of the current emissions associated with the portfolio, and a set of real economy focused metrics focused on alignment with net zero.

Gross long and gross short emissions (both aggregated across cash and derivatives) associated with the portfolio are useful metrics in their own right in that they represent the total emissions over which an investor can exercise potential real economy influence in some form. In particular, for an investor targeting net zero in the real economy, gross long emissions can be used to track the required trajectory of emissions reductions of the underlying real economy entities in a way that is designed to match the reduction in emissions required of the whole economy to achieve a net zero objective.

In incorporating derivatives, it is proposed that where long exposure is taken through derivatives (or where prime brokers hold exposures on behalf of a fund – for example, when providing financing to a hedge fund) the emissions indirectly financed through such long exposures should be added to those directly financed. The discussion paper refers to the resulting measure as ***total financed emissions*** and proposes it be used for the purposes of portfolio measurement.

However, short exposure should not be counted as negative emissions because the purpose of the metric is to guide a decline in the emissions intensity of the real economy assets to which the investor is exposed. Short positions do not represent an offset to real economy emissions on the long side and the framework needs to be very clear in avoiding any confusion in the representation of what short exposures achieve.

It is recognised that being long a security also does not cause more emissions to be released into the atmosphere. Long and short emissions are simply the current emissions associated with the company which the investor is long or short of. While investors should want the emissions associated with gross short positions to reduce to net zero over time, it makes less sense to set a target on these emissions as the influence on short positions is a negative cost of capital influence for which there is no carbon budget and no presumption that it should reduce over time.

For allocators, when aggregating across multiple managers and positions, both gross longs and carbon net financial risk exposure should be reported.

Alignment metrics are forward looking, aiming to gauge the degree of influence being exercised by the asset owner or asset manager towards net zero real economy objectives. They incorporate metrics associated with both longs and shorts across cash and derivatives. This discussion document shows how different investment approaches set out in the Theory of Change may be incorporated into alignment metrics as a way of encouraging managers to display their ambition for a particular strategy in a way that is easy to interpret.

1.2 Principles for investors

Beyond setting out an approach to integrating derivatives into portfolio measurement, alignment and management, the discussion document also proposes a set of principles designed for all investors using derivatives, leverage, shorting or allocating to hedge fund strategies.

As set out above, derivatives and shorting allow cash-based investors to target and manage real economy influence and carbon net financial risk exposure separately. The discussion paper proposes that investors distinguish between their real economy influence and their carbon net financial risk exposure, as these are distinct and must be treated differently in order for an investor to maximise their impact on climate change. Examples of how derivatives can be used to facilitate the expansion of an engagement strategy without increasing market risk as well as to influence the relative cost of capital for low versus high emitters are set out.

Separately, we make a specific recommendation that investors commit not to greenwash their activities. This is not because derivatives and shorting are unique in their capacity to obscure or mislead concerning an investor's impact on climate change – far from it. However, this generally good practice becomes more important with the increased flexibility that derivatives and shorting offer.

1.3 Conclusions

The document is written primarily from the perspective of equity and credit investors. As part of the consultation, IIGCC particularly welcomes comment on specific use cases for derivatives in other asset classes including government bonds, interest rate derivatives, mortgage and asset-backed securities. Commodities are currently not included in the Framework. While many of the principles here may be applicable to commodity investments (both in physical markets and via derivatives), this is a complex area and as a result commodity derivatives are not covered in this paper. IIGCC will seek to extend work in this area in the future.

The core conclusions of this discussion paper are:

- In a portfolio with only cash instruments, real economy influence through investment activity and carbon net financial risk exposure are often synonymous and inseparable
- By contrast, derivatives and shorts in combination with cash instruments allow investors to target and manage real economy influence and carbon net financial risk exposure separately
- This flexibility allows investors to revisit their net zero ambitions to evaluate how they might be enhanced by the integration of derivatives and shorting
- **Portfolio measurement:** the discussion paper proposes to extend the approach in the existing Framework to measure both long, short and net exposures that incorporate derivatives while targets continue to be set based solely on the long emissions associated with the portfolio
- **Portfolio alignment:** a set of metrics is proposed to capture the full range of strategies an investor can adopt to maximise their net zero ambition
- **Portfolio alignment:** the discussion paper proposes reporting according to gross longs, gross shorts as well as net exposure to record as closely as possible the application of an investor's strategy
- **Portfolio management:** we propose the separation of financial risk management from the net zero objective to recognise the dual materiality of an investor's influence
- **Portfolio management:** in addition, the discussion paper proposes recognising the role shorting can play in financial risk management, engagement and influence strategies (whilst, as explained above, excluding it from metrics of real economy emissions measurement)
- **Aggregators/allocators:** the use of simple comparisons across funds based on measures of financed emissions alone is discouraged – instead, we encourage the use of alignment metrics to assess how individual strategies can help enhance an investor's net zero ambition
- **Multi-strategy managers:** similarly to an asset allocation process, the degree of net zero ambition of a strategy should be a factor determining the internal commitment of capital as the manager seeks to grow and promote new strategies able to support net zero ambitions
- In tandem with the proposed changes to portfolio management, asset alignment and portfolio management, the discussion paper suggests that all investors should commit to avoid greenwashing in all their investment activities, including avoiding the use of derivatives and shorts to mislead on the true influence and impact of the strategy
- The result is a set of proposals for all investor types designed both to handle the technical adjustments required to incorporate derivatives into a net zero targeting framework and to encourage investors' net zero ambitions to be enhanced

2 The context for incorporating derivatives and hedge funds into net zero investment strategies

Increasingly, investors are committing to achieve 'net zero' portfolio emissions by 2050 or sooner and to ensure their investment strategy is consistent with achieving this goal and driving emissions reduction in the real economy in line with the science-based decarbonisation pathways to achieve that goal. Although it is recognised that investors do not have full or direct influence on the emissions of their holdings, it is clear that, through choices in capital allocation, investment strategy, as well as uses of other levers of influence, investors are both facilitating the current emissions in the economy and can also influence the trajectory of emissions of their portfolios and the individual assets within the portfolio.

To support effective net zero investment strategies, IIGCC has worked with over 150 investors and three other investor networks to develop the Net Zero Investment Framework. The current version of the Framework sets out recommendations for how investors can measure the alignment of their portfolios with net zero, set appropriate targets for alignment, and undertake strategies and actions that are consistent with achieving those targets.

While derivatives can generally be considered to be a more indirect form of investment that does not provide direct financing to companies, it is still necessary to consider how they should be included in net zero investment strategies in order to:

- Create a common understanding of the role of derivatives and hedge fund strategies in facilitating emissions and influencing the transition to net zero
- Ensure derivatives are appropriately accounted for in measurement of the alignment of a portfolio and emissions associated with that portfolio
- Avoid inadvertently creating 'loopholes' or avenues for greenwashing through the relative treatment of derivatives versus cash positions
- Provide a comprehensive approach to a net zero investment strategy, where all levers for influence are utilised effectively

2.1 The current approach to net zero investment – cash portfolios

Currently the Net Zero Investment Framework recommends:

- How to measure alignment of a portfolio, and the assets within different asset classes, with a net zero trajectory
- How to manage a portfolio, and use an investor's levers of influence, to increase alignment and drive emissions reductions in the real economy
- How to set targets to increase alignment over time, consistent with science-based net zero pathways, and incentivise effective strategies (management/actions) to achieve these targets

2.2 Laying out an approach for derivatives

This paper discusses the differences between derivatives and cash positions and considers issues relevant to applying the recommendations of the Framework to derivatives and hedge fund strategies. The immediate target group for the issues identified in the paper are asset owners and managers with existing net zero commitments. However, the approach we are seeking to develop should also ultimately be appropriate for individual hedge fund managers to set net zero goals and implement strategies to achieve these on a consistent basis.

The term 'derivatives' covers a very wide range of potential contract types. The primary focus of this document is on the most common derivatives in wide everyday use (exchange traded and 'vanilla' OTC derivatives). We also extend the term to include financing typically provided by prime brokers to hedge funds where the prime broker holds positions on behalf of the hedge fund. Some derivatives require special treatment. In an appendix, we set out a number of special cases and how those could be dealt with. Following the approach laid out in the Framework, the default is to assume that all derivatives positions should be included for the purposes of reporting and target-setting. However, similarly to the Framework that identifies some exceptions to inclusion in scope, there may be a case of excluding certain types, or uses, of derivatives when finalising the components for the Framework which will be undertaken in the next phase of this work.

What is a financial derivative?

Derivatives are financial contracts whose value is derived from another asset. Whereas, in principle, cash securities can confer rights to ownership or income payments indefinitely, a derivative contract defines a set of financial rights and responsibilities between two parties (neither of whom may have any direct relationship with the underlying security) for a pre-determined period.

For readers unfamiliar with specific examples of the exposure that can be taken using derivatives, the *Factual background: derivatives* section in the Appendices provides a series of examples.

What are the key differences between an underlying asset and a derivative?

- Underlying securities confer unique ownership of an asset. Each share in a company must be held by some final investor. Derivatives do not confer any rights of ownership. Total underlying securities must add up to 100% of issuance, while derivatives' Open Interest can add up to many multiples of this value.
- Underlying securities have a positive net supply (new securities typically issued in exchange for cash or other securities in compensation, and existing securities must be purchased for cash on the secondary market) whereas derivatives have zero net supply (by the nature of the construction of the contract: for every long there must be a corresponding short in the market).
- In the case of a stock, the underlying holding – if the position is not lent – carries the right to vote in all elections and voting actions in that company. Derivatives have no such right.
- In the absence of margin trading, investors are only able to enter a long position in a security, benefitting when the security appreciates in value and losing when it depreciates. A derivative can allow investors to 'go short' of a security benefiting from falls in its price.
- To maintain long-term exposure, a derivative position generally needs to be extended ('rolled') across contracts through time.
- In most cases, the derivative market is larger and more liquid than the underlying market.
- A derivative generally requires less capital to hold (initial margin and variation margin). It cannot be used as collateral in another trade, whereas the underlying asset – if not loaned out or borrowed against – can serve as collateral on additional trades.

What are the key similarities between an underlying asset and a derivative?

- Except for new issuance in the primary market (e.g. buying a stock in an IPO for cash), every purchase transaction of either asset type (underlying or derivative) has a corresponding seller.
- The prices between the underlying asset market and the derivative are integrally linked through arbitrage. If the payoff to the derivative deviates from what is achievable by trading the underlying asset in the market, offsetting transactions in the two markets will align the price of the derivative and of the underlying until no arbitrage opportunity exists, allowing for transaction and financing costs. A key insight is that derivatives allow the separation of an investor's financial objectives (e.g. risk exposure) from their ownership rights of the underlying securities.

2.3 What are typical uses of derivatives and hedge fund strategies?

Derivatives are used in a variety of ways by asset owners and asset managers. In particular, derivatives may be used for the purposes of:

Portfolio management:

- To augment or reduce strategic or tactical market exposure at an asset class level
- To achieve exposure to specific securities either long or short
- As part of a systematic risk management process
- To achieve or offset exposure to a stream of returns associated with a particular risk factor

Liability management:

- Derivatives may be used in addition to or instead of cash securities to implement a strategy to offset a long-dated liability
- Derivatives may be used to manage conditional risk exposure to an individual risk event

Leveraged investors:

- Derivatives can be used by hedge funds and other investors to create leveraged exposure to a security or market (exposure larger than the investor's capital)

The variety of hedge fund strategies make it difficult to provide a succinct summary of the primary use cases for derivatives by hedge funds. However, we provide an overview of the different types of strategy in the section *Factual Background: Hedge Fund Strategies* and separately provide an indication of the contrast between derivatives and cash strategies in implementing a net zero strategy in the section *Applying hedge fund strategies to achieve a net zero ambition*.

An alternative approach widely used by hedge funds to gain exposures, execute short positions and gain leverage is to use a prime broker. While the mechanics of how prime brokers differ from how derivatives work, conceptually, the final result is very similar.

Prime brokers:

- Facilitate leverage
- Source stock for hedge funds who might then go short of those stocks
- Rehypothecate some of the hedge fund's assets as collateral against any lending they facilitate, meaning that the hedge fund no longer has direct ownership and voting power over any rehypothecated shares, creating a similar position to a derivative long or short position.

For the purposes of this paper, the analysis and conclusions are the same whether the exposure is achieved via derivatives or via a prime broker.

The many differences between the objectives and implementation of a hedge fund strategy compared with a cash investor explain the need for specific guidance for hedge funds on how to approach a net zero commitment. The crossover between the two can be found in large investment managers, or in aggregators who may have a mix of cash and hedge fund strategies to achieve a diversified source of returns or in allocators who allocate to a mixture of external managers.

2.4 Locating derivatives and hedge funds in the Net Zero Investment Framework

There are three core components of the existing Framework that need to be reviewed for how derivatives and hedge funds should most appropriately be integrated:

- Portfolio measurement
- Asset alignment
- Portfolio management

In this section, we briefly lay out the core facets of these components and the ways in which derivatives and hedge funds relate to them. The intention of this approach is to make clear to those with existing net zero commitments what the practical implications of including derivatives and hedge funds would be. In the subsequent sections, we then consider the detailed arguments before assessing the merits of different approaches to resolving particular challenges.

Measurement

What are the issues for measuring the net zero alignment of derivatives?

For cash positions the Framework recommends investors should use two key metrics: the emissions associated with the investment portfolio (financed emissions) and the proportion of net zero-aligned assets held in the portfolio.

Financed emissions

The trajectory of financed emissions over time is a key long-term indicator of whether the assets in a portfolio are moving towards net zero emissions and whether the strategy to influence emissions of assets is achieving its objectives. Depending on the current exposure of the portfolio, and the strategy of the investor, this metric is likely to have different starting points and achieve reductions at different rates.

The Partnership for Carbon Accounting Financials (PCAF) Standard is an industry standard for emissions accounting recommended by the Framework to measure financed emissions. However, it does not currently incorporate derivatives. Including derivatives in a similar framework faces two main types of risk, described in the table below.

Risk Assessment: Derivatives in Emissions Accounting	
Consequence of exclusion	**Consequence of inclusion**
Exclusion of derivatives may penalise using them in portfolio management and hence disincentivise genuine positive climate influence	Including derivatives may incentivise strategies that have little or no real economy impact and prompt investors not to focus on the underlying portfolio adjustment needed

One important issue concerns the attribution of carbon emissions. Derivatives allow the separation of the risk exposure to an entity from the ownership of the entity – which of these perspectives should form the basis for attribution? In addition, because total market exposure across derivatives nets to zero, there is a clear danger of double counting depending on how derivatives are treated. In our proposals, the essential element is clarity over the purpose for which the metric is to be used – financial risk management or real economy alignment of influence and impact.

A second important issue arises from the fact that derivatives do not, for the most part, directly finance an entity, but can influence its cost of capital, both positively for longs and negatively for shorts. Relative to the existing Framework, this suggests there may be different levels and directions of influence for cash and derivatives exposure. It also draws out the importance of considering how shorting is treated. We discuss a range of applications below.

This therefore requires an expansion of measurement of the emissions associated with the positions in the portfolio on different dimensions, particularly considering the gross long exposure, gross short exposure, and net exposure to emissions. Each of these should be used in different contexts, with the key issue being for what purpose the specific measure is being used. We describe this in the section *Incorporating derivatives and hedge funds into portfolio measurement*.

Asset alignment

Portfolio alignment comprises a range of important topics concerned with the real economy impact of the investments:

- It is concerned with how to approach the definition of different types of assets (as to how far they align with net zero) for each asset class as well as the importance of setting targets for aligned and aligning assets
- It proposes setting targets for investments in climate solutions as well as for the share of green revenues in a portfolio
- It also sets targets for engagement with companies in material sectors

Because derivatives take their value from an underlying asset, the natural way to assess the alignment of a derivative is in relation to that asset as measured by its delta. The flexibility of hedge fund strategies means that there may be a wide spectrum of approaches to setting targets for climate solutions investments and green revenue shares. Moreover, as we discuss below, shorting extends the range of activities that might be classified as part of real economy influence and hence contribute to the fulfilment of an alignment target.

Managing a portfolio

While the Framework offers specific recommendations for actions an investor can take that are specific to maximising influence in different asset classes, broadly, the recommended actions cover three main areas:

- Portfolio construction
- Engagement, stewardship, and management
- Selective divestment

Incorporating derivatives and shorting broadens the range of activities an investor can undertake to align a portfolio with net zero, which is an important innovation. In considering how to incorporate derivatives and shorting into the Framework there are two important considerations aligned with the double-materiality objectives:

- Incorporating their use in portfolio risk management, for instance through the use of shorting to risk-manage strategies
- Incorporating their use in terms of influence and impact on the real economy, which can extend to new forms of influence of the cost of capital on both long and short positions that should be incorporated into allocators' thinking

For both cash-based and hedge fund strategies, this highlights the need for a clear framework for assessing influence as part of setting ambition for a particular strategy.

