360° of Climate – Indices for Every Objective

Contributor

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SUMMARY

- There is a pressing need for the world to reduce its greenhouse gas emissions to decrease the risks and impacts of climate change. Responsible action is required by all stakeholders, including investors.
- S&P DJI is at the forefront of innovative climate index design, leveraging the strength of climate datasets created by Trucost, part of S&P Global.
- S&P DJI's climate change index offerings cater to a broad range of investor climate objectives, from divestment, decarbonization, and de-risking to holistic, science-based 1.5°C alignment.

WHY CREATE CLIMATE CHANGE INDICES?

The Scientific Facts

The Intergovernmental Panel on Climate Change (IPCC) has stated that "Human activities are estimated to have caused approximately 1.0°C of global warming above pre-industrial levels."[1] While current global climate policies aim to reduce baseline emissions, temperatures are still projected to rise by 3.0°C by 2100.[2] The IPCC suggests limiting global temperature rise to 1.5°C from pre-industrial levels.

Impacts on natural and human systems from global warming have already been observed. Some impacts may be long lasting or irreversible, such as the loss of ecosystems.

Regulation

The scientific consensus that human activities are increasing global temperatures has led governments and regulators to take action—a significant step to tackle climate change was achieved in December 2015, with the Paris Agreement. The Paris Agreement sets out a global

[1] IPCC, 2018: Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press. https://www.ipcc.ch/sr15/chapter/spm/

[2] https://climateactiontracker.org/global/temperatures/

framework to avoid dangerous climate change by limiting global warming to well below 2°C and pursuing efforts to limit it to 1.5°C, as recommended by the IPCC.[3] The Paris Agreement has been ratified by 189 parties to the convention (out of 197[4]), who have committed to specific Nationally Determined Contributions (individual country contributions to achieve the global emissions reduction target).

The Paris Agreement sets out a global framework to avoid dangerous climate change.

The European Union (EU) has committed to a 40% reduction in EU-wide greenhouse gas (GHG) emissions by 2030 compared with 1990. To support the EU's commitment under the Paris Agreement, it has adopted the European Green Deal[5]—a key component of which is the sustainable finance work stream and the Action Plan on Sustainable Finance Growth,[6] an ambitious project to channel "private investment to the transition to a climate-neutral economy." The EU's remit is wide and the regulations concerning voluntary climate benchmark labels will be of particular interest to passive investors. Please see the later section on (EU) Paris-Aligned benchmarks and Climate Transition indices.

It aims to limit global warming to well below 2°C and pursues efforts to limit it to 1.5°C.

Investor Demand

Two of the main factors for investors considering climate risks and opportunities in their portfolios are regulatory pressures and the scientific conclusions about climate change. The Principles for Responsible Investment (PRI) rank climate change as the highest-priority ESG issue facing investors.[7] Climate-related risks that investors face include exposure to:

- Transitional risks of climate change (e.g., stranded assets, rising carbon prices, etc.); and
- Physical risks of climate change (e.g., sea level rise, hurricanes, etc.)

Two of the main factors for investors considering climate risks and opportunities are regulatory pressures and the scientific conclusions about climate change.

Opportunities are also available for investors to finance industries and activities that lead to a lower-carbon economy.

Financial bodies are recognizing climate change as both a significant risk and an opportunity for investors and are advocating action. For example, The Financial Stability Board set up the Task Force on Climate-related

[3] https://ec.europa.eu/clima/policies/international/negotiations/paris_en

[4] https://unfccc.int/process/the-paris-agreement/status-of-ratification. The following parties have not ratified the Paris Agreement as of June 2020: Angola, Eritrea, Iran, Iraq, Libya, South Sudan, Turkey, and Yemen.

[5] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

[6] https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance_en

[7] https://www.unpri.org/climate-change. The PRI is a UN-supported international network of investors working together to implement its six aspirational principles.

Financial Disclosures (TCFD) with the objective of improving the reporting and understanding of climate-related financial risks.

In 2019, PRI announced that reporting some TCFD indicators would become mandatory in 2020 (but voluntary to publicly disclose). This affects 2,085 investors that are signatories to the PRI in 50 markets.[8] According to the PRI FAQ, signatories that report on a mandatory basis that do not submit their data by the deadline will be entered into the delisting process.[9]

S&P DJI's CLIMATE SOLUTIONS

S&P DJI launched four series of climate indices.

To meet the demand for climate-related investment solutions, S&P DJI launched four series of climate indices (see Exhibit 1). These address the different values, objectives and opinions on how to respond to the risks and opportunities of climate change.

