

Carbon offset emission derivatives market

February 2021

Introduction

- This paper provides a background on the carbon offset emission derivatives market and covers the approaches which clients can consider to reduce exposure to climate change risks associated with higher carbon prices and mitigate against transition risks.
- An investment portfolio will be impacted by climate change in a range of different ways, containing various levels of carbon intensity which will arise from investments in different companies and asset classes.
- Frontier's Alternatives and Derivatives Research Team has explored the idea of using carbon offset emission derivative products as an effective and practical way to hedge climate change risks within a client's portfolio.
- Carbon offset emission derivatives, such as European Carbon Emission Allowances (EUAs), can be used as a top-down approach to reduce exposure to higher carbon prices as the global economy continues to decarbonize.
- Bottom-up strategies such as evaluating companies based on specific ESG criteria will be more effective for sector and company exposures.
- Therefore the use of carbon offset emission derivatives in conjunction with forward looking bottom-up strategies can provide an effective and practical total portfolio approach to reduce exposure to climate change risks.
- Whilst the carbon offset emission derivative market is still early in its development, there are various strategies clients could consider using within their portfolio which are discussed in this paper.

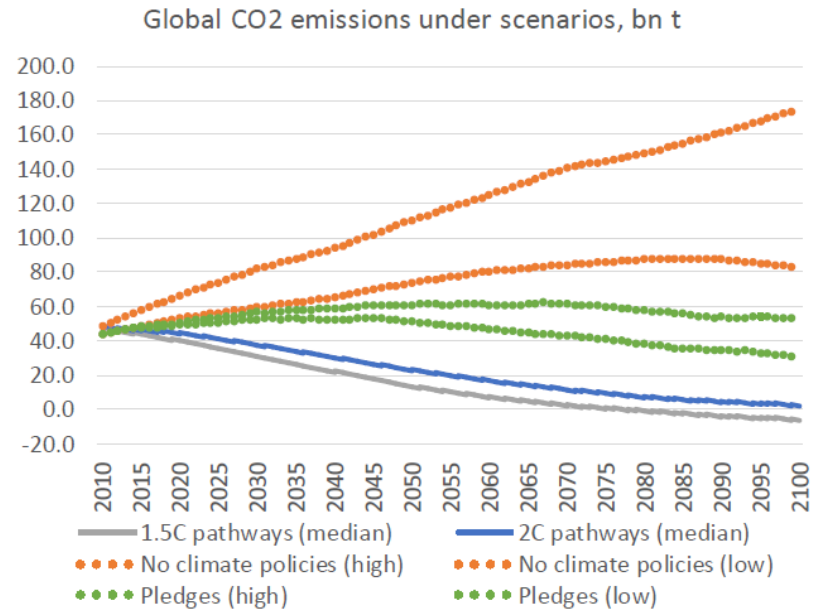
Climate aligned portfolios

- Given the systemic nature of climate change, the long-term investment risks and opportunities associated with the ongoing transition to a low carbon global economy are considered material by Frontier.
- This view is reflected in Frontier's Responsible Investment Beliefs which state that "climate change is a high priority ESG issue facing long-term investors and the effective management of risks and capture of opportunities arising from it will reinforce the sustainability of investment performance".
- Most Australian institutional investors share Frontier's high-level investment view on the materiality of climate change based on our observations. As such, these investors already are, or soon will be, seeking to manage their exposure to climate change risks including current and potential future carbon pricing and taxation regimes.

Investors target different objectives driving this focus on climate, the most common being to:

- mitigate the investment risks associated with these exposures.
- achieve superior long-term returns as carbon risks are further priced in by markets.
- better align portfolios with initiatives such as the UN Paris Agreement or Sustainable Development Goals.
- satisfy stakeholder demand for lower carbon portfolios.