2.5 Deriving principles from a Theory of Change for how investors create influence

As a first step to considering the appropriate strategy for the use of derivatives and following the guiding principle of the Paris Aligned Investment Initiative to consider how to achieve impact in the real economy, the working group developed a Theory of Change for how investor activity potentially creates real economy influence. This theory spans the range of primary and secondary market activities and cash and derivative securities and can be used to help prioritise activities to improve real economy influence towards net zero emissions.

We suggest a framework of four tiers for influence, with the tiers designed to encourage investors to undertake more of the higher tier influence activities where they can. Tiers 1 to 3 all represent positive influential actions an investor can take. They are not mutually exclusive and can, and should in many cases, be combined to maximise influence:

- **Tier 1** actions are most directly influential in most circumstances, capturing the provision of new capital that can directly influence emissions reduction and collective engagement actions that can change corporate behaviour. Achieving this tier of direct influence requires ownership of cash securities and cannot be achieved via derivatives alone. However, short selling and derivatives can potentially facilitate even greater Tier 1 action by mitigating the Financial Risk associated with higher levels of collective engagement.
- **Tier 2** also captures actions with a direct influence but of a narrower scope, for example including individual engagement and stewardship by investors. As in Tier 1, achieving this tier of direct influence requires ownership of cash securities and cannot be achieved via derivatives alone. However, short selling and derivatives can potentially facilitate even greater Tier 2 action by mitigating the financial risk associated with higher levels of individual engagement.
- **Tier 3** actions exert influence through an indirect market pricing mechanism affecting the issuers' cost of capital. This tier of indirect influence can be achieved through either cash or derivative exposure.
- **Tier 4** refers to strategies and actions that have no discernible influence either positive or negative. Tier 4 actions can occur in either cash or derivative exposure. We separate this Tier in recognition of the fact that there are some investment strategies that genuinely have little ability to create real economy influence on climate change. We believe it is important that these can be identified and separated for investors.

The table below summarises the tiers of influence and investor activities associated with them. In the table, cash and derivative strategies are both considered to provide an overview of the range of activities by which an investor can potentially create influence.

Theory of Change: How investors create influence

Investor action	Mechanism of Influence	Mode and Degree of influence
Supplying new capital, debt or equity to a company, government or manager	Ownership/control: the highest level of influence Engagement: dialogue with management and boards when raising capital Enabling: impact achieved through specified use of proceeds, impact measurement frameworks	**Direct** **Tier 1**
Examples	Private equity control/impact via board representation. Issuance of new primary equity. Provision of private credit, new public bond issuance or green bond investment with a use of proceeds framework. Impact investment frameworks	
Collaborative engagement and activist campaigning	Collaborative engagement with management representing a majority of shareholders or public activist engagement	**Direct** **Tier 1**
Examples	Collective action initiatives like Climate Action 100+. Engagement overlays (organisations engaging on behalf of multiple investors). Activist funds (long and short)	
Individual investor Stewardship	Engagement and stewardship through dialogue with management, voting on shareholder resolutions, director appointments and other AGM items or proxy voting policies. Impact depends on the size of the holding and quality of relationship with the management	**Direct** **Tier 2**
Examples	Good stewardship by equity managers engaging with companies on ESG and climate issues and voting in accordance with this	
Sustainable Investment Mandates: exclusions, ESG and climate mandates or exposure targets (IIGCC, TCFD), ESG derivatives; the 'cost of capital signalling mechanism'	Capital allocation in the secondary markets (or derivatives creating an equivalent demand or supply) may influence an issuer's cost of capital. Mandates that create more demand for the securities issued by more sustainable businesses may reduce their cost of capital, making them more competitive whilst creating more supply (shorting, underweighting or disinvestment) of less sustainable businesses may increase their cost of capital making them less competitive.[1] Widespread adoption of such mandates can create clear management signals of how to attract capital and incentivise more sustainable businesses.	**Indirect** **Tier 3**
Examples	Thermal coal exclusions. Investing only if companies have credible science-based transition plans. Green bonds 'greenium' and re-rating of cost of capital of high emitting companies. ESG score and low-carbon targeting index tilt mandates.	
Regular buying and selling activities in markets and derivatives	While regular trading activity might have temporary impact on securities, if it is not intentionally aligned, it may have very little climate influence. Short term flows in and out of a security might influence the value of securities for a time but are limited in their longer-term influence or impact.	**Indirect – Tier 4, no discernible influence**
Example	Strategies focused on liquidity provision in markets, buying or selling the S&P index over a short time frame	

1 For cost of capital influence, it is important to note that the direction of influence differs between long and short positions – to the extent it has an influence, a long position always exerts a positive influence on the cost of capital while a short position, to the extent it has an influence, always exerts a negative influence on the cost of capital.

Academic evidence on the effectiveness of different modes of influence is not conclusive, with particular challenges on whether the cost of capital can be evidenced to have a systematic real economy effect.[2] There is also little academic research comparing the effectiveness of different modes of influence. There were strongly-held views across the IIGCC working group leading to active discussion about the most appropriate ranking in the hierarchy:

- Some believed that the influence should not be ranked because, for example, in specific circumstances, Tier 3 cost of capital on one instrument might have more influence than Tier 2 stewardship on a different instrument.
- Some members of the IIGCC working group also favoured fewer tiers of influence.

In defence of the proposed framework, it is not intended to be definitive in its ranking of influence in all circumstances. Rather, we recommend the tiering to highlight the importance to investors of adopting the full range of influence mechanisms when implementing a strategy. In particular, we note that there are still many investors who do not place significant emphasis on engagement, stewardship and voting, or may not contribute to collaborative engagement efforts. We are keen to encourage more of this activity using the above framework, as illustrated in some of the case studies later in the paper.

In practice, there was broad agreement around the view that the joint contribution of pressure on the cost of capital (Tier 3) and corporate engagement (Tier 1, 2) was most likely to lead over time to significant change in corporate behaviour. Because strategies that focus exclusively on derivatives are less likely to have Tier 1 and 2 influence, we include a section specifically on Tier 3 mechanisms at the end of the document. Across all mechanisms, the clear proposal is that investors should seek to express their net zero ambition by maximising their influence by deploying all of the mechanisms of influence at their disposal to the full extent possible.

In assessing the hierarchy, it is important to recognise that different investment strategies may have substantially different capacities to exercise these different modes of influence. A manager may be able to demonstrate skill in implementing a particular mode of influence more effectively than her or his peers, thereby moving them to a different place in the effectiveness of their influence.

For instance, active managers who participate extensively in new issuance in debt or equity markets might have more ability to engage with corporate management to influence the terms of new issuance (e.g. linking investing to the requirement to publish a net zero transition plan). Large passive index managers will have significant influence when it comes to voting and engagement. This demonstrates that, for some, dedicated pursuit of individual engagement can converge towards collective engagement in its effectiveness.

A pure derivatives-focused investment strategy will most likely only be able to exercise Tier 3 or 4 influence compared to a combined cash and derivative strategy which has the potential to exercise Tier 1, 2 and 3 influence. The *Case Studies* section includes a discussion on ways in which different strategies can seek to raise their climate influence. As a reference point, the box shows where a selection of hedge fund strategies sit within the range of activities covered by the Theory of Change.

2 In analysis of an unusual example of a randomized policy experiment, for example, securities overvaluation, information asymmetries and restricted access to capital likely caused increased short selling to reduce share prices and capex of small companies. By contrast, in the same policy experiment, there was no discernible statistical effect for large companies, possibly because capital market imperfections may have been less impactful. G. Grullon, S. Michenaud and J. Weston. “The Real Effects of Short-Selling Constraints.” The Review of Financial Studies 28.6 (2015): 1737-767. Web.

Applications of the Theory of Change to different hedge fund strategies

Direct Provision of Capital

Relating to hedge fund strategies that provide fresh capital to companies, this is the purest application of Tier 1 influence by delivering fresh capital that can be used to have real economy effects. As detailed in the Appendix (see Direct Sourcing strategies), such capital can take multiple forms: debt, equity, or insurance.

Activism (longs)

While traditional long only funds also have the ability to engage and vote, hedge funds are often at the forefront of an activist campaign by virtue of their concentrated positioning and management access. This can result in significant change at the corporate level, especially when done in collaboration with other shareholders (Tier 1 influence).

Activism (shorts)

This represents the short side of activism. The investor borrows stock to short a company's equity or debt and then goes public with the position to persuade others of the merit of her or his case, in the hope of creating a broader re-evaluation of the company and decline in prices. This is typically a hedge fund strategy and can be highly impactful when highlighting fraud, default risk, mismanagement, or simply unrealistic expectations. It often forces a public reaction from management, demonstrating a high (Tier 1) degree of influence.

Distressed Debt: Restructurings, Creditor Committees

In a corporate restructuring or liquidation process, participating in creditor committees or the legal restructuring process. This form of engagement comes at a point of extreme duress for a company and hence, although the occasions are infrequent, carries an extremely high (Tier 1) level of influence.

Shorting Stock in a Long/Short Portfolio

Most long/short managers are very cautious of disclosing short positions for fear of increasing their exposure to a potential short squeeze or losing access to company management. However, company management does pay attention to feedback from the market (typically via brokers) in terms of messages from short investors and may react to those. Academic studies support effects of shorting in exposing fraud and mispricing relative to fundamentals. If kept private, a typical short position is consistent with the level of influence accorded to that associated with seeking to influence the cost of capital, i.e. Tier 3.

Questions for consultation

Q1. **Do you agree with the approach proposed of integrating derivatives and hedge funds into the Net Zero Investment Framework through portfolio measurement, asset alignment and portfolio management? If not, please set out your alternative suggestions.**

Q2. **Do you agree that the proposed Theory of Change is helpful in establishing a hierarchy of investor influence and that it matches your own broad assessment? If not, please set out what changes you suggest and why.**

3 Incorporating derivatives and hedge funds into portfolio measurement

Proposed additions to portfolio measurement targets to incorporate derivatives and hedge funds

As laid out in section 5 of the Framework, the role of targets and objectives is to set both the direction and the ambition of a net zero strategy. In this context, the approach of using science-based pathways for real economy transition is as pertinent for hedge funds as for asset owners or investment managers and this should be followed accordingly. We propose that targets should be set in the appropriate context for aggregators and specific hedge fund investors. Specifically:

- Firm level: a sub-10-year emissions reduction target (defined by *total financed emissions*) that covers all assets incorporated within the Framework, specifying how the target has been determined and how it adjusts to reflect factors that do not influence real economy emissions reductions.[3] The initial target should be based on sectoral and regional pathways and cover scope 1 and 2 emissions, with the intention to phase in scope 3 emissions over time.
- Firm level: for strategies incorporating active shorting, a separate target for carbon net financial risk exposure set at or below the long-only baseline index derived from a science-based approach with a clear objective to reduce this over time including interim targets. This target is distinct from those in the existing Framework, reflecting the flexibility that many hedge fund strategies have – in some cases, this target could be set to meet net zero or "net negative" Financial Risk well before 2050.

This section addresses the challenges of incorporating derivatives and hedge funds into portfolio measurement. The prime focus is on accurately reporting the emissions associated with an investor's activities, laying out the challenges of incorporating derivatives into an area that is already problematic given heightened focus on measures of current emissions[4] rather than the full transition to net zero.[5] We address definitional issues as well as presenting the debate on the IIGCC working group of the merits and demerits of potential solutions.

As noted above, tracking emissions associated with an investor's activities forms an important part of an investor's net zero commitment. Nonetheless, the wide range of influence that investors can bring to bear cannot helpfully be compressed into a single metric.

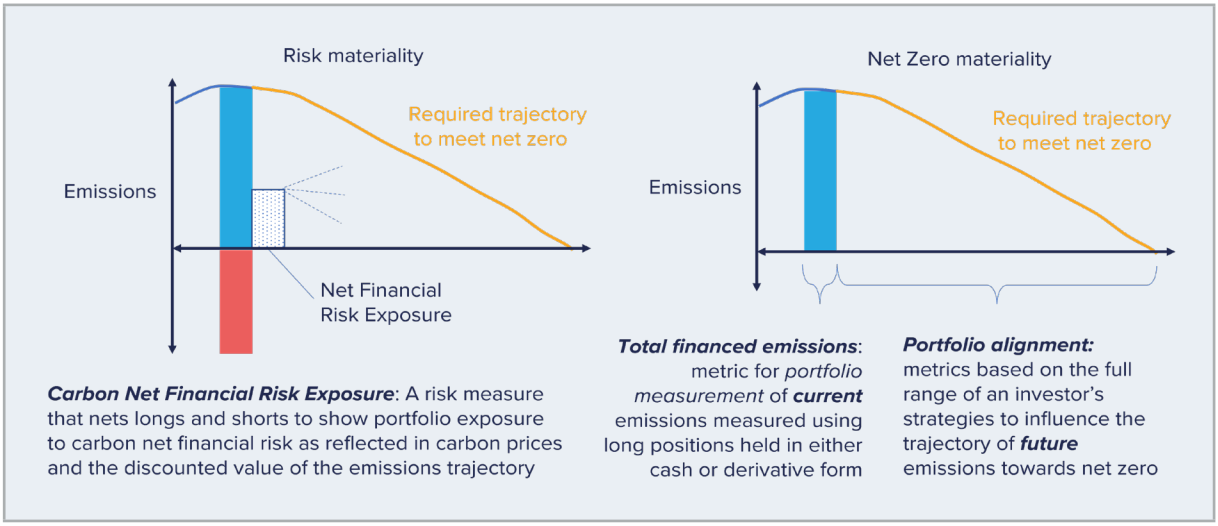
Given this, we show the relationship between the metrics that we propose and how they can be reported. As summarised in the graphic below, we seek to distinguish clearly between two sets of simultaneous objectives: a financial risk/reward set of objectives on the one hand and net zero impact/alignment on the other. This approach of explicitly addressing double materiality is consistent with the direction of travel of many sustainability-focused portfolios.

3 As specified in the Net Zero Investment Framework, examples of these types of effect include changes in exchange rates, inflation or interest rates.

4 This has been partly encouraged by regulation: see, for example, EDHEC's 'Doing good or feeling good?' https://www.edhec.edu/sites/www.edhec-portail.pprod.net/files/210921-1_doing_good_or_feeling_good.pdf

5 The result of heightened market focus on current emissions has negative effects on an investor's incentives; for instance, potentially favouring divestment relative to engagement or discouraging investment in transition finance projects that help take an entity from higher to lower emissions intensity.

Double materiality of reporting metrics on the approach to net zero



Carbon Net Financial Risk Exposure: A risk measure that nets longs and shorts to show portfolio exposure to carbon net financial risk as reflected in carbon prices and the discounted value of the emissions trajectory

Total financed emissions: metric for *portfolio measurement* of ***current*** emissions measured using long positions held in either cash or derivative form

Portfolio alignment: metrics based on the full range of an investor's strategies to influence the trajectory of ***future*** emissions towards net zero

In the context of this double materiality, it is also important to be clear about what should be counted in light of the use of the metric. As part of this discussion, shorting was a frequent topic in the IIGCC working group, hence we summarise some key points regarding the proposals here:

- Shorting of high carbon-emitting companies may provide financial de-risking benefits to a portfolio as it reduces the sensitivity of the long portfolio to future changes in carbon pricing, thereby allowing increased market exposure to the strategy (this explains why shorting is included in carbon net financial risk exposure).
- Shorting individual companies may also create real economy influence on that company through cost of capital mechanisms and management signalling mechanisms (this explains why shorting is included in alignment metrics).

BUT

- Shorting does not directly reduce the current tonnes of CO2 released into the atmosphere, nor does it cause any carbon to be sequestered.[6] As a result, shorting is excluded from metrics measuring the current emissions associated with a portfolio.

Our proposals for portfolio measurement follow from the principle of separating financial risk from an investor's net zero real economy influence objectives. The IIGCC working group had broad consensus on carbon net financial risk reporting and real economy alignment and influence metrics. But there was substantial debate on the measurement metric used to report on the starting point of current portfolio exposures. We elaborate on the reasons for this debate in detail below. The table below summarises the key inputs and the outputs from the first two measures. In the *Case Studies* section, we provide a number of worked examples to help investors interpret the proposals being made.