Our index offerings address the different values, objectives and opinions on how to respond to the risks and opportunities of climate change.

Exhibit 1: An Overview of S&P DJI's Climate Indices

CATEGORY	S&P FOSSIL FUEL FREE INDICES	S&P CARBON EFFICIENT INDICES	S&P CARBON PRICE RISK 2030 ADJUSTED INDICES	S&P PACT™ INDICES
Objective	Exclude companies with embedded carbon reserves	Reduce index carbon intensities within industries	Reduce risk from companies exposed to carbon pricing	Align with a 1.5°C scenario
Carbon Data Used	Fossil fuel reserves	Carbon efficiency (carbon-to-revenue footprint)	Carbon price risk premium	Multiple datasets, including transition data and physical risk data
Methodology	Divest from any company with fossil fuel reserves	Tilt toward low-carbon-emission stocks using the S&P Global Carbon Standard	Reweight companies based on their current emissions and the potential impact of 2030 carbon prices	Optimized to meet multiple climate objectives and minimize active share
Companies Excluded?	Yes	Yes	No	Yes

Source: S&P Dow Jones Indices LLC. Table is provided for illustrative purposes.

FOSSIL FUEL FREE INDICES

Divestment

Over 1,000 institutional investors have committed to cutting fossil fuel stocks from their portfolios.[10] One of the reasons investors choose to divest is the belief that fossil fuel companies are currently overvalued. The current valuations of fossil fuel companies assume that proven and probable reserves (included as assets on the balance sheet) will be realized. In

[8] https://www.unpri.org/climate-change

[9] https://www.unpri.org/signatories/reporting-for-signatories

[10] https://www.ft.com/content/4dec2ce0-d0fc-11e9-99a4-b5ded7a7fe3f

order to achieve a 2°C scenario, 80% of all known fossil fuel reserves must remain in the ground.[11] The former Bank of England Governor Mark Carney said, "the vast majority of reserves are unburnable."[12] As global policy shifts and regulations come into force to align with a 1.5°C scenario, these reserves are likely to become stranded assets.

One of the reasons investors choose to divest is the belief that fossil fuel companies are currently overvalued.

Fossil Fuel Free Index Series

We have offered the S&P Fossil Fuel Free Indices since 2015. These indices remove companies that own fossil fuel reserves, including crude oil, natural gas, and thermal coal.

The S&P Fossil Fuel Free Indices remove companies that own fossil fuel reserves, including crude oil, natural gas, and thermal coal.

As can be seen in Exhibit 2, the S&P 500® Fossil Fuel Free Index boasts 0.7% excess annualized returns over the last five years compared with the S&P 500. The S&P 500 Fossil Fuel Free Index has zero fossil fuel reserve emissions exposure and a lower carbon-to-revenue footprint compared with the S&P 500.

Exhibit 2: Return and Carbon Characteristics

CHARACTERISTIC	S&P 500	S&P 500 FOSSIL FUEL FREE INDEX
Constituents	505	487
Five-Year Annualized Returns (%)	10.73	11.43
Fossil Fuel Reserve Emissions*	688.42	0
Carbon-to-Revenue Footprint**	214.88	189.29

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2020. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information on the inherent limitations of back-tested performance. *Metric tons of CO2e per USD 1 million invested. **Metric tons of CO2e per USD 1 million of revenue.

The S&P 500 Fossil Fuel Free Index has zero fossil fuel reserve emissions exposure and a lower carbon-to-revenue footprint compared with the S&P 500.

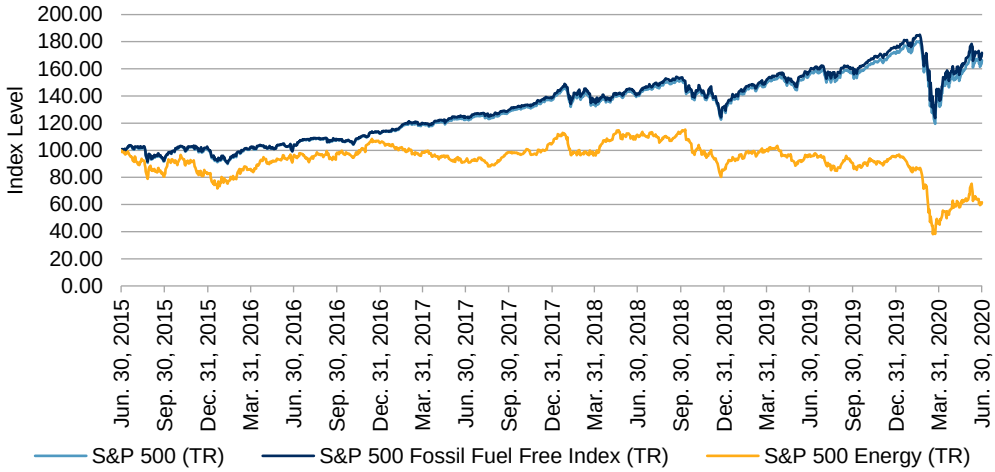
This outperformance can be attributed to the lower exposure the index has to the energy sector. The comparatively low performance of the S&P 500 Energy is illustrated in Exhibit 3.