Paris Agreement target of <2C requires strong climate change policies



Source: IPCC, UN, Antipodes

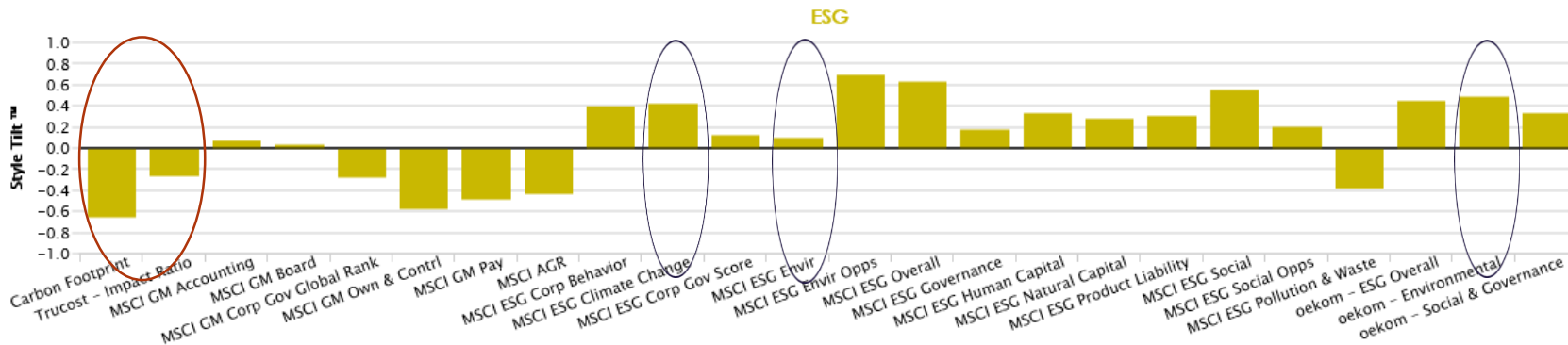
Climate aligned portfolios

- Frontier views climate change as a high priority responsible investment issue facing long-term investors and that the effective management of risks and capture of opportunities arising from it will reinforce the sustainability of investment performance.
- We therefore think investors should methodically consider material climate-related factors when developing investment strategy and implementing portfolios.
- Due to the structure of the Australian equity market, the exposure to carbon (when measured per unit of revenue/profit/market capitalisation/etc) is significantly greater than global equities.
- Sectors such as energy, mining and utilities are higher carbon emitters due to owning or controlling direct sources of the carbon emission and therefore will have higher exposure to climate change risks.
- However, all companies will have varying exposure to climate change risks due to using products as inputs or outputs in their supply chain that rely on fossil fuel without directly emitting them, e.g. emissions from purchased electricity.
- Transition risks will decrease the attractiveness of carbon-intensive assets and the value of fossil fuel reserves, while these may increase the attractiveness of low carbon intensity assets.
- Climate change risks have multiple drivers that relate to technological change, resource and physical impacts, and policy actions.

Style analytics and climate factors

- Tools such as Style Analytics can be used to measure the extent to which a manager or multi-manager portfolio has exposure to various climate factors, including carbon footprint.
- In addition to carbon footprint sourced from Trucost, there are other climate factors based on measurements by Trucost, MSCI and oekom.
 - Climate aligned portfolio approaches can be targeted at improving these metrics.

STYLE SKYLINE™

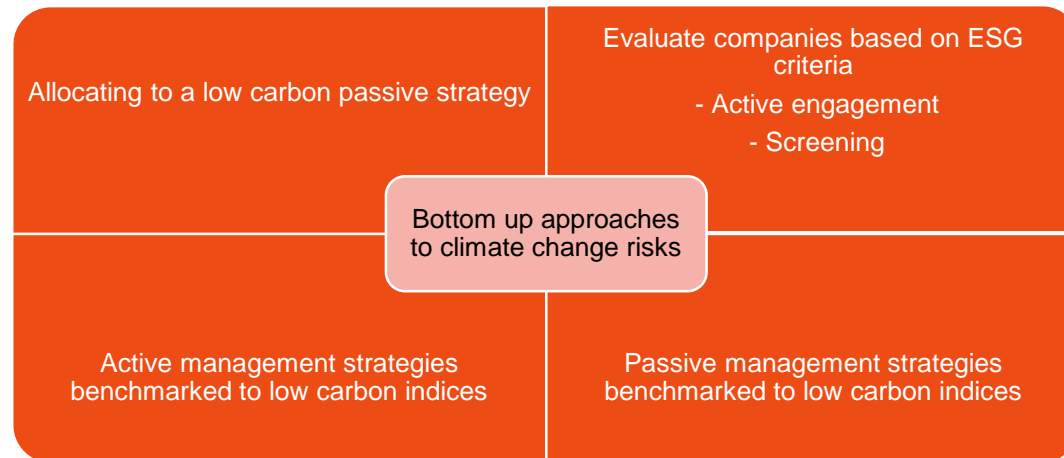


Source: Style Analytics, Manager specific data

Style Analytics definitions in the Appendix

Climate aligned portfolios

- Pricing carbon risk needs to consider policy, technology, physical impacts, consumer action and liability across different scenarios, geographies and time frames, combined with uncertainty on the target/objective and pathway involved.
- There are several ways that clients can reduce the carbon intensity of their equities portfolio using bottom-up techniques, including allocating to a low carbon passive strategy and incorporating ESG criteria when evaluating companies.
- Frontier's Equity Research Team have discussed various methods to reduce the carbon footprint of an investor's portfolio via both active management and passive strategies benchmarked to low carbon indices in the recent Australian Equity Configuration Review.



Carbon emission market



Introduction to carbon emission market

There are two carbon emissions markets where counterparties can buy and sell carbon emission offset certificates.

- **Compliance market**

- Compliance demand is where companies or other entities must offset carbon emission in order to comply with caps on the total amount of carbon dioxide they are legally allowed to emit.
- Carbon emission offset certificates are credits that allows the holder to right to emit carbon.
- The credits are regulatory allowances for carbon emissions that can be bought and sold by companies.
- The credits are issued by the regulatory body operating the carbon emission trading scheme.

- **Voluntary market**

- The voluntary market is where individuals and companies purchase offsets to compensate for their own carbon emissions, without being legally obliged to do so.

- More countries including China, United States, Mexico and Brazil are starting to develop their own emissions trading schemes, which makes the carbon market become one of the most promising markets for investors.

- **Benefits of carbon emissions markets**

- An effective way to put a price on emissions and incentivise behavioural change.
- Emission schemes set an overall target level for emissions for participating companies.
- Enables investors the ability to offset carbon footprint within a portfolio by including an allocation to emission certificates.