6 It should also be noted that being long in a security does also not cause more emissions to be released into the atmosphere (though it does support that issuer's cost of capital). Long and short emissions are simply the current emissions associated with the company which the investor is long or short of.

Input/Metric	Description
Directly Financed Emissions:	Current emissions from all long positions physically held by the investor.
Indirect Long Emissions:	For longs, this comprises current emissions associated with all derivative positions or positions held by other parties on behalf of the fund (e.g. prime brokerage) where the fund cannot vote.
Gross Long Emissions (also proposed to be described as 'Total Financed Emissions')	An investor's long exposure to current emissions comprising long direct and long indirect exposure.
Gross Short Emissions	For shorts, gross short emissions comprise current emissions associated with all short positions including securities borrowed and sold, derivatives and negative delta on options. Note these are not real-economy carbon reductions.
Carbon Net Financial Risk Exposure	Netting of long and short emission exposure provides a measure of a portfolio's risk exposure to changes in current or discounted future carbon prices. It should not be confused with net zero alignment or with a portfolio's climate influence.

Our recommendation is that investors measure and report gross long, gross short and net emissions metrics.

However, the purpose and use of different metrics should be clear, whether to measure and manage carbon net financial risk exposure or to measure and manage real economy net zero alignment objectives.

1. Carbon net financial risk exposure

Carbon net financial risk exposure provides a measure of how a portfolio should be expected to respond to changes in current or discounted future carbon prices or changes in regulation.

Financial risk exposures may arise from both derivatives and physical exposures. In financial risk terms, the likelihood and potential magnitude of climate change being repriced is connected to the physical risks and transition risks in the underlying securities. These risks are often thought of intellectually as proxied by a 'price of carbon' embedded into investment market assumptions – as carbon prices increase, companies more exposed to carbon emissions will likely perform poorly. Short positions with high carbon exposure would likely benefit if these risks turned out to be higher than was priced by markets, and long positions with high carbon exposure would suffer.

Shorts may therefore mitigate risk exposure to long positions that might arise from changes in transition or physical risks.

There was broad consensus across the group that carbon net financial risk exposure should be measured by the net of all longs and shorts, whether held in cash or derivative form. Intuitively, this metric also makes sense – a portfolio with the same carbon net financial risk as the broad market index might be expected to react to changing carbon pricing in a similar way to the index. If the carbon net financial risk exposure was zero, we would expect, first order, no sensitivity to changing carbon prices, and if it was negative, we might expect the portfolio to benefit from increasing carbon prices or risks.

2. Net zero measurement and alignment metrics

Our real economy metrics are split into two sections:

1. A snapshot of the current emissions associated with the portfolio
2. A series of Climate Alignment Metrics that seek to measure the ways the investor is aligning their portfolio and the influence the investor is attempting to exert on the emissions

Measuring current emissions associated with the portfolio

It is important that the metrics investors use for assessing real economy influence and impact should meaningfully measure what they are trying to achieve and enable them to track whether they are achieving that objective.

Financed emissions, as defined in the PCAF Standard, provides a snapshot of current emissions associated with directly held investments, and is designed to:

- Capture the need for all investors to manage emissions lower as the economy transitions to net zero
- Attribute those emissions across investors financing the businesses

But PCAF's reporting approach for financed emissions does not incorporate derivatives. To extend their framework, as described in the table above, we introduce a number of definitions:

- **Directly financed emissions** are those arising from securities held by the investor where the investor may in future exercise voting rights
- **Indirect emissions** are those associated with holdings that the investor may have exposure to, either via derivatives or prime brokers, but where the investor cannot exercise voting rights – this can be calculated separately for long or for short exposure
- **Gross long emissions** equate to the sum of directly financed emissions and indirect long emissions
- **Gross short emissions** consist entirely of indirect short emissions
- **Total gross emissions** are the sum of gross long and gross short emissions

We recommend investors report all these metrics, expressing clearly what each is used for.

One potential starting point when incorporating derivatives is to consider that emissions occur in the environment (the real economy) due to the activities of all the companies/entities to which the portfolio is exposed, regardless of whether the portfolio is long or short of them, or whether the exposure comes from physical or derivative holdings.[7]

From this perspective, these gross emissions (long, short, and total) may be a valid starting point for real economy measurement over which the investor can hope to exercise some influence to decrease over time. Long direct investments will allow Tier 1, 2 and 3 influence to be exercised while long derivatives allow only Tier 3 influence. Gross long emissions give us a measure of the positive Tier 3 influence the portfolio is having on supporting the cost of capital for businesses with emissions. And gross short emissions give us a measure of the negative pressure the portfolio is having on cost of capital for businesses with emissions.

The gross metrics would allow us to track whether actual emissions in the real economy are decreasing over time (on both the long and the short books, and the total).[8] (When it comes to setting targets within portfolio measurement, we recommend only setting targets with respect to the gross long emissions.)

On the other hand, using gross measures will immediately become challenging when aiming to attribute emission ownership across investors as the gross measures will lead to double counting (every derivative exposure will be double counted with other derivatives and with the cash investor's actual ownership).

7 There are very few companies which are withdrawing emissions, but recognizing the possibility, the company would be reducing emissions in the real world regardless of whether it was held long or short in the portfolio and would count as negative emissions when adding up total gross emissions.

8 To track real economy emission reductions, organic change comes from the emissions of the companies held in the portfolio through time, while changes to portfolio holdings also result in changes to the emissions associated with the portfolio. Attribution can then be done to each of these two effects.

To solve for the attribution problem, investors either need to focus on the cash ownership of the actual securities (in line with the current PCAF Standard) or they could look at the carbon net financial risk exposure across all investors (netting the cash, long derivative and short derivative exposures) and attribute ownership in proportion to risk exposure.[9] However, as this is not required for the Framework, investors can choose to ignore the attribution problem.

One might also contemplate a 'net emissions' metric to describe a strategy's average impact on the cost of capital across the market. For example, a portfolio with no net emissions can claim to be having, on average, no impact on the cost of capital of emitters in the market (even though its gross longs may be having a very large positive effect on some, and its gross shorts may be having a very large negative effect on others). This net effect on the cost of capital is lower than, for example, the typical effect of a long only investor who, by definition, must have a positive impact on the cost of capital. However, we would note that net effects on the average cost of capital in the market are very unlikely to be significant when compared to the gross effects on individual securities on either the long or the short side of a portfolio.

There are two main challenges to a net emissions metric from a real economy perspective:

- The potential confusion that may arise if investors suggest that these short positions offset long carbon emissions in the real economy (for instance, a 'Net Zero Emissions' metric might be made to sound very similar to a net zero aligned portfolio, which it is not).
- Its lack of usefulness as a metric to target and measure real economy impact over time; the net emissions of a portfolio can be unchanged even as gross emissions increase or decrease on the long and the short side of the portfolio, and it does not help investors set targets for improvement in real economy emissions over time.

For these last two reasons, we warn against using net emissions metrics as a measure of real economy influence.

Showcasing the debate

Deciding on an appropriate equivalent to the financed emissions metric was the most contested of the working group's discussions.

Some on the IIGCC working group saw merit in continuing with focusing only on directly financed emissions, specifically because attributing financed emissions across shareholders must add up to 100% on this definition.

For aggregators with allocations both to cash-based and derivative strategies, this is a particularly important topic. A metric focused only on directly financed emissions creates an incentive to allocate away from cash portfolios towards those that use derivatives to express long exposure with identical economic risk. However, this incentive is not one that improves climate outturns or indeed the scope for overall portfolio alignment, as described above as this sacrifices Tier 1 and Tier 2 influence.

Hence, some proposed that emissions exposure should be assessed based on both direct and indirect long exposures.

Even though this would lead to double counting across all investors, for any individual investor, this would still be a sensible metric of the current emissions associated with their long portfolio over time. Providing the portfolio sets targets in line with a science-based methodology and applies it consistently across all longs held, this would be consistent with the net zero real economy objective of reducing emissions to net zero by 2050.

The question then arose of how to treat shorts:

- Some argued that the net metric was most appropriate because it reflected the net impact on cost of capital in the overall market (the net Tier 3 influence), though others argued this effect must be very small in the total market context

9 Since for every long derivative position there is a corresponding short, the net across the market must be zero. However, attributing in proportion to risk exposure would lead to some investors having negative attribution of emissions if they are net short a security (whereas in reality the negative emissions continue to exist) and other investors having positive attribution larger than their ownership where they are net long of the security.

- Still, others argued that the gross of the shorts could be added to the gross long emissions to represent the total emissions that the portfolio is exposed to
- Others argued that if shorts are not allowed to be netted against the long exposure, this would likely lead to allocators who set financed emissions targets penalising hedge funds which used shorts as an integral part of their strategy because of the higher metric only accounting for longs. This would especially be the case for a subset of funds that employ leverage or targeted high emitting transition companies.

For many in the group, the key argument against allowing for shorts in portfolio measurement was that the purpose of the metric is to guide a decline in the emissions intensity of the real economy assets to which the investor is exposed. Short positions do not represent an offset to real economy emissions on the long side and the framework needs to be very clear in avoiding any confusion in the representation of what short exposures achieve. We recognise that being long a security also does not cause more emissions to be released into the atmosphere. Long and short emissions are simply the current emissions associated with the company which the investor is long or short of.

What's in a name? Financed emissions

Part of the difficulty in framing the discussion has been the term used to address emissions associated with a portfolio. PCAF use the term *'financed emissions'*. Although most investors will have purchased their securities in the secondary market and not provided primary financing for the business, the description has merit because the new secondary market investor is replacing a primary investor, which has a logical basis when understanding long only ownership of a security. As discussed, the PCAF Standard is also used in attribution of emissions.

The challenge with derivatives is that the derivatives do not provide direct financing to a business and that once we start adding long derivative positions we will end up with double counting, invalidating the attribution challenge. Hence up to this point we have referred to 'indirect emissions' associated with derivative exposure to a company either long or short, and gross long being the sum of directly financed emissions and indirect long emissions.

While the gross long emissions definition used in the section above is a simpler description of what we are measuring, we acknowledge that allocators and aggregators will need a metric that they use when aggregating and allocating across multiple strategies. For aggregators across multiple managers and long only and long-short strategies, we can see the argument for reporting aggregate carbon exposures as both aggregate long exposures and as aggregated net exposures.

Our default position would be to recommend referring to gross long emissions as **total financed emissions**, explaining that this consists of direct and indirect financed emissions and reserving **carbon net financial risk exposure** for any measure of net exposure**.**

Moving the discussion forward

No metric fully solves all the problems:

- The gross long metric results in double counting but is a sensible measurement of real economy impact over time
- The carbon net financial risk exposure measure solves the double counting problem but does not deliver a useful measure for measuring and targeting real economy emissions

We recognise that, without careful implementation, the gross long metric could lead to a bias by allocators away from strategies that seek to achieve decarbonisation in currently high emitting entities through active engagement. The net metric is already reported for financial risk and would be duplicative in a real economy context.

Because we believe that the emphasis of the Framework should be consistent with double materiality in driving the achievement of net zero, we have recommended using the total financed emissions (gross long emissions) as the starting point for portfolio measurement. As explained in the discussion on alignment metrics, this should be reported together with gross short emissions (to explain cost of capital influences of short positions) while net exposure should only be used in the context of explaining carbon net financial risk exposure. Managers who deviate from this approach should explain the motivation behind their specific approach and how they seek to avoid some of the problems highlighted above.

This still leaves three specific challenges:

- How to reflect the positive influence that shorting can achieve in an investor's strategy
- How to address the higher leverage that some derivatives and hedge fund portfolios have
- How to rebalance the focus away from a single metric approach to evaluating an investor's portfolio

The approach proposed in this discussion document to all of these three challenges is to broaden and strengthen the metrics used to assess the alignment of a portfolio and to encourage increased attention to be placed on them. This requires greater industry education and also clearer communication of what an investor is seeking to achieve with her or his strategy, as we go on to discuss in the following section.

Questions for consultation

Q3. **For the purpose of portfolio measurement, in assessing the proposal for the definition of financed emissions incorporating derivatives, do you agree that longs should be defined by cash and derivative exposure? If not, please set out your reasons and any suggested alternative.**

Q4. **For the purposes of portfolio measurement, in further assessing the proposal for the definition of financed emissions incorporating derivatives, do you agree that shorts should not be included? If not, please set out the basis on which you propose that their effect on current emissions should be evaluated.**

4 Incorporating derivatives and hedge funds into asset alignment

To address the challenges of portfolio measurement when incorporating derivatives and shorting, in this section we explain how a series of metrics can be developed to show an investor's full range of influence over future emissions rather than just current emissions. As a result, they should carry a high weight in assessing alignment with net zero and assist those considering how to allocate capital to individual strategies.

Because of the need to own cash securities for many forms of engagement (Tier 1 and Tier 2), it does not follow that low current financed emissions equate with high future influence – in some circumstances, the opposite may be true. However, through the use of derivatives and shorting, carbon net financial risk exposure can be managed with a separate target from the net zero real economy objective of influencing companies to reduce future emissions.

To help frame this for investors, our first proposal is to shift the emphasis from an unhealthily exclusive focus on absolute current financed emissions to contextualising these emissions in the context of portfolio alignment. As a result, we recommend reporting on total long and short emissions exposure as well carbon net financial risk exposure. We also recommend that investors report comparable measures that allow the associated emissions to be put in context. For leveraged funds, this may involve quoting the financed emissions in terms of gross exposure of a scaled-up market benchmark. For transition funds focused on engaging with high emitters, this may involve quoting the financed emissions of the sector indices they are investing in and engaging with. Examples can be found in the Case Studies suggested later in the document.

Our second proposal that when reporting portfolio alignment and climate influence, investors clearly articulate how they have conducted their strategies and sought to create influence. In the *Case Studies* section, we provide examples which also relate the strategies to the influence tiers in the Theory of Change. Specifying the modes of intended influence will in turn naturally lead to an understanding of the appropriate level of financed emissions from the long book and how alignment is being targeted through specific alignment metrics.

The checklist below proposes an example template for reporting the full range of an equity investor's alignment. It captures exposure of both the long and short book, voting and engagement activities, the organic change in emissions of companies owned as well as the returns to strategies designed to influence the cost of capital. The checklist is not definitive, and we would welcome investors innovating and suggesting additional metrics that are able to capture the full range of influence and impact.

Investors may find that different elements of the table apply more or less strongly to their strategy. Some may have active engagement and voting programmes whilst others do not, and some may make active use of derivatives and shorts to enhance their impact whereas others do not. For clarity, the proposals as set out would not be obligatory. However, at the core of the proposals in this discussion document is that investors assess the ways in which the flexibility of alignment metrics can be used to reflect their climate ambition, making use of the many available resources relating to stewardship.[10]

The *Case Studies* section provides a series of examples of how these reporting recommendations might be used in practice.