This outperformance can be attributed to the lower exposure the index has to the energy sector.

[11] Carbon Tracker, 2013.

[12] https://www.ft.com/content/622de3da-66e6-11e5-97d0-1456a776a4f5

Exhibit 3: Historical Total Returns



Source: S&P Dow Jones Indices LLC. Data as of June 30, 2020. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information on the inherent limitations of back-tested performance. Index Levels were rebased to 100 on June 30, 2015.

Some investors seek a lower carbon footprint and choose not to divest from fossil fuel companies.

CARBON EFFICIENT INDICES

Universal Ownership, Decarbonization, and Engagement

Some investors seek a lower carbon footprint and choose not to divest from fossil fuel companies. There are many reasons for this. Large asset owners can be universal owners. They have diversified and long-term portfolios that are representative of global capital markets and divestment may not be an option. Furthermore, some investors believe it is a more effective strategy to stay invested and engage with companies to encourage change in business practices, as in the following case study.

Client Case Study – Government Pension Investment Fund (GPIF)

Some investors believe it is a more effective strategy to stay invested and engage with companies to encourage change in business practices.

In 2017, S&P DJI won a mandate in partnership with Trucost from the GPIF of Japan. The GPIF is the largest pension fund in the world, with USD 1.4 trillion in assets, and it is a universal owner of the global equity market. The GPIF asked us to create an index that would help encourage the market to transition to a low carbon economy. In response, we created the S&P Carbon Efficient Index Series. This rules-based index approach transparently helps investee companies understand why they may or may not be weighted favorably in the index. In 2020, the GPIF increased its allocation to this index to approximately USD 15 billion.[13]

[13] https://www.top1000funds.com/asset_owner/government-pension-investment-fund-gpif/#:~:text=Assets%20Under%20Management%20(AUM)%20%241500000,pension%20fund%20in%20the%20world.

GLOBAL CARBON EFFICIENT INDEX SERIES

The objectives of this index series are to:

Our global carbon efficient indices aim to encourage better corporate performance on climate change.

- Encourage better corporate performance on climate change;
- Lower the carbon footprint relative to the benchmark index; and
- Maintain the industry exposures of the benchmark index.

Trucost Credentials

Trucost data are used throughout S&P DJI's climate indices. Trucost:

Trucost: has over 20 years of experience providing industry-leading climate, environmental, and impact data

- Has over 20 years of experience providing industry-leading climate, environmental, and impact data;
- Has global coverage of over 15,000 listed equities,
- Provides scenario analysis data covering transition and physical risks in line with TCFD recommendations;
- Undertakes annual company engagement;
- Partners with over 150 asset manager and asset owner clients; and
- Has been part of S&P Global since 2016.

Index Weighting

Three factors are used to adjust the weight of companies in this index.

Trucost takes into account not only a company's direct emissions, but also its direct suppliers' purchased energy and emissions.

1. **Company disclosure of carbon emission.** When there is no disclosure, Trucost provides modeled data. Trucost takes into account not only a company's direct emissions, but also its direct suppliers' purchased energy and emissions.
2. **Carbon efficiency relative to industry peers.** Constituents of the S&P Global LargeMidCap (approximately 3,000 stocks) are sorted into deciles based on their carbon intensity within their industries (see Exhibit 4). For example, the most carbon-efficient companies in the top decile of the energy industry were emitting 201 metric tons of CO^2 per USD 1 million of revenue. The most inefficient companies at the bottom of the table are producing almost 10 times as much, at 1,930 metric tons of CO^2 per USD 1 million of revenue.
3. **Industry impact.** Each industry is categorized as high, mid, or low impact. High-impact industries have the largest spread of emissions (see Exhibit 4). The energy sector is categorized as high.