How the carbon emission offset market works

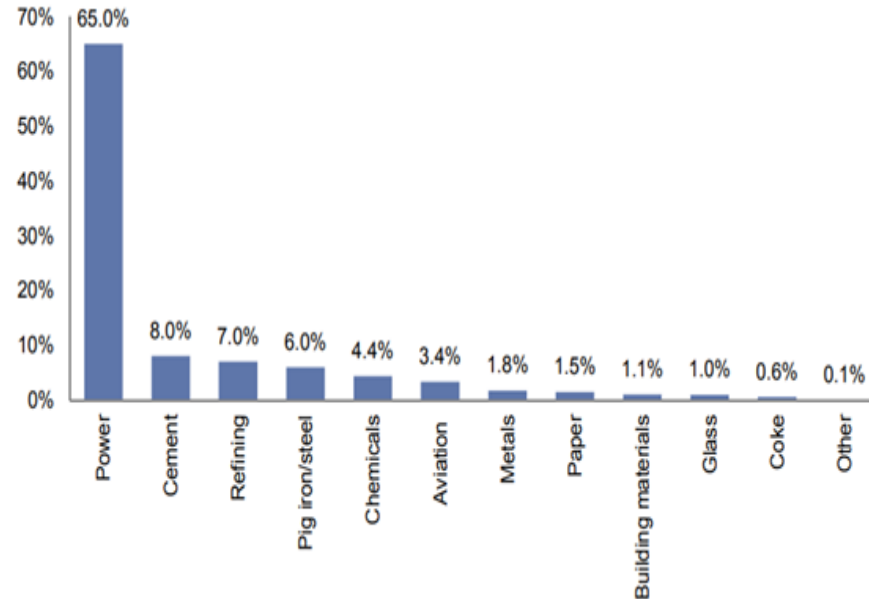
- Carbon emission offset certificate allows the holder the right to emit carbon.
- Under a cap and trade scheme, each installation within the scheme will be allocated a number of certificates each year. (generally 1 certificate being the offset to 1 tonne of carbon produced).
- In most schemes, the authorities running it reduce the amount of allocation each year to bring about change.
- At the end of each year, installations have to surrender to the relevant authority a number of certificates equal to the amount of carbon they emitted over the year.
- If they emitted more than their original allocation, they have to buy extra certificates from the market. If they have a surplus, they can sell them to the market.
- Key compliance carbon emission markets are;
 - Europe Emissions Trading System (EU-ETS)
 - California Carbon Allowance (CCAs)
 - South Korea, Korea Emissions Trading Scheme (KETS)
 - Pilot schemes in China

The European emission trading scheme – EU ETS

What is the EU ETS?

- The European Emissions Trading System (EU ETS) is a cap and trade system, at the cornerstone of Europe's climate policy and the key instrument to cost-effectively reduce greenhouse gas emissions from energy and industrial facilities as well as from intra-European aviation.
- The EU ETS covers more than 45 percent of total greenhouse gas emissions in the European Union (EU), see chart for breakdown by industrial sector.
- It is the world's first and largest carbon market, setup in 2005.
- The EU ETS operates in all EU countries.
- Trading brings flexibility that ensures emissions are cut where it costs least to do so.
- A cap is set on the total amount of certain greenhouse gases that can be emitted by installations covered by the system. The cap is reduced over time so that total emissions fall.

EU ETS Breakdown by sector



Source: Goldman Sachs

EU allowance - EUA

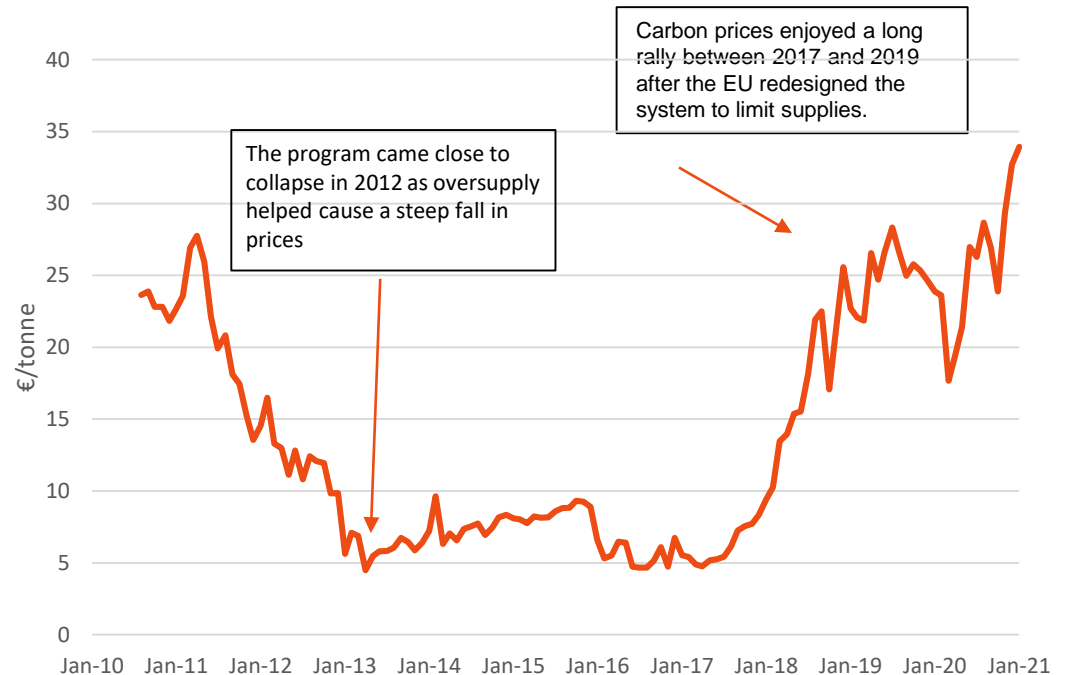
What is an EUA?

- EU Allowance (EUA) is the official title of the carbon credits or pollution permits traded in the EU Emissions Trading Scheme (ETS), launched in 2005.
- Each EUA represents one ton of CO₂ that the holder is allowed to emit. EUAs are freely allocated or auctioned to members of the EU ETS and can then be sold or purchased through the carbon market.
- An EUA is a tradable security that dictates how much it costs power stations and industry in Europe to emit a tonne of carbon dioxide.

How do EUAs trade?

- EU ETS participants must surrender one EUA for each ton of EUA that is emitted.
- EUAs can be traded as a listed derivative contract on the ICE Futures Europe.
- Main participants are structural buyers (power utilities and aviation companies) and sellers who have excess allowances.
- Financial investors are emerging as new participations taking a speculative stance on future EUA price developments.