10 IIGCC recently released the Net Zero Stewardship Toolkit: https://www.iigcc.org/resource/iigcc-net-zero-stewardship-toolkit/. Other resources include – the UK Stewardship Code – Financial Reporting Council http://frc.org.uk and ICSWG – Resources – http://icswg-uk.org

Asset alignment reporting: how an investor influences future emissions	
Long Book Exposure	
A Alignment[11]	• % with stated net zero commitments • % with some evidence in business planning and capex of aligning • % with credible science-based plan for net zero • % operating in line with science-based plan
B Stewardship and Engagement	• % engaged by Climate Action 100+ • % engaged directly by manager on climate issues with clear milestones set • Number of engagements with companies on climate related topics over the last quarter
C Voting	• Average % voted/exposed ratio (what proportion of holdings is the manager voting on) • % companies with significant climate related shareholder proposals • % supported • % of companies voting against directors for climate related reasons • Details of votes per company including number of shares owned (exposure) and number of shares voted • Details of the voting approach adopted on climate issues, including proxy advisors and their policy on climate related votes
D Positions manager has publicly disclosed long and engaged with climate asks	• % exposure • Number of positions
E Climate Solutions investing	• % of exposure to companies with >5% revenue from climate solutions • % of exposure to companies with significant climate related patents • Carbon sequestrated (removed and permanently stored) by companies • Carbon avoided (emissions that would clearly otherwise have occurred)
Short Book Exposure	
F Alignment	• % short exposure with climate related thesis • % shorts engaged by Climate Action 100+ • % shorts engaged directly by manager on climate issues with clear milestones set
G Stewardship and Engagement	• No. of company engagements over the quarter on climate related topics
H Historic emissions progress made by companies engaged	• % change in financed emissions of companies held long as at 31 Dec 2019 • % change in financed emissions of companies held long as at 31 Dec 2020
Cost of Capital Influence	
	• Longs (as defined by hurdle for emissions intensity / ITR / Net Zero alignment) • Shorts (as defined by hurdle for emissions intensity / ITR / Net Zero alignment) • Returns to longs (as defined by hurdle for emissions intensity / ITR / Net Zero alignment) • Returns to shorts (as defined by hurdle for emissions intensity / ITR / Net Zero alignment) • Net influence on cost of capital (returns on longs less returns on shorts)

11 Investors using an ITR methodology may elect to report exposures on that basis in this section

Proposed additions to asset alignment targets to incorporate derivatives

Section 7.2 of the Framework sets out a series of metrics for the alignment of an asset class within a portfolio which, in the context of a hedge fund, can be seen as similar to the alignment of an individual strategy. The Framework covers a range of topics concerning portfolio construction as well as the broader ambitions and implementation tools of a net zero strategy. We make the following proposals for how derivatives and hedge funds can be incorporated into this part of the Framework:

- Where long derivative exposure is used interchangeably with cash securities in a strategy, the broad approach to alignment set out in the Framework should apply to these strategies.
- Where the universe of investable securities is defined by the investment manager, a bespoke approach to alignment should be set out by the manager following the principles laid out in the Framework.
- Where shorts are actively used in a strategy, the manager should follow the approach set out above of setting alignment objectives both for long positions held and for carbon net financial risk exposure.
- Strategy / asset class level: where a strategy has natural exposure to material sectors as defined in the Framework, a 5-year coverage goal committing to increase the percentage of long exposure held in issuers in these sectors that are (i) achieving net zero, (ii) aligned or (iii) aligning. Near-term goals should be set consistent with a requirement for this coverage objective to be 100% by 2040. Regardless of the sectors covered by the strategy, emission reduction targets should be set consistent with a sector pathway approach.
- Strategy / asset class level: managers are encouraged to commit to engaging with issuers in material sectors. As a reflection of this, long exposure held should be 70% either in entities that are net zero, aligned with a net zero pathway or where there is collective engagement and stewardship actions. This threshold should reach 90% no later than 2030. For strategies where shorting is an integral part of the investor's approach, we propose the investor may choose to adopt specific targets for the proportion of shorts that will be targeted at non-aligning entities in material sectors.
- Whereas single strategy managers should focus their efforts on improving the climate influence of that strategy, multi-strategy managers should – similarly to an asset allocation process – make the net zero influence of a strategy a factor determining the internal commitment of capital, seeking to grow and promote new strategies able to support a positive climate influence.
- As well as publishing the metrics proposed to gauge alignment, managers should consider publishing the criteria used to evaluate the effectiveness of their approach.
- Whereas single strategy managers should focus their efforts on improving the climate influence of that strategy, multi-strategy managers should – similarly to an asset allocation process – make the net zero influence of a strategy a factor determining the internal commitment of capital, seeking to grow and promote new strategies able to support a positive climate influence.
- Consistent with the commitment investors are encouraged to make in Section 7.2 C of the Framework as well as those set out in the Net Zero Asset Managers initiative relating to fossil fuels[12], managers should commit not to finance businesses using technologies that are inconsistent with a net zero objective. We propose that managers should also publicly commit to avoiding activities that could be deliberately misleading regarding their carbon exposures or climate influence.
- For allocators to hedge funds, the burden of these recommendations is to consider the full range of a fund's reporting metrics when making allocation decisions. Allocators with a net zero ambition should set targets for the proportion of funds allocated to hedge funds that have a net zero strategy based on setting targets, measuring alignment and implementing a strategy consistent with the proposals set out above. This may include funds that have relatively high financed emissions – providing there are targets for aligning assets – and a relevant strategy to influence them.

12 See https://www.netzeroassetmanagers.org/NZAM-Network-Partners-Fossil-Fuel-Position.pdf

The broader ambitions identified in the Framework align closely with the way in which the Theory of Change is constructed in this discussion document. What is distinct is the way derivatives allow investors to seek to maximise their use of the higher tiers of influence identified:

- For instance, for some this may imply setting objectives for the proportion of their portfolio they intend to hold directly and vote on, articulating how they work with their prime brokers to secure stock ahead of important votes on climate as well as how they vote.
- It may require specifying targets for climate mandates, the proportion of assets or new capital raisings held in climate solutions or in green bonds.
- For others, it may suggest setting targets to lead a certain number of company engagements as part of a collaborative initiative, e.g. Climate Action 100+.

Questions for consultation

Q5. **For the purposes of portfolio alignment, do you agree with the proposed approach for establishing metrics to incorporate derivatives? If not, please set out your alternative suggestions.**

Q6. **For the purposes of portfolio alignment, do you agree specifically that shorts may be counted towards an investor's engagement target? If not, please set out your reasoning.**

5 Applying hedge fund strategies to achieve a net zero ambition

Having set out the basis for the measurement and alignment of derivatives and hedge funds within the Framework, in this section we provide some practical examples of the way in which hedge fund strategies can be adapted to help deliver net zero.

Readers unfamiliar with the range of hedge fund strategies available are encouraged to consider the *Factual Background: Hedge Fund Strategies* section in the Appendices. It provides a short and accessible guide to the primary investment approaches undertaken by hedge funds.

In the table below, we provide a comparison between stylised examples of potential long only and hedge fund strategies. This has the merit of demonstrating some of the ways in which hedge funds and derivatives in cash-based portfolios can be used to make a positive contribution to climate influence.

The table describes the type of strategy and how it is structured as well as the type of investor to whom it applies. It also sets out how the emissions associated with the strategy compare with a baseline (index) trajectory. In summarising some of the ways in which a strategy's impact can be evaluated, the table gives an indication of its likely impact against Tier 1, Tier 2 and Tier 3 metrics introduced in the Theory of Change. Finally, the table also provides an indication of each strategy's likely carbon net financial risk exposure as indicated by its sensitivity to changes in carbon prices.

Some specific examples help interpret the table:

- In the top row, we consider the example of a long only investor holding an index position via a derivative, which provides indirect financing of emissions in line with the index. In terms of the influence metrics, an index position is not impactful across the different tiers and, by design, mimics the market's response to changes in carbon prices.
- Further down the table, two rows compare an engagement strategy with high emitters for a long only investor and for a hedge fund using shorts. Although the strategies are the same and measured financed emissions are similar, the stylised influence metrics are distinctly different and indeed have the opposite impact on the cost of capital.

Although we stress once again that the examples are stylised and that, in practice, each individual manager's approach might differ significantly in the actual level of influence achieved, the table shows some of the ways in which derivatives and shorting can enhance an investor's net zero ambition.

Description						Stylised Influence Metrics **Green** = positive **Red** = negative **White** = neutral **Grey** = it depends			Financial Risk (exposure to increase in carbon pricing[13])
Type	**Portfolio Idea**	**Gross Long**	**Gross Short**	**Gross / Net**	**Financed Emissions / Net Carbon Exposure**	**Tier 1** New capital supply	**Tier 1, Tier 2** Potential collective or individual engagement	**Tier 3** Influence via cost of capital	
Long only	Index via future	100% index	0%	100% / 100%	Index / Index	No	None	None	Indifferent
Long only	Index via cash ETF/ index fund	100% index	0%	100% / 100%	Index / Index	No	Depends on index manager	None	Indifferent
Long only	ESG Index via derivative	100% long ESG tilted index	0%	100%/ 100%	Less than index / Less than index	No	None	Positive	Lower than index
Long only	ESG Index via cash ETF/ index fund	100% long ESG tilted index	0%	100%/ 100%	Less than index / Less than index	No	Positive with a good index manager	Positive	Lower than index
Long only	Long cash equities, exclude high emitters	100% low emitters	0%	100% / 100%	Less than index / Less than index	Possibly	Low	Positive	Lower than index
Long only	Own high emitters cash to engage	80% low emitters 20% high emitters	0%	100% / 100%	Greater than index / Greater than index	Possibly	Positive	Negative	Higher than index
Hedge fund	Long high emitters cash to engage / Short other high emitters	100% high emitters that could transition	100% even worse emitters that can't transition	200% gross, 0% net	High financed emissions / Close to zero net carbon exposure	Possibly	High, given size of positions held	Positive for long side, negative for short side	Close to zero
Hedge fund	Long low emitter climate solutions (cash)/ Short high emitters	100% low emitters	100% high emitters	200% gross, 0% net	Low financed emissions / Negative net carbon exposure	Possibly	Positive	Positive for long side, negative for short side	Potentially negative carbon financial risk

The table provides a good indication of why the different alignment metrics we propose are important to capture the full extent of an investor's net zero ambition and that one metric alone risks misleading investors and perhaps even the manager as to their full effect.

13 How would a portfolio's value change if carbon prices rose? In other contexts, it is referred to as the 'carbon beta' of a portfolio.

6 Greenwashing

Greenwashing

The topic of greenwashing was discussed regularly during the meeting of the IIGCC working group.

Greenwashing is defined by the Oxford English Dictionary as being 'the creation or propagation of an unfounded or misleading environmentalist image.' This may relate to a company, a person or a product.

In the context of the group, the focus was on the intentional rather than the inadvertent misrepresentation of an investor's climate influence.

There is nothing inherent about derivatives that dictates that greenwashing must be addressed in incorporating them into the Framework. As demonstrated in this discussion document, derivatives can be used to provide a powerful boost to an investor's climate influence. Nor is it the case that addressing greenwashing alone is sufficient to incorporate derivatives and shorting into a net zero ambition.

However, the ease of use of derivatives means that the opportunity to engage in greenwashing is likely to increase and perhaps also the temptation to do so.

On the IIGCC working group, there was a unanimous view that investors should not engage in greenwashing and widespread agreement that making a public commitment not to greenwash could be of benefit, provided that investors set up structures to ensure that the principle was applied internally and providing that other market actors held them to account.

There are multiple ways in which derivatives might be used to mislead. The following four hypothetical examples are intended to be indicative of some of the issues to guard against and are certainly not exhaustive. It is important to note that these are not based on actual examples – they may be difficult to implement and potentially violate the investor's mandate.

Example 1: Misleading offsetting of climate influence

Investor W invests in a new issue of a credit security of a private company seeking to finance the expansion of high emitting fossil fuel extraction. Investor W adds short exposure to the portfolio via a credit derivative on an existing company which also has fossil fuel extracting activities to allow it to report no net current emissions. To correct this, Investor W should follow the recommended approach for reporting financed emissions and also refrain from investing in new issues (Tier 1 and Tier 2 influence) of high emitting companies.

Example 2: Misrepresentation of net carbon allowance exposure

Investor X invests in a carbon allowance in the European Union, but also shorts a carbon allowance in California. To combat this, Investor X would have to report its short (and net) carbon allowance position.

Example 3: Misrepresentation of portfolio exposure

Non-IIGCC investor Y purports to run a cost of capital strategy involving longs and offsetting shorts in high emitting companies. However, immediately after the reporting period, the shorts are unwound. To combat this, the reporting period could include a weighted average component, and Investor Y could stipulate they are not pursuing this strategy. We note that this type of misrepresentation would in practice lead to heightened risk levels.

Example 4: Ill-guided selection of shorts

Non-IIGCC investor Z seeks to reduce their portfolio's financial exposure to emissions via short derivative exposure on an EM sovereign index with high emissions intensity. The resultant increase in the cost of capital reduces the sovereigns' capacity to invest in climate mitigation and undermines the objective of a Just Transition. To combat this, Investor Z could disclose whether shorting EM sovereigns is part of its investment strategy.

Associated with the commitment against greenwashing, we provide two simple illustrations of how derivatives could be misused in the table below.

Descriptors						Impact Metrics **Green** = positive **Red** = negative **White** = neutral **Grey** = it depends			
Type	**Portfolio Idea**	**Long**	**Short**	**Gross / Net**	**'Financed Emissions' or 'Carbon Footprint'**	**Tier 1 New capital supply**	**Tier 1, Tier 2 Potential collective or individual engagement**	**Tier 3 Impact via cost of capital**	**Financial Risk (exposure to increase in carbon pricing)[14]**
Long only	Long high emitters via derivatives	100%	0%	100% / 100%	Zero direct financed emissions / High net carbon emissions	No	None	Negative (reduces cost of capital)	High
Hedge fund	Long tech and pharma / short index	100% low-impacting climate sectors	100% market	200% / 0%	Low financed emissions / Negative net carbon emissions	No	No	None	Potentially negative risk

14 Would a portfolio decrease in value if carbon prices rose, which we argue is a key public policy available to help decrease emissions. The idea is to avoid conflict of interest between the portfolio manager and good public policy. In other contexts, it is referred to as the 'carbon beta' of a portfolio.

7 Recommended actions for all investors

Incorporating derivatives and shorting strategies into the Framework increases the range of opportunities that investors have to exert constructive influence to achieve their net zero ambitions. Because of the increased flexibility that derivatives and shorting brings, principles are simpler to espouse than codifying rules for an extremely wide range of possible use cases. Hence, we propose five principles backed up by a range of examples for reporting and case studies to assist investors in incorporating derivatives and hedge funds into their net zero targets.

The principles we suggest position the incorporation of derivatives and hedge funds firmly within the existing Framework. The Framework's recommendations on governance and strategy, targets and objective-setting, stewardship, advocacy, and engagement can be adopted by users of derivatives either without any change or by recognising the need to separate carbon net financial risk exposure from portfolio alignment.

Given this, the first principle we propose simply recognises the importance of the existing Framework when considering how derivatives and hedge fund strategies should target Net Zero. To make full use of the increased flexibility offered, it is essential that investors distinguish between the two elements of their double materiality, i.e. real economy influence and financial risk. Recognising this in explicit targets is a key part of implementing a net zero strategy incorporating derivatives and hedge funds – in particular, continuing to explicitly target net zero financed emissions from the long portfolio is consistent with the real economy objective of reducing emissions.

In the separate context of managing carbon net financial risk exposure, investors should be mindful of the commitment in the Net Zero Investment Framework to a Just Transition. For example, strategies that short EM entities simply because they have higher emissions intensity may have the effect of raising the cost of capital where transition capital needs are high, thereby undermining rather than enhancing the mitigation of climate change.

A further application of the Framework is that derivatives should be used to maximise the positive climate influence of an investor's different activities. What this will look like in practice will depend heavily on an investor's strategy and mandate; whereas the net zero objective integrates a target for alignment at the level of each asset class, derivatives create a variety of means through which alignment with net zero can be achieved.

A simple starting point is to ask what the highest level of climate influence is that an investor can achieve. For many, the option of higher influence mechanisms such as capital supply, collaborative engagement and individual investor stewardship will be available, and these require some holding of 'physical' positions in securities. However, as laid out in this document, in many other cases, derivatives can be used to enhance such influence and this suggests focusing on how mandates can be developed to make use of derivatives, shorting and other tools to better manage risk exposures whilst enhancing real economy influence.

The table below summarises the principles we propose.

Principle	Description
1	When assessing the use of derivatives in their portfolios, investors should ensure the commitments and actions in the Net Zero Investment Framework are implemented in full.
2	Because derivatives allow investors to target real economy influence and carbon net financial risk exposure separately, investors should separate the measurement and objective setting of financial risk exposures from those of real economy influence and set targets for them independently.
3	As set out in the Framework, investors should commit to maximizing their real economy influence towards achieving net zero within the scope of their investment strategy.
4	Investors should commit to avoiding greenwashing in all their investment activities and reporting, pledging not to engage in activity or publish metrics or descriptions of activity designed to mislead.
5	Reporting principles: we advocate investors distinguish between financial risk metrics and those they use when targeting net zero. For the latter, financed emissions focus on current emissions, including direct and indirect financed exposure, whereas portfolio alignment metrics can be focused on how an investor seeks to achieve net zero with their strategy.

We advocate the following *de minimis* steps for all investors:

- Investors should review the existing use of derivatives in their portfolios. Where longs can be expressed either via cash securities or derivatives, long derivative exposure should be included when measuring financed emissions.
- Investors should review how they can adapt their strategy to maximise their influence across all the tiers of influence.
- Investors should review how the use of derivatives and shorting could enhance their portfolio alignment with net zero and adapt mandated activities accordingly.
- Investors should commit not to greenwash in any of their investment activities.
- Investors should consider how their reporting of measurement and alignment could be amended to reflect the approach and metrics included in this discussion document and to enhance the broader industry's approach to achieving net zero.

Questions for consultation

Q7. Do you agree that the proposed de minimis steps for all investors are appropriate for the incorporation of derivatives into a net zero strategy? If not, please set out what changes you suggest and why.