Exhibit 4: Decile Thresholds by Industry Group

	Industry Group Factor	HIGH	HIGH	MID	HIGH	HIGH	MID	MID	MID	LOW
	GICS Industry Group	Energy	Materials	Capital Goods	Commercial & Professional Services	Transportation	Automobiles & Components	Consumer Durables & Apparel	Consumer Services	Media
Decile	1	Less than 201.2	Less than 231.95	Less than 50.38	Less than 16.31	Less than 68.57	Less than 44.28	Less than 43.4	Less than 41.05	Less than 13.95
	2	201.2-364.26	231.95-406.88	50.38-66.87	16.31-21.44	68.57-76.42	44.28-49.67	43.4-58.14	41.05-55.14	13.95-15.39
	3	364.26-510.28	406.88-507.21	66.87-79.93	21.44-22.92	76.42-101.33	49.67-59.67	58.14-68.09	55.14-78.44	15.39-16.37
	4	510.28-598.21	507.21-622.19	79.93-99.24	22.92-23.72	101.33-134.88	59.67-74.14	68.09-77.98	78.44-96.78	16.37-18.05
	5	598.21-676.75	622.19-795.77	99.24-125.37	23.72-31.88	134.88-267.96	74.14-157.83	77.98-92.44	96.78-116.09	18.05-22.26
	6	676.75-824.41	795.77-1018.63	125.37-148.8	31.88-41.02	267.96-563.66	157.83-183.26	92.44-100.46	116.09-122.61	22.26-24.99
	7	824.41-961.55	1018.63-1648.09	148.8-179.14	41.02-61.9	563.66-956.44	183.26-198.31	100.46-128.35	122.61-125.13	24.99-27.39
	8	961.55-1220.39	1648.09-2668.82	179.14-224.99	61.9-145.9	956.44-1143.91	198.31-224.06	128.35-167.75	125.13-214.87	27.39-30.21
	9	1220.39-1930.85	2668.82-4533.53	224.99-363.92	145.9-521.82	1143.91-1299.88	224.06-248.12	167.75-219.21	214.87-415.08	30.21-40.25
	10	More than 1930.85	More than 4533.53	More than 363.92	More than 521.82	More than 1299.88	More than 248.12	More than 219.21	More than 415.08	More than 40.25

Source: S&P Dow Jones Indices LLC. Data as of 2018 Data are in metric tons of CO2e per USD 1 million of revenue. Chart is provided for illustrative purposes.

High-impact industries have the largest spread of emissions. The energy sector is categorized as high.

Exhibit 5 illustrates how these three factors are used to determine company weights in the index.

1. **Company disclosure.** A company disclosing its carbon emissions will receive a 10% boost to its weight in the index.
2. **Carbon efficiency relative to industry peers.** A highly carbon-efficient company will be positioned in the first decile and receive at least a 30% boost in the index, whereas a company with poor carbon efficiency in the tenth decile will be penalized by 30%.
3. **Industry impact.** Once the previous two factors have been considered, the final weight adjustment is applied depending on the industry impact. A high-impact industry will receive a weight adjustment of x3. A low-impact industry will receive a smaller weight adjustment. The rationale is that as the overall carbon footprint of low impact industries is smaller, a large weight adjustment from the benchmark index would do little to decarbonize the index and needlessly affect tracking error.

As the overall carbon footprint of low impact industries is smaller, a large weight adjustment from the benchmark index would do little to decarbonize the index and needlessly affect tracking error.

Hence, a high-impact company that discloses its carbon emissions and is in the top decile for carbon efficiency will receive a weight increase of 120%.

Exhibit 5: Weighting Methodology

DECILE	DECILE WEIGHT ADJUSTMENTS (%)							
	GHG EMISSIONS		x3 HIGH IMPACT		x1 MID IMPACT		x0.5 LOW IMPACT	
	DISCLOSED	NON DISCLOSED	DISCLOSED	NON DISCLOSED	DISCLOSED	NON DISCLOSED	DISCLOSED	NON DISCLOSED
1st	40	30	120	90	40	30	20	15
2nd	30	20	90	60	30	20	15	10
3rd	20	10	60	30	20	10	10	5
Mid	10	0	30	0	10	0	5	0
8th	0	-10	0	-30	0	-10	0	-5
9th	-10	-20	-30	-60	-10	-20	-5	-10
10th	-20	-30	-60	-90	-20	-30	-10	-15

Source: S&P Dow Jones Indices LLC. Table is provided for illustrative purposes.

Results

The index is sector neutral and there is little difference in performance between the S&P 500 and the S&P 500 Carbon Efficient Index.