Cost to emit carbon measured by EUA carbon future

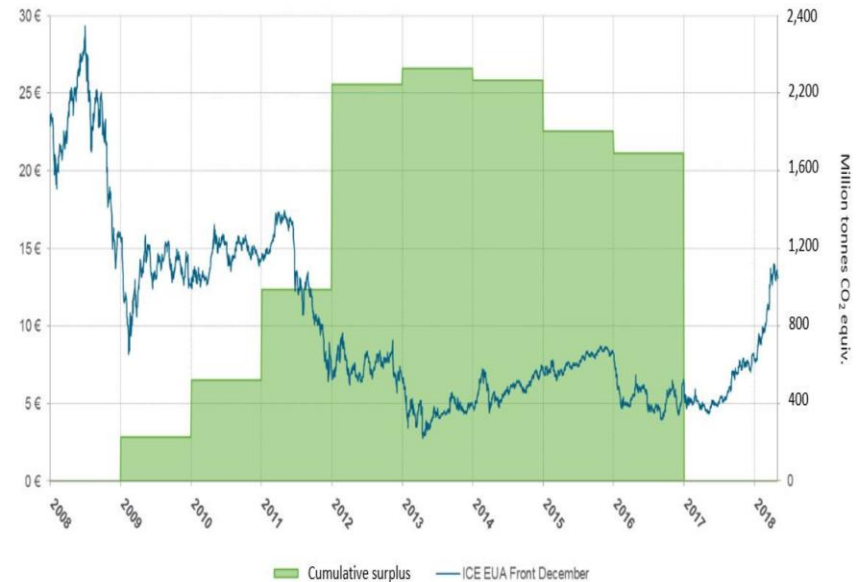


Source: Bloomberg, Frontier

Supply and impact on price

- EU ETS has a supply cap which reduces the overall number of carbon allowances in circulation every year.
- The supply of carbon allowances is determined by the European Commission.
- The cap was set to achieve a 21 percent greenhouse gas reduction from the ETS sectors across the EU by 2020 and a 43 percent reduction by 2030 (both compared to 2005).
- As highlighted in this chart, increased supply and high surplus of carbon allowances can lead to falling EUA prices.
- In 2018, the EU introduced a Market Stability Reserve (MSR) mechanism in a bid to reduce the size of this surplus by removing roughly a quarter of the excess each year until 2023 – this has been a main contributor to the EUA price recovery.

EUA price and carbon allowance surplus

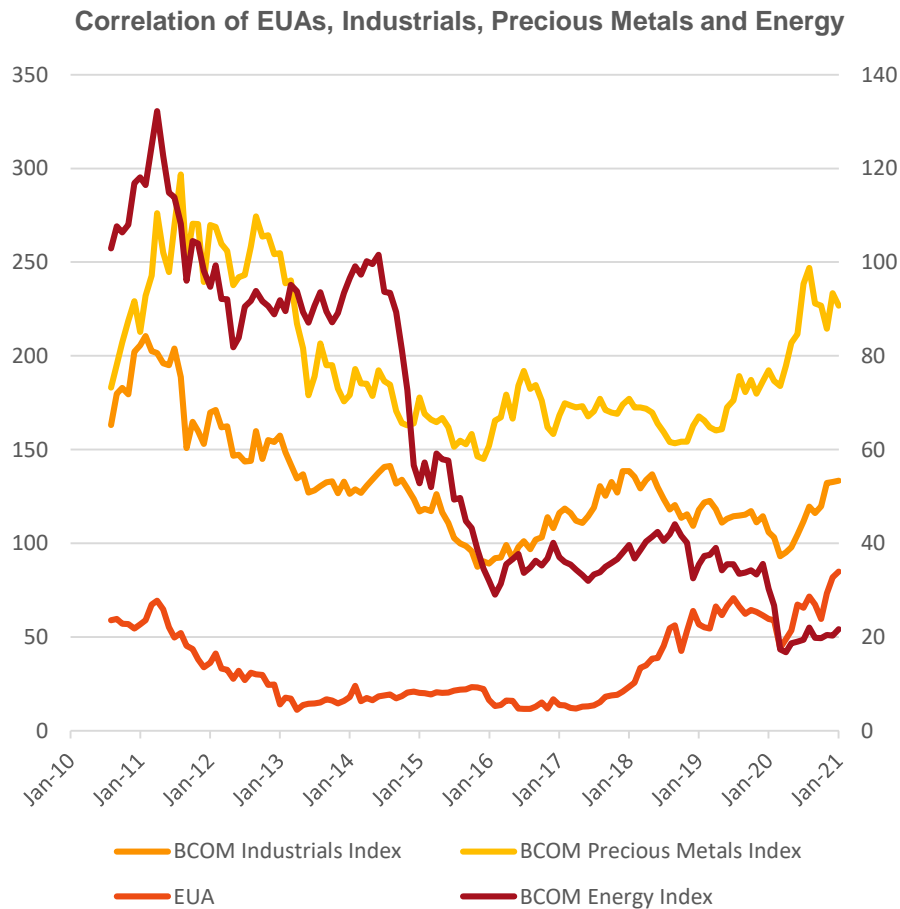


Source: Federal Environment Agency (UBA), DEHSt, based on data from Thomson Reuters Eikon, ICE, EU KOM

Challenges/limitations of carbon offset products

- The fragmented nature of the carbon offset emission market presents a major challenge to the effectiveness of carbon derivatives providing investors with a practical hedging solution to climate change risks.
- Each carbon trading scheme is subject to regulatory changes in that region, e.g. EU EUAs will only be subject to regulatory changes in the EU and therefore will only reduce exposure to carbon prices in the EU ETS.
- This can create cross market basis risk within the portfolio, for example, any changes to regulation from the Australian Government on climate change that will impact the price to emit carbon will not be reflected by EU EUAs – this impact will only be reflected in the Australian domestic carbon offset market.
- Single stock or sector risks from climate change will not be reflected in carbon offset emission derivatives, therefore, to mitigate single stock risks from climate change Frontier's preferred hedging approach is to use the bottom-up method of exclusions, screening and active engagement.
- Carbon offset emission derivatives, such as EU EUAs, may be more applicable to be used in conjunction with bottom-up carbon reduction strategies for single stocks risks to provide an effective and practical hedging solution to climate change risks within an investor's portfolio.