Q8. Do you agree that the proposed principles are helpful in integrating derivatives and hedge funds into the Net Zero Investment Framework? If not, please set out what changes you suggest and why.

Q9. In addition to the specific proposals for portfolio measurement, asset alignment and portfolio management, do you agree that making an explicit commitment not to engage in greenwashing in investment activities could help further a net zero ambition? If not, please set out why along with any alternative proposals.

Q10. Do you agree that the proposed approach in this discussion document is applicable to derivatives in asset classes that are not covered? If not, please set out problem/special cases that demand alternative treatment.

8 Case Studies

8.1 Example 1: a generalist US long/short equity fund

Strategy description

Typically, 100% long physical, 60 % short physical, 40% net exposure with a maximum of 60%.

Generally diversified across sectors – they expect long and short books to be compared to the broad large-cap equity market S&P500.

The strategy is not particularly focused on the most climate intensive sectors but expects exposure to be broadly in line with typical market exposure.

Governance and objectives

The manager has committed to supporting global ambitions to achieve net zero by 2050 and halving greenhouse gas emissions by 2030 from 2019 base levels.

The manager has the following objectives:

- To align the portfolio with net zero following the IIGCC framework
- To manage climate change financial risk
- To support the transition to a low carbon economy through maximising their real economy influence
- To enact good stewardship across all sectors, including actively voting on important ESG issues

The manager has undertaken a review of their climate influence and stewardship approach to maximise their influence in creating positive change. As a result, their stewardship policy now includes:

Engagement

- An active approach to direct engagement with companies on ESG and climate issues where these are material to the company during contacts with company management by analysts and portfolio managers, with clear milestones and engagement plans (Tier 2 influence).
- It is not the fund's strategy to publicly engage companies (eg. publishing open letters to management in the press); however, where they have a position they privately directly engage with management.
- In addition, the manager has employed an engagement specialist to support collective engagement. The engagement specialist pools many investors and has a team of industry specialists who work on behalf of those investors. The manager inputs into the collective engagement priorities annually and works together with engagement analysts from the specialist on specific priorities on particular companies in the portfolio (Tier 1 influence). They actively support collaborative initiatives such as Climate Action 100+ and will usually vote in accordance with their views on stocks that are part of the initiative (Tier 1 influence).

Voting

- The fund adopts an active voting policy on all stocks directly held in the fund's account (as opposed to the prime broker account or via derivatives).
- The fund is committed to owning stocks in sectors that have material climate risk exposure *directly* in order to facilitate voting (Tier 2 influence).
- They work together with a proxy voting manager for advice on voting in accordance with a high ESG standard. Independently, analysts at the fund will review all material shareholder proposals as well as director votes to decide on a final voting position (Tier 2 influence).

- The manager has a voting policy that is by default supportive of climate change related proposals that they view as being in the best interests of long-term shareholders, including disclosure of climate metrics and risks, and science-based transition plans (Tier 1 influence).
- The manager will work with prime brokers to ensure that all stocks with significant ESG and climate related votes are recalled and held in the fund's own account well in advance of voting deadlines enabling them to vote on those companies (Tier 2 influence).

Strategic asset allocation

The strategy is entirely focused on equities.

From a financial risk perspective, the manager recognises the need to set objectives to manage climate financial risk.

In order to maximise real economy climate influence, the manager has set various objectives for their portfolio construction, asset allocation and stewardship to maximise that influence.

Metrics, targets and asset class alignment

Exclusions: The manager excludes long positions with more than 5% revenue exposure to thermal coal or tar sands. These remain acceptable as short candidates.

Financial risk and financed emissions

The manager expects that their long book will decarbonise more quickly than the market. They will publish the financed emissions exposure of the total long book, and are committed to ensuring financed emissions will be less than 50% of 2019 S&P500 financed emissions by 2030.

The manager uses shorts to manage risk and does not have any particular targets around short book financed emissions which, on average, should be similar to the broad market.

Given the strategy targets 40% net exposure on average with a 60% limit and the manager is concerned about the financial risk of increased carbon prices negatively impacting stocks, the manager is committed to maintaining a carbon net financial risk exposure (longs less shorts) of less than 60% of the S&P500 financed emissions and that this will be at net zero by 2050. Based on 60% of current S&P500 equivalent financed emissions this means carbon net financial risk exposure will be capped at [24 tCO2e/EVIC/$NAV] for now.

The manager reports financed emissions and carbon net financial risk exposure as follows:

Carbon Financial Risk	Exposure (%)			Financed Emissions (tCO2e/EVIC per $ NAV)			
	Direct	Indirect	Total	Direct	Indirect	Total	Market Comparison[15]
Long	70	30	100	24.5	10.5	35	40
Short		-60	-60		-24	-24	-24
Financed Emissions			100			35	
Carbon Net Financial Risk Exposure			40			11	

Climate influence/alignment metrics

Engagement

In line with their stewardship policy, the fund will monitor the progress of individual investments against the company-specific milestones they set for company engagement. For 100% of stocks in climate material sectors, the fund will set engagement objectives around publishing net zero transition plans.

Company interactions with analysts and portfolio managers are documented and the agenda includes regularly raising ESG and climate-related risks and concerns with management. (Tier 2 influence). In addition, they work with the external engagement manager to align on messaging and important themes (Tier 1 influence).

The manager reports a summary of such engagements including the number of engagements and the topics discussed categorised into main ESG themes to investors on a quarterly basis (eg. net zero transition plans, climate reporting, waste management, board diversity etc.).

Where companies fail to progress publishing of net zero transition plans within 3 years of having engaged with management on the topic, the manager will disinvest (Tier 3 influence).

Voting

The manager reports on all voting activity on a quarterly basis. As part of this, they report where they have voted against management, and where they have voted differently from the proxy advisor's recommendation. In line with the default position to support climate-related votes, they report what percentage of climate related votes were voted in favour, and in cases where they voted against a climate related vote, explain why they chose to do so (Tier 2 influence).

Alignment targets

The manager will track the percentage of companies in the long portfolio that have science-based targets and report on this regularly. This percentage is anticipated to increase over time.

The manager's objective is to see 100% of stocks in climate material sectors having science-based net zero transition plans in place, or being engaged through collective action by 2025, and 100% to have science-based transition plans by 2030 (Tier 3 influence).

15 To assess the portfolio's financial risk exposure, we compare the long exposures to an equivalent exposure in the S&P 500 which has a tCO2e/EVIC of 40 per $ invested.

The manager intends to allocate a minimum of 5% of the portfolio towards companies engaged in climate solutions as they see this as a growth opportunity (Tier 3 influence). They may occasionally allocate to new IPOs of companies in this area or make small private investments side-pocketed pre-IPO (Tier 1 influence).

On the short side, the manager expects occasionally to short higher emitting companies (Tier 3 influence) that they believe will fail to make a successful transition, but this is done based on financial risk/reward outlook and is not expected to be a consistent exposure. Where engaging with companies they are short of, they will continue to push for science-based transition plans and explain to management what their expectations are around net zero plans (Tier 2 influence).

Policy advocacy and market engagement

The manager supports climate change advocacy groups and is actively involved in responding to consultations for example on requiring companies to disclose carbon transition plans (Tier 1 Influence).

The manager also performs an annual update to their due diligence and engages with trading counterparties including their prime broker around their climate related policies, commitments and transition plans (Tier 2 influence).

8.2 Example 2: a transition-focused US long/short equity fund

Strategy description

The strategy is focused on the climate transition opportunity. The manager believes that they can identify companies which are currently high emitters but that have the capacity to transition to operating in line with the Paris agreement.

The manager will select these businesses either because they are already on a trajectory towards net zero or because she/he believes that, through individual and collective engagement, the business is likely to shift strategy to deliver a credible science-based plan to become aligned with net zero within the next few years. Value will be realised as the market awakens to the potential transformation of the business, thereby producing alpha.

The fund will target short positions towards high emitting businesses that the manager believes will fail to make a successful transition.

The manager believes that this strategy allows them to maximise their positive real economy influence towards a net zero, Paris-aligned economy under the IIGCC framework.

Typically, the book is 100% long stocks (90% long cash stocks, 10% long with the prime broker), and 60% to 100% short (via prime brokers or derivatives) with 0% to 40% net exposure.

They typically run a concentrated portfolio of 20 positions on the long side and run a more diversified short book of 40-60 companies including exposure to sector indices.

Governance and objectives

The manager has committed to supporting global ambitions to achieve net zero by 2050 and halving greenhouse gas emissions by 2030 from 2019 base levels.

The manager's strategy is designed to maximise positive real economy influence towards a net zero transition wherever possible.

The manager expects all of the stocks held to be in sectors material to climate change. Furthermore, the ability to use short exposures to mitigate climate risks allows the manager to hold a more concentrated long portfolio, with larger positions that imply greater influence with the businesses (Tier 1 and Tier 2).

On the short side, the manager believes that, in addition to significant financial risk management benefits and alpha opportunities, the short book will exert significant real economy influence on businesses failing to transition through increasing their cost of capital and campaigning to reducing the expansion of their emission related activities.

Financial risk management

Given the high exposure of the long book to climate change risks, the manager recognises the need to manage carbon net financial risk exposure to reduce potential changes in future carbon pricing and believes their short book will provide sufficient risk management opportunities.

Engagement

The manager expects to actively engage with these businesses to encourage a rapid transition towards a lower carbon footprint. For every business, a set of milestones is developed starting with publication of their current carbon footprint, and then developing a science-based transition plan consistent with the company's sector limiting warming to 1.5 degrees. If successful in these engagements and the thesis plays out, the manager expects these businesses will decarbonise more quickly than their sector average. Initial engagement will always be done one-on-one with companies (Tier 2 influence).

But should the business fail to take enough action to improve its climate stance, the manager may choose to go public on both long and short positions in an attempt to create collective influence to drive change (Tier 1 influence).

Due to the size of the positions, the manager will regularly have to file public disclosures with the SEC on their long holdings in certain stocks and will on occasion publish their own long and short research regarding specific companies and write open public letters to directors in an effort to accelerate change (Tier 1 influence).

The manager actively collaborates in the Climate Action 100+, leading on several company engagements (Tier 1 influence).

Voting

The manager's concentrated approach, together with short book risk management, allows them to take larger long positions enabling more voting influence (Tier 2) while they expect to have to file under SEC disclosure rules on significant positions (Tier 1). They are committed to voting on all resolutions at every AGM.

The manager expects to be able to hold all long positions in the run up to an AGM directly in the fund name, enabling them to vote at all shareholder meetings. For any positions that are rehypothecated, they will work together with their prime broker to recall the stock well in advance of any votes to ensure they are able to vote.

The manager will review all material shareholder proposals as well as director votes. The manager has a voting policy that is, by default, supportive of climate change related proposals that they view as being in the best interests of long-term shareholders, including disclosure of climate metrics and risks, and science-based transition plans. The manager will vote against director reappointment for companies that are slow to develop carbon disclosure reporting or science-based transition plans.

Strategic asset allocation

The strategy is entirely focused on equities.

From a financial risk perspective, the manager recognises the need to set objectives to manage climate financial risk, particularly given the high carbon exposure of the long book.

In order to maximise real economy climate influence, the manager has set various objectives for their portfolio construction, asset allocation and stewardship to maximise that influence. This includes holding long positions in physical form to enable maximum direct voting and engagement.

Metrics, targets and asset class alignment

Exclusions

The manager excludes positions on the long side with more than 5% revenue exposure to thermal coal or tar sands. These are companies where the manager believes no viable transition path is possible. These remain acceptable as short candidates.

Financial risk and financed emissions

The manager uses a custom index of US utilities, industrial companies and energy companies that defines their universe of stock opportunities and comparisons for carbon footprints. This custom index has a carbon footprint of [300 tCO2e/EVIC/$].

On the long side, the manager expects the portfolio to have a carbon exposure well in excess of broad market exposures (e.g. 300 tCO2e/EVIC/$ in line with the custom universe index vs 40 tCO2e/EVIC/$ in the S&P 500).

The manager expects that the long positions will decarbonise in future more rapidly than their sector so that if comparing a static portfolio today and in 2030, the long book will have a substantially lower carbon footprint by 2030 and net zero by 2050.

However, over the next 5 years at least, the manager expects there to be continuing opportunities to engage with new businesses, so as value is realised from businesses that commit to transitioning, the manager will continue to rotate into new opportunities that are current high emitters. For this reason, the manager expects the carbon footprint on the long book to continue to be high for the next 5 years at least and potentially until 2030. Although this is an intrinsic part of the strategy, a target or at a minimum an expectation should be set. Carbon risk exposure, though this will be reviewed every 5 years.

To mitigate the potential macro and policy risks that this high carbon exposure brings to the long book of the portfolio, the manager will own a short portfolio of companies or sector indices with high carbon footprints that will be used to reduce the carbon net financial risk exposure of the portfolio.

The manager believes that they will, on average, be able to construct a portfolio that delivers zero financial risk exposure to carbon with short exposure ranging from 60 to 100%. However, to allow for normal market volatility and flexibility in risk-managing the strategy, net carbon exposure is expected to range between -120 tCO2e/EVIC/$ and +60 tCO2e/EVIC/$.

The manager will publish the net carbon footprint of the long book, the short book and their net carbon exposure. They do not differentiate between physical and derivative positions for this purpose. The manager is targeting net carbon risk of -120 to +60 tCO2e/EVIC/$ for financial risk management purposes but has not set any limits or targets on long or short book carbon exposures prior to 2030 due to the nature of the strategy which targets high emitters. This approach will be reviewed every 5 years. The manager expects the portfolio to be net zero by 2050, though it is likely that the strategy will have evolved before then.

Current positioning is as follows:

Carbon / Financial Risk	Exposure (%)			Financed Emissions (tCO2e/EVIC per $ NAV)			
	Direct	Indirect	Total	Direct	Indirect	Total	Market Comparison[16]
Long	70	30	100	175	75	250	300
Short		-90	-90		-288	-288	-270
Financed Emissions			100			250	
Carbon Net Financial Risk Exposure			10			-38	

Climate influence/alignment

Engagement

Their ambition is to see 100% of the stocks in the long book implementing credible science-based transition plans that align to the Paris Agreement and net zero. When a new position is established, the ambition is to see that companies have such a transition plan in place within two years and then monitor closely on the execution of that plan. Companies that fail to implement such a plan within 3 years will be disinvested and excluded from future investment until such a plan is implemented (Tier 3 influence).

The manager has an active stewardship program (Tier 2), monitoring the progress of individual investments against company-specific milestones they set for company engagement including the transition plan agenda. Company interactions with analysts and portfolio managers are documented and the agenda includes regularly raising ESG and climate related risks and concerns with management. The manager reports a summary of such engagements including the number of engagements and the topics discussed categorised into the main ESG categories to investors on a quarterly basis (e.g. disclosure of carbon data, setting out a net zero transition plan, implementation of the net zero plan, significant controversies).

16 To assess the portfolio's financial risk exposure, we compare the long exposures to an equivalent exposure in a custom index of US Industrial, Energy and Utility companies which has an eCO2t/EVIC of 300 per $ invested

The manager leads collective engagement actions with specific companies under the Climate Action 100+ umbrella (Tier 1 influence).

Voting

The manager reports on all voting activity on a quarterly basis. In line with the default position to support climate related votes, they report what percentage of climate related votes were voted in favour, and in cases where they voted against a climate related vote, explain why they chose to do so (Tier 2 influence).

The manager will track the companies in the portfolio that have science-based Paris-aligned targets and report on this regularly.

The manager will also report on the progress made by a static snapshot of the fund's holdings as of 31 December each year, publishing the carbon footprint as of the original date and the decarbonisation of that portfolio as of today, as well as the proportion of stocks that have a credible science-based transition plan. The expectation is that these snapshots will be in line with the 50% decarbonisation path by 2030 and 100% by 2050.

The manager expects that many of their businesses on the long side will have substantial technology and patents that can contribute towards climate solutions in future. They may on occasion also invest in companies that have lower current carbon footprints but that represent a substantial opportunity to tackle climate change. The manager tracks and reports on the proportion of companies' revenues arising from climate positive activities. The objective is that this revenue number will grow over time.

Policy advocacy and market engagement

The manager is actively involved in the policy advocacy of the Climate Action 100+ group and the Transition Pathway Initiative, regularly taking a lead in formulating responses. The manager is actively involved in responding to consultations from regulators and governments, for example on requiring companies to disclose carbon transition plans (Tier 1 Influence).

The manager also performs an annual update to their due diligence and engages with trading counterparties, including their prime broker around their climate related policies, commitments and transition plans (Tier 2 influence).