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Exhibit 6: Return and Carbon Characteristics

CHARACTERISTIC	S&P 500	S&P 500 CARBON EFFICIENT INDEX
Constituents	505	500
Five-Year Annualized Returns (%)	10.73	10.72
Carbon-to-Revenue Footprint*	214.88	155.73

S&P Dow Jones Indices LLC. Data as of June 30, 2020. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information on the inherent limitations of back-tested performance. *Metric tons of CO2e per USD 1 million of revenue.

The other objective of the index is to encourage better corporate performance.

The other objective of the index is to encourage better corporate performance. Exhibit 7 provides a sample of the information that is placed in the public domain—industry, decile ranking, and disclosure status. The company's current weight in the index is also supplied. Public disclosure of company weights in the index with reasons for any adjustments provides investors with the data they need to engage with companies and provides full transparency to the constituents.

Exhibit 7: Snapshot of Publicly Disclosed Data on Constituents of the Carbon Efficient Indices

Constituents by GICS® Industry Group / 構成銘柄(GICS®産業グループ別)

1010 - Energy / エネルギー High Impact / 高インパクト産業グループ

CONSTITUENT / 銘柄	SYMBOL / ティッカー	INDEX WEIGHT / 指数ウェイト	DECILE CLASSIFICATION / 十分位数分類	CARBON DISCLOSURE STATUS / カーボン情報の開示ステータス
INPEX Corp / 国際帝石	1605	0.32%	1	Disclosed / 開示
BP Castrol KK / ＢＰカストロール	5015	<0.005%	1	Not Disclosed / 非開示
Modec Inc / 三井海洋	6269	0.02%	1	Not Disclosed / 非開示
Sala Corp / サーラ	2734	0.01%	1	Not Disclosed / 非開示
San-Ai Oil Co / 三愛石	8097	0.01%	1	Not Disclosed / 非開示
Shinko Plantech Co Ltd / 新興プラン	6379	0.01%	1	Not Disclosed / 非開示
JXTG Holdings Inc / ＪＸＴＧ	5020	0.41%	2	Disclosed / 開示
Nippon Coke & Engineering Co Ltd / 日本コークス	3315	<0.005%	2	Not Disclosed / 非開示

Source: S&P Dow Jones Indices LLC. Data as of March 18, 2019. Table is provided for illustrative purposes.

Public disclosure of company weights in the index provides full transparency to the constituents.

Since launching the indices, we have seen a significant boost in the number of companies disclosing their carbon emissions.

Since launching the indices, we have seen a significant boost in the number of companies disclosing their carbon emissions. In 2019, an additional 113 companies around the globe disclosed their GHG emissions, 33 of which are based in Japan.

CARBON PRICE RISK INDICES

The Risk of Rising Carbon Prices

The S&P Fossil Fuel Free and Carbon Efficient Indices address the more established climate strategies—divestment, decarbonization, and engagement. There is demand for nascent climate strategies that use forward-looking climate datasets. Investors are becoming aware of not only current risks, but also the need to stress test their holdings for future climate scenarios as recommended by the TCFD.

The S&P Fossil Fuel Free and Carbon Efficient Indices address the more established climate strategies—divestment, decarbonization, and engagement.

Policy mechanisms such as carbon pricing will need to be triggered to keep warming below 2°C. Carbon prices aim to make emitters accountable for the negative effects they are causing and to incentivize companies to lower emissions.

Carbon prices have already been implemented in 40 countries and 20 cities and regions.[14] Prices in most jurisdictions are currently well below the level required to keep warming to 2°C. Research by the International Energy Agency found that carbon prices in the OECD countries could increase to USD 120 per metric ton by 2030, as regulations are introduced to comply with the Paris Agreement.[15]

[14] https://www.worldbank.org/en/programs/pricing-carbon#:~:text=Some%2040%20countries%20and%20more,annual%20global%20greenhouse%20gas%20emissions.

[15] https://www.irena.org/DocumentDownloads/Publications/Perspectives_for_the_Energy_Transition_2017.pdf

S&P Carbon Price Risk 2030 Adjusted Indices

A company's exposure to future carbon costs is compared to earnings metrics to determine the potential earnings at risk as a proportion of company cash flows.