Portfolio considerations

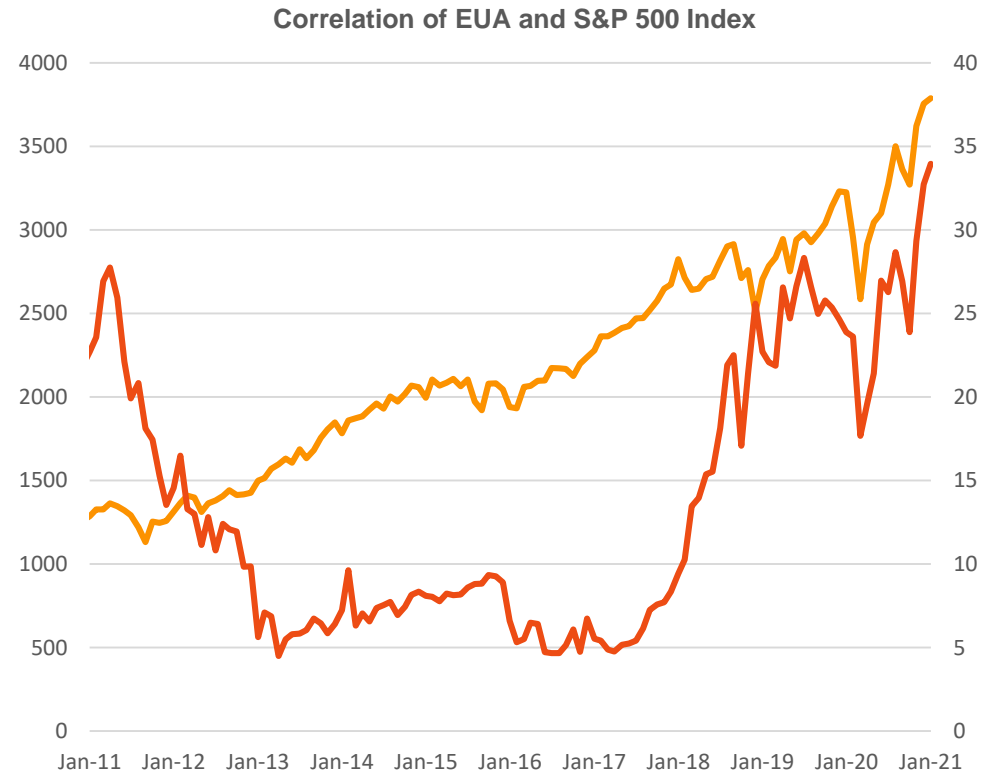


Source: Bloomberg, Frontier

- This chart shows the industries which are the biggest emitters of carbon (Industrials, Metals and Energy) and the correlation to the price of carbon allowances (such as EUAs).
- The price of carbon allowances has a positive correlation with certain commodity markets, in particular oil prices, as both commodities are subject to the influence of energy demand.
- However, since 2018 after the EU redesigned the ETS system to limit supplies, the correlation between carbon prices and energy prices have started to diverge slightly although the relationship is still strong.
- The independence of carbon allowance products from other traditional assets provides investors with an opportunity to diversify with carbon assets in a similar way to using other commodities as alternative investments.

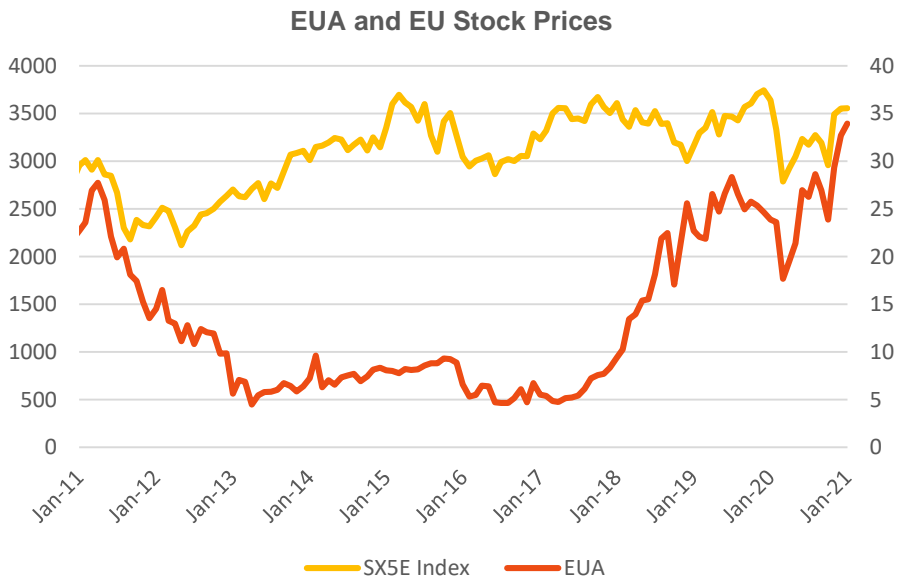
Portfolio considerations

- Given the strong connections between carbon markets and oil markets, as well as that between oil markets and stock markets, the markets of carbon credits and stocks are also closely connected.
- The volatility of carbon allowances is higher than traditional asset classes due to reduced liquidity in carbon markets.
- Inclusion of carbon allowances such as EUAs may increase the volatility of an investor's portfolio, especially during periods of severe market stress which may increase draw down risks (e.g. March 2020).
- When equity markets sold off aggressively in Q1 2020 due to the spread of COVID-19 around the world, EUAs also sold off sharply as governments responded by closing borders around the world reducing air traffic and energy demand.