8.3 Example 3: a long only risk parity strategy

Strategy description

The strategy allocates to a range of broad market exposures across equities, fixed income and commodities using a risk parity approach. The strategy aims to capture broad exposure to market movements and is not focused on individual stock picking. The strategy typically employs the use of market traded futures to gain desired risk exposure.

Typical exposures are 40% long equities, diversified across global markets, 105% long fixed income diversified across global government bond markets, 20% commodities.

The manager has sought to adapt the strategy to improve its positive climate impact in line with the IIGCC framework.

Governance and objectives

Historically, the manager has implemented the strategy entirely using exchange traded futures but has identified a number of weaknesses in this approach:

- The strategy has not historically accounted for climate related financial risk in its allocation policy
- The historic strategy has had very limited climate change impact, with all exposures essentially being Tier 4 influence via derivatives

The manager has recently committed to supporting global ambitions to achieve Net Zero by 2050 and halving greenhouse gas emissions by 2030 from 2019 base levels.

The manager has the following objectives:

- To align the portfolio with net zero following the IIGCC framework
- To manage climate change financial risk
- To support the transition to a low carbon economy through maximising their real economy influence
- To enact good stewardship across all sectors

The manager has undertaken a review of their governance and approach to asset allocation in relation to climate related risk and climate influence. The results of this review have concluded that the strategy can be modified to make greater allowance for climate related risk and have greater climate influence.

In particular, they have concluded:

- Part of the equity exposure could be allocated to climate change focused ESG index funds. This would support better risk management of the equity exposure in relation to carbon related financial risks. It would also allow the selected index fund manager to engage on the manager's behalf with underlying companies held in the fund (Tier 2 influence), and support improving collective action on these companies (Tier 1 influence).
- Part of the government bond exposure could be allocated towards green bonds issued by supernational agencies allowing them to have greater climate impact (Tier 1 influence).
- Commodity exposures could be reviewed to be better aligned with climate change objectives (even though a framework for doing so is not currently published by the IIGCC).
- None of these changes would compromise liquidity and collateral necessary to support the remaining strategy.

This combination of strategies should allow them to set certain objectives for financed emissions in line with net zero objectives while they can incorporate a climate influence assessment and objectives into their annual review of trading counterparties that the fund engages with.

Strategic asset allocation

The review of the strategic asset allocation has determined that both the climate risk objectives and the climate influence objectives could be achieved as follows:

- They reconsider their long-term capital market assumptions incorporating climate change risks.
- 20% of the 40% equity exposure could be implemented through allocations to climate change focused ESG index funds:
    - The manager will be selected on the strength of their stewardship program, the ability to engage underlying companies to improve climate change, their voting track record and policy, the exclusions they apply around climate change, and their contribution to collective climate change activities such as Climate Action 100+.
- They have determined that the mix of equity market exposures should retain geographic diversity. The preference is to have some climate change ESG index funds in each region.
- The review of government bond exposure concluded that, at this time, they should not modify government bond exposures based on climate policy given that exposure is to major developed market countries where risk diversification considerations outweigh climate risk.
- However, they concluded that 20% of the government bond exposure could be replaced with sustainable bond exposure which would have a more direct climate influence without substantially changing the risk profile.
- Within commodities, the manager has chosen to exclude fossil fuel related commodity exposure and livestock, based on a view that the uses of these were substantial contributors to climate change.
- This would retain 60% of the portfolio in cash supporting the derivative positions which would have reduced due to the physical allocations.
- The strategic asset allocation will continue to be reviewed on an annual basis to ensure progress towards the medium/longer term objectives.

Metrics, targets and asset class alignment

Exclusions

The manager has chosen to exclude commodity exposure to fossil fuels and livestock.

Within the direct equity exposure via an index fund, the mandate selected will exclude exposure to companies with substantial exposure to thermal coal and tar sands. The manager will seek to work with index providers to encourage the development of derivatives on indices that exclude indirect exposure to these companies.

Financial risk and financed emissions

The strategy will target 20% of its equity allocation through physical equities with an external index manager selected for their strong stewardship and climate change activities.

The 20% allocation to ESG equity funds would substantially reduce the financed emissions of the equity portfolio (across direct and derivative equity exposures) compared with equity market exposures prior to these changes.

The manager expects that their long **equity** exposure will decarbonise more quickly than the market because of the climate change index fund selected. They will publish their financed emissions exposure of the total long book across physical and derivatives. They are committed to ensuring financed emissions will be less than 50% of the 2019 custom equity index financed emissions (excluding any physical allocations) by 2030 and at net zero by 2050. The strategy will continue to evolve over the coming years to meet this commitment.

The strategy will target to have 20% of its government bond risk allocation through green bonds.

Government bond and green bond exposure will be reviewed annually. Government bond financed emissions will be a function of government progress on decarbonisation. The allocations to government bonds will continue to be reviewed in light of the progress being made by different governments and the risk reward of those allocations. No explicit targets beyond the green bond allocation are made at this time.

The exposure to commodities will continue to be reviewed as new frameworks for commodity climate impact are published by industry bodies such as the IIGCC. The manager allocates to gold exposure through holdings in a physical gold ETF where the gold complies with LBMA Responsible Sourcing standards.

The manager reports financial risk as follows:

Carbon / Financial Risk	Exposure (%)			Financed Emissions (tCO2c/EVIC/ per $ NAV)			
Equities	**Direct**	**Indirect**	**Total**	**Direct**	**Indirect**	**Total**	**Market comparison**[17]
	Index	**Futures**					
	20	20	40	8	16	24	32
Bonds				**Financed Emissions (Weighted Average CO2e/Capita)**			
	Sustainable	**Sovereign**		**Sustainable**	**Sovereign**		
	20	85	105	0.2	5.1	5.3	6.3
Commodities				**Financed Emissions (n/a)**			
	Gold	Futures					
	5	15	20	n/a	n/a	n/a	n/a
Total Exposure (% of NAV)							
	45	120	165				

Metrics, targets and asset class alignment

Stewardship

Equities

In line with the policy to allocate to an external index fund, the manager will monitor and engage with the index fund provider on an annual basis reviewing their engagement and voting specifically around climate related issues.

The manager has been selected because they have a strong stewardship approach. The number of climate change engagements with underlying companies and votes in support of climate change proposals is monitored and discussed as part of this annual review (Tier 2 influence). The manager's role in supporting collective engagement activities will also be reviewed (Tier 1 influence).

17 Long exposures are compared with equivalent exposures to a custom geographic index with a similar country composition for both equities and bonds. There is no framework for commodity exposure at this time.

Bonds

The manager has developed a green bond selection framework. This framework considers the use of proceeds and determines whether a green bond is appropriately targeting the objective of reducing CO2e output.

The manager also has a monitoring framework whereby once a bond is owned there is an annual review of the use of proceeds to ensure that the bond remains in compliance with its intended use and targets.

Alignment targets

The manager will publish the proportion of equities and bonds with climate objectives.

The manager targets to have at least 20% of exposure in physical climate change equity index mandates (Tier 1, 2 and 3 influence).

The manager targets to have at least 20% of exposure in green bonds (Tier 1 influence).

Over time it is possible that the manager may introduce ESG index focused derivative positions (Tier 3 influence).

Reporting

In addition to reporting on the alignment exposures in the portfolio, the manager will report on the percentage of companies in the direct long equity index portfolio that have science-based Paris-aligned targets, and the percentage invested in climate solutions, and report on this regularly. This percentage of both is anticipated to increase over time. The manager will report on the engagement and voting practices of the direct long equity portfolio index fund.

Policy advocacy and market engagement

The manager performs an annual review of their trading counterparties. As part of that review, they send a questionnaire to counterparties to understand their climate change transition plans and ESG risks. Part of their engagement is to work with these counterparties to ensure that they have science-based transition plans in place and this forms part of the decision-making process around which counterparties to use.

The manager supports the following climate change advocacy groups [Climate Action 100+ etc.] and is actively involved in responding to consultations, for example on government policy around their net zero commitments.

9 Tier 3 mechanisms and challenges to the influence model

In this section, we look at indirect mechanisms of influence (Tier 3) through which investors can operate, as well as a series of challenges that can be raised against the model of investor influence used in this discussion document. Recognising both the scope for positive influence and the appropriate ranking for these strategies within the broader range of investor strategies are equally important.

The IIGCC working group discussed the many ways in which positioning flows can increase market efficiency. These include evidence on the effectiveness of short sellers in capturing information asymmetries in the presence of financial misconduct[18] as well as potentially playing a disciplining role over M&A transactions.[19] There is also evidence that in the presence of overvaluation and frictions in capital market access, an increase in short selling can affect both the share prices of small companies as well as their subsequent investment decisions. However, a randomised policy control trial found no evidence of this influence for large companies, suggesting that multiple conditions may need to be present for short selling to have its largest effects.[20]

It is also possible that mandate exclusion/disinvestment/short selling can lead to a smaller group of investors able and willing to hold a company's equity or credit securities, leading to a higher required risk premium and therefore larger cost of capital. Evidence on the potential size of this effect in the context of climate change/ESG is relatively limited, however, with large differences in the estimated significance.[21]

Given that investors typically aim to minimise the market impact of their trades through efficient execution, a material influence on the cost of capital is most likely to come from sustained flow, perhaps in combination with engagement activities around new corporate financing needs or, at a broader sector level, lobbying for regulatory change.

Because of the arbitrage mechanisms between derivatives and cash markets, whether the investor expresses her or his position in derivatives or cash, the resulting degree of influence on the cost of capital can be expected to be the same.

Similarly, to the degree that investors or index providers can be transparent with management as to their criteria in judging a company's sustainability, they create a signal to management as to what will allow them to lower their cost of capital. And this can signal to governments and regulators what investors will support in terms of improved environmental regulation.

Mandate mechanisms can be broken down as follows:

Exclusions

Exclusion policies are public policies agreed by an investor that prevent investment under any circumstances. The public nature of the policy has a signalling effect: companies which know they are on many exclusion lists could feel pressured to change. In equity, this normally operates by preventing the purchase in the secondary market of the equity. Niche exclusions specific only to a small subset of investors might have limited impact on overall net demand. However, if the exclusion is widely adopted across many investors, this may have a more impactful effect on the cost of capital and company signalling.

18 J. Karpoff and X.Lou, "Short Sellers and Financial Misconduct." The Journal of Finance (New York) 65.5 (2010): 1879-913. Web

19 Chang, Eric C, Tse-Chun Lin, and Xiaorong Ma. "Does Short-selling Threat Discipline Managers in Mergers and Acquisitions Decisions?" Journal of Accounting & Economics 68.1 (2019): 101223. Web.

20 G. Grullon, S. Michenaud and J. Weston. "The Real Effects of Short-Selling Constraints." The Review of Financial Studies 28.6 (2015): 1737-767. Web.

21 For one example, see J. Berk and J. van Binsbergen, The Impact of Impact Investing (August 21, 2021). Stanford University Graduate School of Business Research Paper, George Mason Law & Economics Research Paper No. 21-26, Available at SSRN: https://ssrn.com/abstract=3909166

A downside of exclusions is that investors are no longer able to exercise much direct influence as they no longer can vote or engage effectively with management. Hedge fund investors may need to consider carefully whether exclusions are an optimal way to express their preferences given the flexibility of hedge fund managers to adapt their strategies. For example, an exclusion list may prevent a manager from shorting a business.

Exclusions might be even more effective in debt mandates. Corporate credit does not carry typical voting rights so investors are not giving up influence, whilst exclusions can still be impactful to a company because corporate debt needs to be refinanced far more regularly for example than equity.

Conditional exclusions or inclusions

Conditional exclusions operate such that companies must meet certain criteria to be included within a mandate. An example might be an investor insisting on a credible science-based transition path to align with the Paris Agreement. If adopted by a broad swath of investors this may feed into a 'cost of capital' mechanism by creating clear signalling effects. Although conditional exclusion lists are generally rule-based and hence will not typically name individual companies, if clearly articulated they may nonetheless create an incentive for companies to comply in order to access cheaper funding.

Conditional exclusions could be particularly powerful in incentivising companies to improve behaviour. For example, a high emitter, without a net zero commitment might approach investors to raise new debt. Debt investors could insist that the company make a net zero 2050 pledge and that failure to put in place a credible science-based transition plan within two years would be an event of default. This would incentivise businesses to put those plans in place whilst giving them a reasonable time period to do this thoughtfully.

Mandates and portfolio targets

In addition to being an asset allocation decision, an investment mandate can operate as a channel through which capital is provided to some businesses and withheld from others. As argued previously, this can create a cost-of-capital effect for the businesses. And, similarly to the operation of a conditional exclusion policy, this can create signalling effects to companies if the criteria for improvement are clear.

Examples of this approach consistent with the recommendations of the Net Zero Investment Framework might include:

- Allocating based on the degree of companies' alignment to net zero
- Allocating towards companies with high ESG scores and underweighting poor scoring companies (ESG tilt indices)
- Allocating towards climate solutions portfolios
- Targeting lower carbon footprint portfolios
- Targeting a % of assets in green bonds

Challenges to the influence model

As defined in this discussion paper, the scope for an investor's climate influence is deliberately broad. This allows the flexibility to accommodate a range of different strategies even though we expect there to be mixed opinions among market participants as to the merit of some and the hierarchy across many.

'Cost of capital' strategies

As discussed above, the influence of these strategies is heavily debated, although it does seem likely that they can enhance the effect of directly impactful investor actions. This combination of Tier 1 and 2 with Tier 3 mechanisms is possible in most investor strategies.

Disinvestment/exclusions/underweighting strategies causes divestment of carbon intensive assets to investors who are less subject to reporting pressures

The Framework discusses the circumstances under which disinvestment may be an appropriate option for investors in Section 7.2 C but overall notes there are a range of pragmatic reasons for a cautious approach to disinvesting. The risk of regulatory arbitrage is significant either to benefit from weaker standards for private companies in the same jurisdiction or from laxer regulation in another jurisdiction. It is also the case that sold securities may be acquired by investors who are less concerned about climate change and hence less likely to seek to engage management. As discussed above, we note that there are longer run routes to a higher cost of capital through a more concentrated shareholder base but observe that any investors seeking to promote this might more usefully simply engage in pro-climate lobbying activities alongside an active shorting strategy.

What can be done to mitigate the risks?

1. If allocators, following guidelines from the IIGCC on engaging with private equity managers, insist on climate alignment and reporting when allocating to private equity, this may mitigate some of the negative effects by starving non-compliant managers of capital.
2. As discussed in the Framework, investors can adopt a carrot and stick approach, making clear the criteria and timeframe they expect to see action over prior to disinvesting.
3. Because regulatory arbitrage represents a form of market failure, the most powerful response is through policy and regulatory adjustment – carbon taxes, border adjustment taxes, disclosure requirements, carbon pricing or regulatory mechanisms preventing emissions. Investors have a role to play in persuading governments to adopt these and similar policies. Investors should engage where possible with governments to encourage meaningful policy action and regulation around climate.

Unrealistic headline targets result in a withdrawal of capital from entities that need the capital to transition to a net zero model

This could be driven by public/competitive pressure to appear to hit portfolio exposure targets more rapidly than is broadly achievable given the pace of transition of the real economy and the need to ensure a just transition.

By separating out reporting on measures of real-economy influence and measures of financial risk, we encourage a more nuanced understanding of portfolio risk and influence. Making sure financed emissions continue to be highlighted without netting off short positions should help discourage greenwashing. Investors need to campaign to educate policy makers, the public and the media on the distinction between the real economy influence and portfolio exposure and risk figures.

10 Appendices

10.1 Factual background: derivatives

How do derivative markets work? What are the connections between exchange traded and over-the-counter derivatives and their underlying assets? What is the process for margining, delivery, and settlement? How do derivatives compare with underlying asset ownership?

A derivative is a type of investment used to deliver a specific exposure more efficiently to an underlying asset market than through a position in the underlying asset itself. The additional efficiency from using derivatives may come from different components including higher liquidity and lower trading costs, smaller capital requirements, and customizing exposure to have specific payoff profiles around the distribution of the underlying asset market. The following examples illustrate each of these three efficiency features.

For example, a cotton farmer who wants to hedge their risk on the price of cotton when it is harvested can sell their crop in advance of harvest through use of a derivative. In theory, this farmer could instead borrow cotton from a storage facility, sell it in the open market, and – when their cotton is finally produced – deliver the amount of borrowed cotton from their harvest to the storage facility. However, entering into an agreement to sell the cotton for a certain price at a future delivery date does not require the capital or cost that would be incurred by borrowing, selling and delivering cotton all in the underlying asset markets.