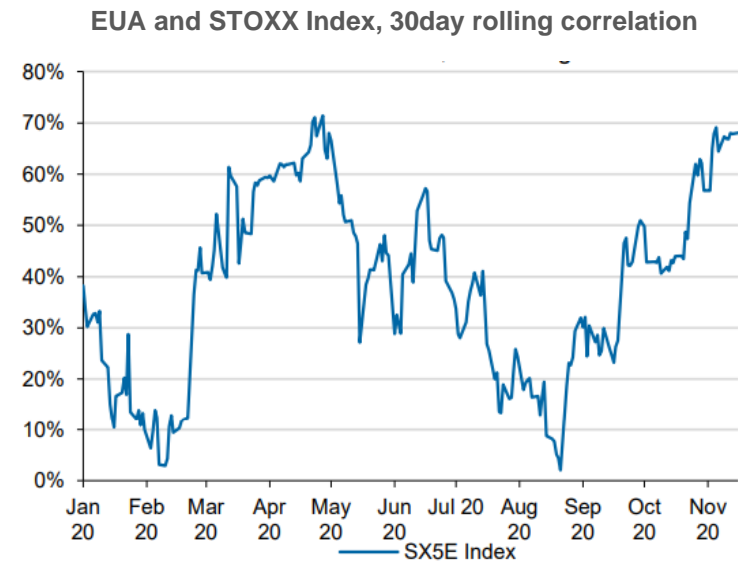


Source: Bloomberg, Frontier

Portfolio considerations



Source: Bloomberg, Frontier



Source: Macquarie Bank

- As can be seen in the chart above, since the start of the COVID-19 recovery, EUA 30 day rolling correlation with European equities has increased and is currently high at 70%.
- Investors need to consider the correlation between carbon allowances, energy prices and equity markets when constructing their portfolios.
- In the long term though, with credits intended to be constrained and economies aiming at decarbonising, EUAs are likely to provide high/positive returns.

Potential scenario impact

Positive impacts on carbon allowance products



- Regulatory changes towards stronger carbon emission targets (e.g. EU Green deal) and potential introduction of carbon taxes creates more demand for carbon emission allowances, with higher levels partly determined by how quickly lawmakers implement reforms.
- Rising hopes for *green* stimulus measures by governments across the world.
- Tightening emissions regulation may provide a positive catalyst for the performance of the global carbon allowance market.
- Sustained increase of energy prices and the inelastic demand for energy will induce demand for carbon emission allowance and hence a higher carbon price.
- Companies with high energy usage and therefore higher input costs from rising carbon price, will need to purchase carbon emission allowances.
- Shareholder demand for companies to have more active management of their carbon footprint could look to use carbon offset allowances.
- Increased market participation by institutional investors.

Potential scenario impact

Negative impacts on carbon allowance products



- Oversupply of carbon emission credits, similar to price action in 2012, although emission trading schemes have now incorporated supply limits.
- Continued border closures globally in response to COVID-19, as well as future lockdowns in responses to global viruses reducing air traffic and carbon emission.
- Slower economic activity lead by global growth risks may increase the supply of carbon allowance products.
- Structural shift in aviation industry towards less travelling needs, due to digitisation of business meetings (e.g. videoconferences) - reducing air traffic and the demand for carbon emission allowances.
- Lack of international consensus on which policy instrument is best suited to the climate challenge.
- Prices would be expected to fall if big industry players, such as utility companies, began selling their credits — as happened in the global financial crisis.

Political implications

US elections

- The recent US election result and transition of power to President Biden will have a significant bearing on US climate and energy policy, as well as the chances of international warming targets being met.
- Former President Trump withdrew from the Paris Agreement and showed skepticism at climate change and supported the fossil fuel industry.
- President Biden has already rejoined the Paris Agreement and will begin a *clean energy revolution* in the US to achieve net-zero emissions by 2050.
- President Biden has proposed a US\$1.9 trillion climate stimulus plan to increase the use of clean energy throughout the US economy, including the use of electric vehicle tax credits and other incentives.
- President Biden has also proposed that the US adopt climate change tariffs on nations who do not reduce their emissions.
- Under President Biden, the outlook for climate change action is a lot and could lead to more harmonisation/less fragmentation between major markets.



Source: Energy Institute

Brexit

- The UK is currently the second-largest emitter in Europe, and British companies are among the largest buyers of EUAs.
- Under the terms of the Withdrawal Agreement, the UK will remain in the EU ETS during the transition period (until early 2021).
- Potential scenarios for the EU ETS post-Brexit include the UK setting its own carbon price; the UK starting an independent ETS - which could be linked to the EU ETS.
- This situation has brought uncertainty to the EU ETS and is expected to continue to do so until the situation is settled.



Top down strategies for hedging carbon price risk

Strategy	Rationale for strategy	Carbon price risk	Advantages	Limitations
A. Buy EUAs or a blend of compliance market carbon offset credits (e.g. EU, California and South Korea)	Top down approach to reduce risk from higher carbon prices	Reduces risk from higher carbon prices across EU, California and South Korea	Most liquid derivative products, exchange traded	Exposure limited to EU, California and South Korea
B. Buy a derivative structured product based on the return of EU EUAs	Top down approach to reduce risk from higher carbon prices, also reduces the need to buy EU EUA futures	Reduces exposure to risks of a higher carbon price in the EU	One product required, instead of multiple futures contracts – less management required (e.g. no need to roll any futures)	Very specific to the EU region and regulation regarding carbon emissions
C. Buy a blend of voluntary carbon offset credits	Hedge specific country risk within an investor's portfolio	Reduces exposure to higher carbon prices in specific countries	Target specific countries	OTC market, liquidity may be an issue, valuation methodology discrepancies

- The table shows various approaches that investors may consider reducing exposure to climate change risks associated with higher carbon prices and to mitigate against transition risks.
- An investor's portfolio will be impacted by climate change in a range of different ways, containing various levels of carbon intensity which will arise from investments in different companies and asset classes.
- For example, rising carbon prices may increase input costs for certain companies or real assets and therefore these strategies may provide an effective hedge against rising carbon price risks and transition risks.

Bottom up strategies for reducing carbon intensity

Strategy	Rationale for strategy	Carbon price risk	Advantages	Limitations
D. Bespoke ESG index overlay solution – completion swaps	Overlay an existing equity portfolio with a completion swap to reduce risks associated with higher carbon prices	Reduces exposure to single stocks or sectors within a portfolio	Aim to increase or decrease/cancel the exposure to certain shares in accordance with investor's ESG criteria	Hedging exposure limited to certain companies, need a derivative manager to execute
E. Tailoring with a passive equity manager	Bottom up approach to reduce risks associated with higher carbon prices	Reduces exposure to sectors or companies within a portfolio	Hedge specific company risks	Hedging exposure limited to certain companies

- The table shows various bottom-up strategies investors could use to reduce exposure to climate change risks associated with higher carbon prices and to mitigate against transition risks.
- These strategies focus on evaluating companies based on specific ESG criteria that will be more effective for sector and company risks.

A. Buy a blend of compliance carbon offset products

Benefits from carbon offset products

- Can provide climate change protection to a portfolio via benefiting from the rise in price to emit carbon.
- EU ETS has proven that putting a price on carbon and trading in it can work. Emissions from installations in the system are falling as intended.
- A robust carbon price also promotes investment in clean, low-carbon technologies.
- Offset projects (funded by carbon offsets) can also work with lower-income communities to help reduce poverty and improve standards of living – so added benefit, not just carbon price protection.
- Continue to raise broad awareness of the issue of climate change.
- Investors who are increasingly focused on tangible carbon-reduction actions.
- Demand for active engagement from charity boards, pension trustees.

Limitations of carbon offset products

- Carbon offset market is fragmented.
- Not seen as having enough impact on reducing the root cause of emissions.
- May cause more overall emissions as companies purchase carbon offsets which gives them the licence to emit more carbon.
- Seen as outsourcing the reduction of carbon to somebody else – relies on the actions of others.
- Speculators are market participants which may cause the price to move away from fundamentals.
- Enables profiting from climate change without having any direct impact/outcome.
- EU EUAs will only provide protection from changes in the price to emit carbon within the EU.
- Subject to other market movements, speculative positioning may add to volatility not related to climate change.

B. Buy derivative structured investable emissions index

Investable emissions index

- Bespoke Index designed to provide investors with a reliable and publicly available investment performance benchmark for the European Carbon Emission Allowances – EUAs.
- The index rolls from the current ICE EUA December future contract to the next year's December futures contract.

Investors can use the strategy to:

- Express specific views on the price of carbon.
- Hedge or offset more carbon-heavy investments in their portfolio.
- Combine carbon emissions with other assets to lower their carbon footprint.
- Reduces the need to participate directly in the futures market.
- One product required instead of multiple futures contracts, less management required e.g. no futures roll risk.

Historical Index Level - MQSDMOUE



Performance Summary - MQSDMOUE (gross of costs)

	Full Sample	Post crisis	5y	1y
Annual Return(*)	-3.6%	-0.4%	17.6%	-21.0%
Annual Volatility	49.2%	49.9%	45.3%	43.3%
Sharpe Ratio	-0.07	-0.01	0.39	-0.49
Sortino Ratio	-0.10	-0.01	0.54	-0.64
Monthly Skewness	-0.11	-0.14	-0.27	-0.16
Max Drawdown	-96.3%	-92.8%	-60.3%	-51.8%
Worst Month	-29.2%	-29.2%	-28.9%	-19.2%
Avg. of Positive Months	7.6%	7.7%	8.1%	8.4%
Avg. of Negative Months	-7.7%	-7.4%	-6.5%	-4.4%

Source: Macquarie Bank

C. Voluntary markets - carbon offset credits

- The voluntary market is an over-the-counter market with no exchange or centralised platform.
- Liquidity is smaller than the compliance market with demand and supply limited to a few participants e.g. Australian market is supported by the government as the main buyer.
- Similarly to compliance markets, funds raised are used by government bodies to fund renewable energy projects.
- The Australian carbon market relates to the production and buying and selling of Australian carbon credit units (ACCUs).
- Carbon credits are a financial product that are regulated and issued by the Australian Government to project developers.
- **There are several limitations of the voluntary market such as:**
 - Country specific, therefore limited exposure – fragmented.
 - Each country carbon credit offset has a low price correlation with each other, stemming from different regulatory structure and market participants.
 - Different regulations in each country towards carbon offset emissions creates more fragmentation.
 - Different methodologies for valuing the carbon credit, therefore there is a risk that governments do not 'value' the carbon credits.
- Due to the limitations and fragmented setup of the various voluntary markets, Frontier believes investors should focus on using the compliance market for exposure to carbon emission allowance products, in particular the European Emission Trading Scheme (EU ETS).