Another example is an investor who wants to hold a short-term long position on the EuroStoxx 50 Index. In principle, that investor could buy all 50 stocks in that index in the same proportions as they represent in the index, then sell all of these positions a short time later. Buying a futures contract is a simpler transaction with smaller trading costs and fewer capital requirements. The trading costs on futures are often one-tenth that in the underlying market, and the margin requirement is typically only around 5% of notional versus 100% if the investor had purchased the stocks outright.

An example of customizing the payoff profile around the distribution of future prices is an investor who believes interest rates will decline but is unwilling to take any risk that interest rates might increase. This investor could purchase a put option on interest rates struck at the current interest rate level. This option will pay off if interest rates decline. If interest rates increase or stay at the same level, the maximum loss they would incur would be the option premium.

What are the key differences between an underlying asset and a derivative?

- Underlying securities confer unique ownership of an asset.
- Each share in a company must be held by one final investor. Derivatives do not confer any rights of ownership. Total underlying securities must add up to 100% of issuance, derivatives can represent many multiples of the underlying both long and short.
- Underlying securities have a positive net supply (new securities typically issued in exchange for cash or other securities as consideration, and existing securities must be purchased for cash on the secondary market) whereas derivatives have zero net supply (for every long there must be a corresponding short in the market).
- In the case of a stock, the underlying holding – if the position is not lent – carries the right to vote in all elections and voting actions in that company. Derivatives have no such right.
- To maintain long-term exposure, a derivative position generally needs to be extended ('rolled') across contracts through time.
- In most cases, the derivative market is larger and more liquid than the underlying market.

- A derivative generally requires less capital and cannot be used as collateral in another trade, whereas the underlying asset – if not loaned out or borrowed against – can serve as collateral on additional trades.

What are the key similarities between an underlying asset and a derivative?

- Except if purchased in the primary market (e.g. buying a stock in an IPO), every purchase transaction of either asset type has an offsetting seller.
- The prices between the underlying asset market and the derivative market are integrally linked through arbitrage. If one deviates from the other, offsetting buy and sell transactions in the two markets bring the two prices back towards the other, ultimately enforced by the ability to deliver or take delivery of the underlying or to settle any difference in price versus the market price at expiry of the derivative contract. That is, the prices (or the delta-equivalent prices) of a derivative and its respective underlying asset are identical to a first approximation, allowing for costs of funding.
- A key insight is that derivatives allow the separation of an investor's financial objectives (e.g. risk exposure) from their ownership rights of the underlying securities.

There is no difference in risk exposure between holding a position in an underlying asset versus a derivative. Differences between derivative and cash exposure that may affect investor's impact include:

1. A long stock position if that ownership carries the right to vote and that position is not loaned out through a securities lending program. This would not apply to a position in a preferred stock or any non-defaulted bond.
2. A long bond position in a defaulted company where the bondholder carries a right to force the company into bankruptcy and influence how the company may reorganize.
3. A long commodity position gives the owner control over who to sell the commodity to, or not to sell it at all.

There is an adding up constraint in derivatives, which is that the long and short positions sum to zero. The same applies to short positions and their respective long positions that were loaned for these shorts. To be internally consistent, any accounting of exposure needs to account for all positions, otherwise exposures will be under- or over-counted. For example, if short positions are not counted in exposure, long positions will be over-counted by the amount of short positions.

For instance, if many hedge funds short a high CO2 emitting company, the aggregate long exposure of investors will overstate the market capitalization of that company, thereby distorting the amount of net capital supporting this company's operations.

Examples of Underlying Assets and Derivatives

Underlying	Derivative
Exxon Common Stock	Option on Exxon
Eurobund	Eurobund Futures & Options
EUA Carbon Allowance	EUA Carbon Allowance Futures
Aluminum	Aluminum Futures
GSCI Commodity Index	GSCI Futures

Settlement

Derivatives held until maturity settle into cash or the underlying asset. No trading occurs in this process, just an exchange between the long and short holders that remain on that date.

For example, a futures on a California Carbon Allowance is settled by the short futures holder delivering (through an electronic change in ownership) carbon allowances to the long futures holder on the settlement date. In a cash settled futures, cash is exchanged based on an observed price.

Trading, arbitrage and equilibrium

In all trading, there is a willing buyer and seller on each side. There, the act of trading does not create or remove any net positions. However, because trading requires both a buyer and a seller to be willing to enter into a transaction, supply and demand play a key role in determining the price of an asset, and likewise its expected return. These supply and demand effects can be very short-term, such as occur in electronic market making, or long-term, as may occur when many large investors decide that they no longer want to hold a specific asset.

If there is a long-term net imbalance across market participants, long-term equilibrium prices will be affected.[22] To be specific, the valuation of assets that are in higher net demand will be pushed upward, thereby lowering their future discount rates/expected returns. The opposite will occur in assets that are in disproportionally lower net demand. This may in turn indirectly influence the supply and demand of the underlying asset. For example, if the stock price goes up, the company may be more likely to issue more equity for new projects and may be interpreted as a sign of confidence in the company's strategy by the market and the company's management. A collapsing stock price may be interpreted in the opposite way and make it more difficult to issue new equity. Management who may be incentivised by the stock price might decide to change strategy in-order to change the markets perception.

For example, if a large proportion of investors decide not to hold the stocks of high emitting companies, the prices of these high emitting companies will decline to incentivise investors with no concern about emissions to add to their existing holdings in these companies. These lower prices might also motivate management to consider changing their business strategy.

There is also short-term price impact whenever one investor demands liquidity. This can occur in both underlying asset markets and derivative markets. The liquidity demander – whether a buyer or seller – pushes the price of the market in the same direction that they are transacting. Importantly, long-term net imbalances push prices in exactly the same way as these short-term price impacts; it is the aggregation of many such short-term price pressures that results in long-term price changes.

In open-outcry markets, when liquidity-demanding buyers and sellers of the same size meet in the market, their trades do not move prices. For example, in the 1980s, prior to electronification and competition from other exchanges, about 30% of trades on the New York Stock Exchange occurred directly between buyers and sellers – as opposed to market makers – who could meet at specific trading locations on the floor. In contrast to trades that occurred with a market maker (NYSE Specialist), these non-intermediated trades generally did not impact prices.[23]

In the anonymity of electronic markets, there is generally no mechanism for these traders to meet on an equal footing – every order either posts or takes liquidity. A trade occurs when one trader takes liquidity from a posted order. In electronic markets, therefore, there is always a liquidity demand that impacts price on every trade.

22 While seemingly obvious, this is slightly complicated in classic equilibrium theory like the CAPM, ICAPM and APT which state that prices reflect only systematic risk. But if many investors care not only about risk and return but also about companies' climate policies, the companies with very poor climate policies will only be held by a subset of all investors, which will impart high idiosyncratic risk on these stocks for which these investors will demand an additional premium. Through this process, the stocks that investors overweight (underweight) because of their climate policies will have higher (lower) prices and therefore lower (higher) expected returns (=discount rates). While this example is for a company's stock or bond, the argument holds equally for any investment asset. For a theoretical articulation, see Becker, Gary (1957), The Economics of Discrimination, University of Chicago Press, Chicago. Hong, Harrison and Marcin Kacperczyk (2009), "The Price of Sin: The Effects of Social Norms on Markets," Journal of Financial Economics, v. 93, pp. 15-36, gives measurable empirical evidence of this theory while there are applications specifically to climate change in P. Bolton & M. Kasprowicz (2021) "Do investors care about carbon risk?" Journal of Financial Economics, v. 142 n. 2, pp. 517-549.

23 See Hasbrouk, Joel and George Sofianos (1993) "The Trades of Market Makers: An Empirical Analysis of NYSE Specialists," The Journal of Finance, v. 48 n. 5 (December), pp. 1565-1593.

Even a small liquidity-demanding transaction that does not clear the full supply posted at the best bid or ask imparts an instantaneous trade away from the midpoint of the inside spread, creating a small and possibly temporary impact on its price. The liquidity provider – who takes the opposite side of a transaction – must then unwind this exposure by trading in the same direction as the initial liquidity demander. The premium that the liquidity provider receives – in the form of a fraction of the then-quoted bid-ask spread – is expected to more than offset their costs of unwinding their short-term position.

Derivative and underlying markets are connected by arbitrage. Arbitrageurs make offsetting buy and sell transactions across these connected markets whenever there is a large enough difference in prices. These arbitrage trades are almost without risk, creating very strong incentives for these price dislocations to be minimized almost instantaneously.

Because of the tight economic connection between underlying and derivative markets, it is not easy to disentangle whether the underlying or derivative market activity are driving prices. Many papers with different conclusions have been written on this topic. In general, however, the empirical evidence supports the idea that price discovery happens in the most liquid of the linked markets. For example, Uhrig-Homburg and Wagner (2009) find that in European Carbon Allowances, futures contracts lead the price discovery process.[24]

It is important to recognize that the marginal impact on valuation and discount rate that occur when a specific investor enters into a long position is reversed when that same investor unwinds that position. This also holds for a short position. What drives a specific company's discount rate or the expected return on an underlying asset is the market-wide net demand for liquidity. There is no natural mechanism that regulates how much net demand will accrue for a given underlying asset or for how long this net demand might last. But if the net demand for a company is large and lasts for more than a few years, it might be expected to marginally impact the behavior of that company.

Relevance for net zero

This discussion makes clear that derivatives form an integral part of the financial system. They facilitate price discovery and allow investors to adopt strategies that would be more cumbersome or more expensive in their absence. Although derivatives are now deeply embedded in capital markets, initial evidence from their introduction suggests that the introduction of derivatives contributed to improved liquidity, reduced price volatility and more informative prices.[25] These generally work in the direction of lowering the cost of capital for the underlying entities to which users of derivatives implicitly contribute.

In this discussion paper, we explore how derivatives could be incorporated into the Net Zero Investment Framework, which seeks to align investors of all types with a net zero objectives.

24 Uhrig-Homburg, Marliese and Michael Wagner (2009), "Futures Price Dynamics of CO2 Emission Allowances—An Empirical Analysis of the Trial Period," Journal of Derivatives, v. 17 n. 2, pp. 73-88. Feguerola-Ferrett, Isabel and Jesus Gonzalo, 2010, "Modelling and Measuring Price Discovery in Commodity Markets," Journal of Econometrics, v. 158, pp. 95-107 develop and test a general model for the question of which market provides information discovery. They find that the market with relatively higher liquidity dominates in price discovery, and document that this is in the futures markets not the underlying markets for aluminum, copper, nickel, lead and zinc.

25 See, for example, S. Mayhew, The Impact of Derivatives on Cash Markets: What Have We Learned? University of Georgia, mimeo. The introduction of derivatives on bitcoin points in a similar direction. See, for example, The Impact of Derivatives on Cash Markets: Evidence from the Introduction of Bitcoin Futures https://globalriskinstitute.org/publications/the-impact-of-derivatives-on-cash-markets/

Glossary of terms

Primary market: initial issuances of securities or assets. For example, an initial public offering (IPO) whereby a company issues stock to stockholders in exchange for cash.

Secondary market: any trading of existing assets or securities. For example, buying a stock on the NYSE, or entering into a long futures contract on a stock index.

Derivative: a derivative is a contract that is economically linked to an underlying asset. A derivative is either traded on an exchange or it is over the counter (OTC). Just like any secondary market, every trade requires a buyer and a seller.

Underlying asset: a tradeable asset on which a derivative is traded. The underlying asset might be any financial asset or commodity. Examples of underlying assets are stocks, ETFs, bonds, currencies, commodities, carbon allowances, and indices of assets like a stock index. Sometimes, underlying assets may be derivatives. For example, a futures option is an option contract written on a futures contract.

Margin: the capital required to be deposited to enter into a derivative contract.

Collateral: the capital required to be deposited to enter into non-futures derivatives.

Variation margin or variation collateral: the dollar value of the gain or loss in a derivative which the derivative holds are required to post (or are entitled to receive back) on a daily basis.

Open interest: the total value of all outstanding futures contracts for a specific underlying asset and expiration. In a futures transaction, if neither party holds a position, or they hold the same buy or sell position as the transaction, a new contract will be created. If they both hold positions in the opposite direction as the transaction, a contract will be retired. If only one of them holds a position in the opposite direction as the transaction, no new contracts will be created or retired. The futures exchange keeps track of whether a specific transaction requires an increase, decrease or no change in the open interest.

Contract expiry: the specific expiration date for that derivative.

Delivery: some derivative contracts require delivery of the underlying asset upon settlement, while others are settled in cash.

First delivery date: the first day that an exchange can assign delivery to a holders of a short position in a contract that is physically settled.

Settlement: the final transaction in a futures contract. If cash settled, this is a process whereby if contracts requiring physical delivery are not closed out before the first delivery date, the short holder of such contracts may be assigned to physically deliver the underlying asset on the settlement date.

Security lending: the process whereby an investor allows their prime broker or custodian to lend their investment holdings in return for a small lending fee. When a stock position is lent, that investor no longer holds a voting right.

Exchange-traded derivative: a derivative that is traded on an exchange. The exchange keeps track of every investor's net position in a given derivative, escrows their margin, and sends daily calls for variation margin.

Centrally-cleared derivative: a derivative that has a central clearinghouse that escrows margin and fulfills essentially the same function as an exchange except that, unlike an exchange-traded security, the transactions need not take place on a specific exchange.

Delta: the sensitivity of a derivative to movements in the underlying asset market, usually expressed as a fraction relative to movements in the underlying. For example, the delta of a futures contract on the S&P 500 is one because for every percentage move in the S&P 500 index, the S&P 500 futures should move by the same percentage. Another example is an at-the-money call option on WTI futures, where the delta is 0.5.

Delta-equivalent exposure: using the delta of a derivative at current price levels to convert the exposure in the derivative to an equivalent exposure in the underlying asset. For example, a call option holding with a notional of $100 with a current delta of 0.3 would have a delta-equivalent exposure of $30.

Cost of capital: the cost to a business of raising capital at current market rates, and equivalently the rate of return demanded by investors for a specific investment. The terms 'cost of capital', 'discount rate' and 'expected return' have identical meaning and are often used interchangeably. The price of an asset is determined by that asset's discounted future cash flows, where the discount rate is that asset's specific cost of capital. Therefore, if a low emitting company's price has increased due to net investor demand alone, then that company's cost of capital has decreased.

10.2 Factual background: hedge fund strategies

We categorise hedge fund strategies into five broad types, as summarised below. Each has a range of sub-strategies. In the remainder of the section, we set out the broad contours of each strategy and what differentiates it.

Fundamental Long/Short

- Long/short equity
- Long/short credit

Event Driven

- Activism
- Merger arbitrage
- Corporate action / special situations
- Distressed

Direct Sourcing

- Lending
- Equity financing
- Real estate
- Insurance

Directional Trading

- Fundamental discretionary
- Fundamental systematic

Relative Value

- Capital structure
- Convergence
- Rates
- Statistical
- Volatility

10.2.1 Fundamental Long/Short

The fundamental long/short strategy is the buying or selling of predominantly corporate securities believed to be materially over- or under-priced by the market, relative to their fundamental value.