D. Completion swaps

Completion swaps

- Completion swaps provide long and/or short exposure to custom basket of shares.
- Overlaying an existing equity portfolio, completion swaps aim to increase or decrease/cancel the exposure to certain shares in accordance with investor's ESG criteria.
- In addition to ESG considerations, several other factors may be considered to determine the composition of the basket of shares, such as tracking error of the overall portfolio vs a benchmark, costs, or exposure to certain countries, sectors or factors.



Source: HSBC

E. Passive strategy via an equity manager

- A simple way to reduce the carbon footprint of the portfolio is allocate the client's passive exposure (to the extent the client has exposure) to a low carbon strategy.
 - This can be achieved via tailoring with a passive manager, although this approach is often basic and can result in changes to the attributes of the underlying index (i.e. there will be underweights to Energy, Utilities and potentially Materials). While not expected to create a large tracking error, any returns versus the Index will essentially depend on how these sectors perform. Pleasingly, groups like S&P and MSCI have devised carbon indices that improve on this approach, so passive managers can instead track these indices. These Australian equities low carbon indices are still being refined by the index providers so we expect them to improve over time.
 - Perhaps the biggest drawback is that investors are accustomed to very low fees for a pure index exposure and the variations (whether tracking a carbon aligned index or a tailored investment approach) tend to result in higher fees.
- Given passive management is only a small component of the configuration, Frontier believes it is also important to think about active management and where active portfolios can be more aligned to decarbonisation risks/opportunities.
 - We believe there should be engagement with active managers around their climate alignment and this should start with carbon reporting.
 - There is scope to discuss strategies for carbon reduction with active managers.
 - There may also be possibilities to allocate portfolio weights with climate alignment in mind.

Summary

- This paper provides a background on the carbon offset emission derivatives market and covers the approaches which clients can consider to reduce exposure to climate change risks associated with higher carbon prices and mitigate against transition risks.
- An investment portfolio will be impacted by climate change in a range of different ways, containing various levels of carbon intensity which will arise from investments in different companies and asset classes.
- Climate change risks have multiple drivers that relate to technological change, resource and physical impacts, and policy actions.
- Carbon offset emission derivatives, such as EU EUAs, can be used as a top-down approach to reduce exposure to higher carbon prices as the global economy continues to decarbonise.
- Bottom-up strategies such as evaluating companies based on specific ESG criteria will be more effective for sector and company exposures.
- Therefore the use of carbon offset emission derivatives in conjunction with forward looking bottom-up strategies can provide an effective and practical total portfolio approach to reduce exposure to climate change risks.
- When determining which approach is most suitable, Frontier emphasises the importance of investors having a clear idea of both what objectives they are seeking to achieve and the constraints under which they are investing.
- ***Frontier can assist clients with the transition of their portfolios to mitigate against long term risks associated with climate change including current and potential future carbon pricing risks.***

Appendix



Style analytics definitions – carbon factors

- Carbon footprint: The Carbon Footprint, calculated and supplied by Trucost Plc, is compiled from reported and modelled data assessing the direct and first-tier supply chain greenhouse gas (GHG) emissions of over 4,500 companies world-wide. The calculations include the six GHGs covered by the Kyoto Protocol on climate change (CO₂, CH₄, N₂O, HFCs, PFCs and SF₆) and are converted into tonnes of carbon dioxide equivalents (CO₂e) on the basis of their global warming potentials (using a GWP index calculated by the intergovernmental panel on climate change). Each company's carbon footprint, or carbon intensity, is calculated as its CO₂e divided by its turnover.
- Impact ratio: The total environmental external costs of business activities (direct from operations and indirect from supply chains) divided by company revenue. This figure indicates how a company may be financially exposed to environmental costs under policy measures that implement the "polluter pays" principle. Impact ratios provide a useful metric to compare the overall environmental performance of companies, regardless of their sizes, sectors or geographies.
- Low carbon footprint: The Carbon Footprint, calculated and supplied by Trucost Plc, is compiled from reported and modelled data assessing the direct and first-tier supply chain greenhouse gas (GHG) emissions of over 4,500 companies world-wide. The calculations include the six GHGs covered by the Kyoto Protocol on climate change (CO₂, CH₄, N₂O, HFCs, PFCs and SF₆) and are converted into tonnes of carbon dioxide equivalents (CO₂e) on the basis of their global warming potentials (using a GWP index calculated by the Intergovernmental Panel on Climate Change). Each company's Carbon Footprint, or carbon intensity, is calculated as the negative of its CO₂e divided by its turnover.
- Low impact ratio: The total environmental external costs of business activities (direct from operations and indirect from supply chains) divided by company revenue. This figure indicates how a company may be financially exposed to environmental costs under policy measures that implement the *polluter pays* principle. Impact ratios provide a useful metric to compare the overall environmental performance of companies, regardless of their sizes, sectors or geographies. It is the negative of the Impact Ratio data.
- Carbon intensity: Carbon intensity of a company. Total Emissions/Revenue (Mil USD). In metric tonne Co₂e per Mil USD Revenue.
- Low carbon intensity: Carbon intensity of a company. Total Emissions / Revenue (Mil USD) . In metric tonneCo₂e per Mil USD Revenue. The final factor is the negative of the carbon intensity value.
- Carbon risk score: the degree to which company value is at risk driven by the transition to a low-carbon economy. It is the company's unmanaged risk score.
- Low carbon risk score: the degree to which company value is at risk driven by the transition to a low-carbon economy. It is the company's unmanaged risk score. The final factor is the negative of the risk score.



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