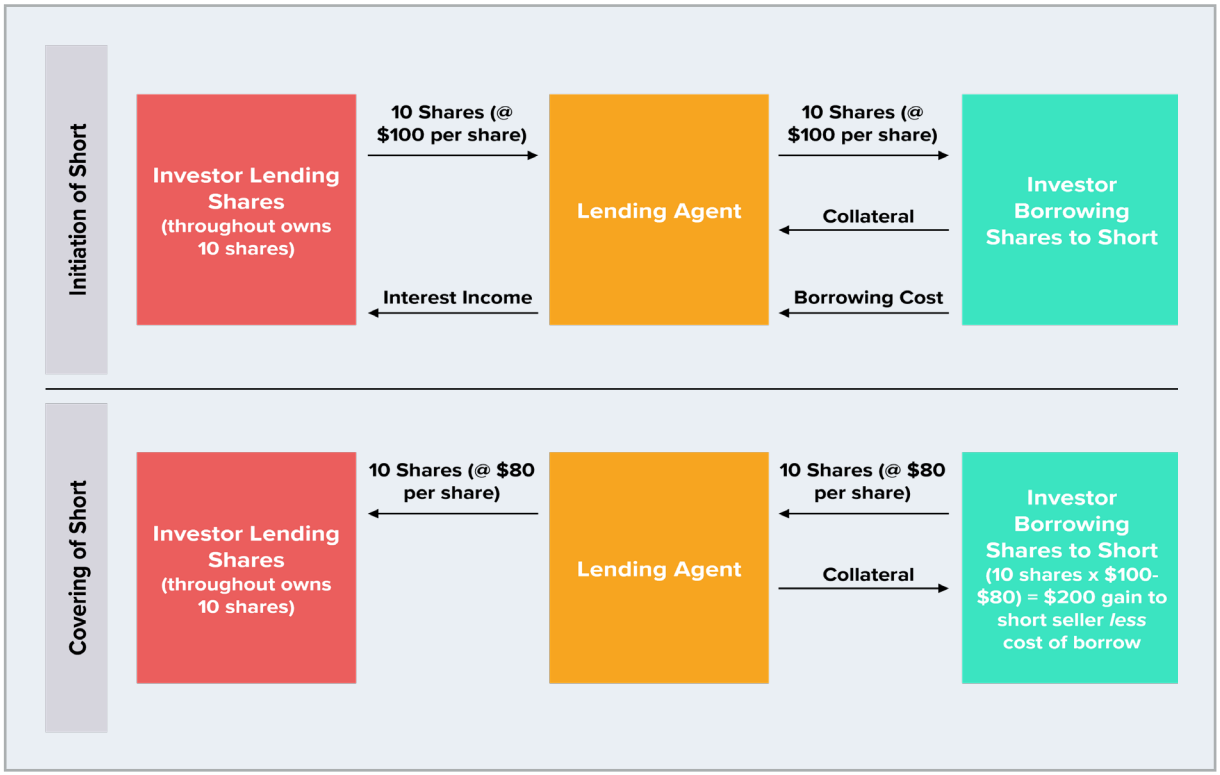
Fundamental long/short strategies are among the most straightforward, as they often share many of the characteristics of more familiar traditional long-only investment management. They typically develop company- and industry-specific investment theses, generally employ bottom-up fundamental research and valuation methods used to identify potentially attractive positions and compare market prices of select securities against the intrinsic value established by their analyses. Many fundamental long/short managers may also focus on a particular region, sector, capitalization size, or other specific dimension of the market.

The fundamental long/short universe can be divided into two primary strategies:

1. **Long/Short Equity** – Equity selection strategies are generally akin to 'stock picking,' where a manager uses its expertise, proprietary models and technology to identify equity securities that the manager views to be mispriced relative to its fundamental or 'fair' value. Managers normally accomplish this objective using some combination of two approaches, generally referred to as 'top-down' and 'bottom-up' processes.

The defining difference between long/short equity and long-only equity investing is the ability to establish short positions to express a negative view or build hedges to control equity market exposure or generate alpha. A diagram of how short selling works can be found below:

How does short selling work?



2. **Long/Short Credit** – Fundamental long/short strategies are not limited to equity-based trades. Credit securities provide an even wider universe of opportunities given the outstanding size and variety of debt instruments and their price opacity relative to the equity market. In addition, the use of credit default swap instruments allows an alternative means to obtain short exposures to credit, opening up the possibility of selectively hedging credit exposures, or taking a bearish outlook on certain issues.

Credit strategies can provide a greater degree of flexibility in taking positions across the capital structure of a company or investment pool. While equity managers are typically able to invest in only equity tranches (typically, the most junior ownership in a capital structure), credit managers can often invest in senior, mezzanine or junior debt. This allows managers the potential to invest in the 'fulcrum' security of a company – the security within a company's capital structure likely to be impacted most favourably by a given development.

Finally, long/short credit managers have a variety of issuer profiles to work with, according to their respective thesis. They may invest in government-backed debt (sovereigns) to take advantage of macro-level developments or to reduce credit risk. They may invest in various syndicated corporate bonds that offer a range of liquidity and credit premium profiles. Managers might also look at purchasing private bilateral loans, which can potentially offer a greater variety of custom terms and conditions but may exhibit less liquidity (and greater liquidity risk). They may take exposure in attractive consumer borrower segments through collateralized credit pools, backed by such credits as mortgages, credit cards, loans, etc., which offer a greater level of complexity.

10.2.2 Event-Driven

The event-driven discipline consists of strategies that focus on companies that are, or may be, subject to corporate events such as restructurings, takeovers, mergers, liquidations, bankruptcies, or other corporate actions. Generally, an event-driven manager seeks to profit when a security's price changes to more accurately reflect the likelihood of an event occurring or not occurring, and the impact that event may have.

The event-driven universe can be divided into four primary strategies:

1. **Activism** – Activist managers are similar to long/short equity managers in that they seek out companies that they believe to be mispriced relative to their fundamental value. However, these managers are different in that, as the name implies, they will actively work with the company to realise the mispriced value.

   Activist managers may take a number of approaches in their efforts. These managers may purchase a large stake in the company and use their ownership influence to facilitate change. In some cases, they may work with the current management to seek solutions to existing challenges, use their industry relationships or investor capital to facilitate financing needs, or provide management with other resources or expertise. In other cases, they may work to replace ineffective management, or redirect management attention toward courses of action that may potentially add value for stakeholders.

2. **Merger Arbitrage** – Merger arbitrage strategies (also known as 'risk arbitrage') are generally associated with mergers or acquisitions of companies.

   A plain vanilla merger arbitrage opportunity occurs when a company makes a tender offer for another company's equity – normally at a significant premium to the pre-announcement market price to induce existing investors to sell their shares. This event creates two most-likely potential paths by the proposed acquisition date – the acquisition will go through and the stock will be priced at the higher price, or the acquisition will fail and the stock will fall back to its lower previous levels.

   The gap between an acquisition target's current market price and the offer price is referred to as the 'merger arbitrage spread' or 'deal spread'. If the manager believes the deal will go through, the manager will buy the target company's stock, and typically sell short the acquiring company's stock (if the offer is made in the acquiring company's stock). The manager will profit if the spread narrows as the deal works toward completion. Similarly, if a manager's thesis is that the deal will not go through, the manager can short the target company's stock and buy the acquiring company's stock, gaining if the spread widens.

3. **Corporate Actions/Special Situations** – Corporate action/special situations strategies are focused on the impact of corporate activities (other than mergers and acquisitions) on select securities. Such activities might include the spin-off or liquidation of a company subsidiary, the impact of a lawsuit, announcements regarding a special dividend (or an increase in a regular dividend), or share buybacks, among other events.

   The basic strategy for a corporate actions manager is similar to that of a merger arbitrage manager. In both cases, an event may impact the securities of the underlying company. The manager judges the likelihood of the event occurring, and the fundamental value of the securities should the event occur. If that estimated value is measurably different than the current value, the manager may take a position that profits as the security value moves toward its estimated value. If the position moves away from the manager's estimate of fundamental value, the manager may take losses.

4. **Distressed** – Distressed investment managers are generally active in the securities of companies that have entered bankruptcy, or are likely to enter bankruptcy. Bankruptcy allows a company in default to restructure its liabilities, or liquidate its assets to distribute capital back to claimholders. The process can be very opaque, complex, and laced with a high degree of uncertainty as investors, creditors and the courts work to define their interests in the re-emerging (or liquidating) firm, or as the underlying company potentially works to make operational or structural changes to improve its competitiveness.

Distressed strategies can follow a number of different approaches in this often long and intricate process. However, this strategy commonly seeks to take advantage of discrepancies in the value of an ownership stake in a company before and after bankruptcy.

A bankruptcy normally has one of two broad paths it can follow:

- liquidation, in which the company's assets are sold and the proceeds distributed to claimholders whose stakes are defined by the courts
- reorganisation, in which the company, and the bankruptcy courts, negotiate with stakeholders to redefine ownership interests in the new company emerging from the bankruptcy process

In either case, a distressed manager might compare the current value of an ownership stake in the company against the potential market value of that stake should the company liquidate or successfully reorganise. If the manager's stake is substantial enough, the manager may be able to influence the bankruptcy process by having enough standing to directly argue or negotiate for a superior claim or help to resolve conflicts between competing stakeholders to expedite the reorganisation process.

10.2.3 Direct Sourcing

The direct sourcing strategy entails investment activity that seeks to profit from the disintermediation of the financial services sector by entering into transactions directly with corporations, institutions and individuals. Generally speaking, the goal is to enter areas of the market underserved by larger financial institutions that have historically served as go-betweens in sourcing capital and/or distributing risk.

The direct sourcing discipline can be divided into four basic strategies:

1. **Lending** – Credit-based activity is the predominant focus for most direct sourcing managers. As investments are often privately negotiated, these transactions offer the ability to create terms that meet the needs of the borrower while potentially creating an attractive risk profile for the lender. Seniority in the borrower's capital structure, compelling coupons, strong collateralization, origination fees, interest rate floors, protective covenants and other features may be negotiated in an effort to reduce lender risk and/or enhance return.

2. **Equity Financing** – The equity financing strategy comprises directly sourced equity-oriented financial arrangements. While not as common as debt-based financing, privately sourced equity financing can be useful when lending is unattractive or difficult to obtain, equity valuations are strong, traditional equity sourcing is unavailable or inconvenient, or there is interest in greater influence in the operations of the company seeking funds.

   One form of equity financing includes private investment in public equity (or 'PIPE' transactions). In a PIPE transaction, a company sells a block of its equity, usually at a discount to the current market price or in the form of a convertible security senior to common equity. The purchaser generally must hold the stock until it clears the SEC registration process, which can take up to several months, after which it can be sold into the public markets. A PIPE transaction may be attractive to a company seeking capital because it may provide quick access to funds without waiting for the regulatory registration process to be completed, and may be more easily arranged with a single buyer rather than many smaller ones. In return for the position's short-term illiquidity, the buyer may potentially capture a meaningful discount by hedging the discounted position with short index exposures or, if permitted, by shorting an equivalent amount of the company's publicly traded stock.

3. **Real Estate** – The real estate discipline focuses primarily on property related securities across the capital structure. Examples may include traditional collateral-backed financing such as mortgages, or deals with the potential to assert some degree of influence to realize value in the underlying property.

   Managers active within the direct sourcing real estate strategy are not necessarily akin to traditional real estate investors, which generally seek to assemble a portfolio of properties over longer periods of time. Direct sourcing managers instead tend to disintermediate traditional real estate participants, providing mortgage originations or construction loan bridge financing, or even managing control situations to facilitate troubled condominium conversions, management replacement, etc.

4. **Insurance** – Managers within the insurance discipline generally seek out supply/demand imbalances to mitigate adverse events. At certain points, traditional providers of insurance may become undercapitalized and seek to reduce their risk exposures, periodically creating dislocations in the supply of insurance. In these circumstances, hedge funds may assume (i.e. re-insure) select exposures from insurers or other participants, in turn capturing potentially attractive premiums.

10.2.4 Directional Trading

The directional trading discipline involves buying and/or selling securities or financial instruments with a primary focus on seeking to profit from changes in macro-level exposures, such as broad securities markets, interest rates, currency exchange rates or commodity prices. Directional trading activity can be categorized across two dimensions; how trading decisions are implemented and what kind of information (data input) is utilized. This framework can be graphically described in a rudimentary grid, illustrated below:

Trading Decisions			
Data inputs		Discretionary	Systematic
	Fundamental	1	3
	Technical	2	4

Focusing on the fundamental dimension, this can be decomposed into two categories:

1. **Fundamental-Discretionary Managers** – In quadrant 1, where discretionary and fundamental styles intersect, we usually find traditional global macro managers. In practice, nearly all discretionary managers are fundamentally based, but technical data may have a limited role in investment decisions, particularly in the timing of entry and exit points.

   These classic global macro managers will typically utilize both directional and relative value strategies. Directional investing generally involves making an investment based on the outright movement of a security, taking a long position if the analysis is bullish, or a short position if the analysis is bearish. With relative value investing, a manager will typically act on abnormal spreads in price between two similar securities, extracting returns as the relationship converges. Typically, these trades are less volatile than directional investments given risk hedges are embedded as part of the trade.

2. **Fundamental-Systematic Managers** – Quadrant 3 contains the fundamental-systematic managers. These funds have systematized their trading triggers but have primarily based the signals on fundamental inputs rather than pricing/trading data. Fundamental-systematic managers draw upon feeds of economic data or the momentum of economic data to populate the models that make investment decisions. Managers may use data produced by governments, data services or internal research departments to gather information.

10.2.5 Relative Value

The relative value discipline consists of strategies that, generally speaking, are designed to identify similar assets in the marketplace that are selling for different prices, profiting when those prices converge towards another.

In its purest form, when two assets are economically the same, capturing a pricing discrepancy between the two is termed as 'arbitrage'. This is generally accomplished by buying the cheaper asset and simultaneously selling (or shorting, in some cases) the more expensive asset. If the two prices converge, the investor profits when the position is unwound. The investor loses money if the two prices diverge further.

At its core, relative value investing is generally about finding similar assets with inconsistent pricing. Five underlying categories include:

1. **Capital Structure** – Managers utilizing the capital structure strategy seek out price discrepancies across various securities of a single issuer's capital structure.
2. **Rates** – Similar to capital structure trades, which seek mispricings across a single issuer, rates managers generally seek distortions across yield curves, often in government issues.
3. **Convergence** – There is sometimes a formulaic relationship between related financial instruments. Convergence managers attempt to take advantage of price discrepancies between these instruments. A common convergence trade involves convertible bonds.
4. **Statistical** – Statistical managers generally use multi-factor computer models in an attempt to systematically identify attractive long and short security exposures.
5. **Volatility** – Managers utilizing volatility strategies seek to take advantage of discrepancies in the rate at which related securities' prices change or are anticipated to change. Often, this takes the form of seeking out and isolating inconsistent volatility assumptions that are imbedded within certain derivative instruments, or monitoring the relationship of volatility across certain securities, profiting when unusual discrepancies normalize.

10.3 Derivatives: special cases

- Sustainability linked derivatives where the contract pay-out is directly linked to climate change KPIs by one of the counterparties may need to be dealt with and reported separately. These sorts of derivative contracts have the potential to create real economy impacts through directly affecting the economics of the contracting parties.
- Strategies designed to capture a non-climate risk factor, where all of the exposure is achieved through liquid derivatives with a very limited financed physical portfolio exposure are unlikely to have much real economy climate influence and should probably be excluded from any analysis regarding influence. Carbon net financial risk exposures might still be relevant depending on the timeframe. Examples include typical CTA strategies.
- Liquidity provision strategies that focus on high frequency turnover of portfolios are also unlikely to have much real economy climate influence and can also be excluded from any real economy influence analysis. Financial risk is also less likely to be relevant (depending on the timeframe and factor exposures). Examples would include high frequency quantitative trading strategies in stocks or derivatives.
- Carbon emissions trading certificate derivatives are already recognized in the Net Zero Investment Framework as being accepted as having a negative real economy influence on emissions.

11 Questions for consultation

Q1. **Do you agree with the approach proposed of integrating derivatives and hedge funds into the Net Zero Investment Framework through portfolio measurement, asset alignment and portfolio management? If not, please set out your alternative suggestions.**

Q2. **Do you agree that the proposed Theory of Change is helpful in establishing a hierarchy of investor influence and that it matches your own broad assessment? If not, please set out what changes you suggest and why.**

Q3. **For the purpose of portfolio measurement, in assessing the proposal for the definition of financed emissions incorporating derivatives, do you agree that longs should be defined by cash and derivative exposure? If not, please set out your reasons and any suggested alternative.**

Q4. **For the purposes of portfolio measurement, in further assessing the proposal for the definition of financed emissions incorporating derivatives, do you agree that shorts should not be included? If not, please set out the basis on which you propose that their effect on current emissions should be evaluated.**

Q5. **For the purposes of portfolio alignment, do you agree with the proposed approach for establishing metrics to incorporate derivatives? If not, please set out your alternative suggestions.**

Q6. **For the purposes of portfolio alignment, do you agree specifically that shorts may be counted towards an investor's engagement target? If not, please set out your reasoning.**

Q7. **Do you agree that the proposed de minimis steps for all investors are appropriate for the incorporation of derivatives into a net zero strategy? If not, please set out what changes you suggest and why.**

Q8. **Do you agree that the proposed principles are helpful in integrating derivatives and hedge funds into the Net Zero Investment Framework? If not, please set out what changes you suggest and why.**

Q9. **In addition to the specific proposals for portfolio measurement, asset alignment and portfolio management, do you agree that making an explicit commitment not to engage in greenwashing in investment activities could help further a net zero ambition? If not, please set out why along with any alternative proposals.**

Q10. **Do you agree that the proposed approach in this discussion document is applicable to derivatives in asset classes that are not covered? If not, please set out problem/special cases that demand alternative treatment.**

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