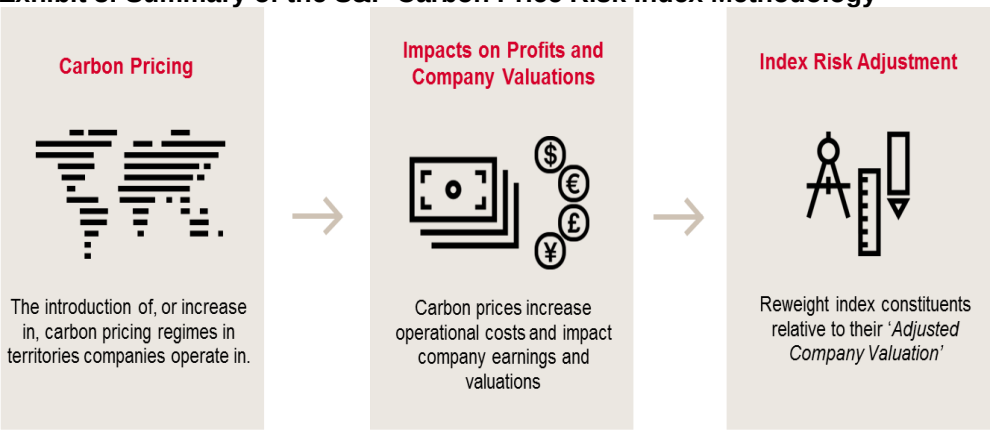
Launched in 2018, this index series rebalances index constituents to adjust for their exposure to future earnings at risk from carbon pricing. Trucost data assess potential earnings at risk by calculating a Carbon Price Risk Premium based on the following.

1. Carbon prices by geography and industry.
2. Carbon intensity of companies within the same industries, based on the company's operations and purchased electricity supplies.
3. Companies' ability to "pass on" rather than absorb carbon costs.

Using the Trucost Carbon Pricing Tool, a company's exposure to future carbon costs is compared to earnings metrics to determine the potential earnings at risk as a proportion of company cash flows (see Exhibit 8).

Exhibit 8: Summary of the S&P Carbon Price Risk Index Methodology

The S&P 500 Carbon Price Risk 2030 Adjusted Index has almost 49% less valuation at risk compared with the S&P 500



Source: S&P Dow Jones Indices LLC. Chart is provided for illustrative purposes.

Results

The S&P 500 Carbon Price Risk 2030 Adjusted Index has almost 49% less valuation at risk compared with the S&P 500 (see Exhibit 9). The index also has a 36% lower carbon footprint and outperformed the S&P 500 over the five-year period ending June 30, 2020.

Exhibit 9: Return and Carbon Characteristics

INDEX	S&P 500	S&P 500 CARBON PRICE RISK 2030 ADJUSTED INDEX
Constituents	505	489
Five-Year Annualized Returns (%)	10.73	11.22
Carbon-to-Revenue Footprint*	214.88	137.74
% Reduction of Index Valuation at Risk	N/A	-49%

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2020. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information on the inherent limitations of back-tested performance. *Metric tons of CO2e per USD 1 million of revenue.

Investors who have implemented climate strategies are looking to the next step of their climate investing journey.

S&P PACT: S&P PARIS-ALIGNED & CLIMATE TRANSITION INDICES

Holistic Company Climate Assessments

Investors who have implemented climate strategies around divesting, decarbonizing, or de-risking are looking to the next step of their climate investing journey. Some are looking for a holistic, science-based assessment of companies' risks and opportunities regarding climate change. This requires assessing companies from multiple perspectives.

Transition risks. As we limit global warming, investors will be exposed to additional transition risks; for example, stranded assets. Companies can demonstrate their resilience to these risks by setting science-based targets to align their business with a 1.5°C scenario and also by developing robust environmental policies.

As we limit global warming, investors will be exposed to additional transition risks; for example, stranded assets.

Physical risks. As the Earth continues to warm, companies are increasingly exposed to the physical risks of climate change, such as droughts, hurricanes, etc. Even under a 1.5°C scenario, physical climate risks will occur more frequently.

Opportunities. There are clear opportunities for businesses that can offer solutions aligned with a 1.5°C world. This is particularly evident in the energy sector, where renewable energies are becoming increasingly important.

Aligning with Industry Standards

There are clear opportunities for businesses that can offer solutions aligned with a 1.5°C world.

There are also important climate frameworks and labels with which investors are looking to align. In particular the TCFD, which was discussed previously, and the EU Climate Benchmark labels.

The EU's Action Plan on Sustainable Finance included proposals for two new climate benchmark labels: EU Climate-Transition Benchmarks (EU CTBs) and EU Paris-Aligned Benchmarks (EU PABs). To use these labels, the index must meet the EU's minimum standards, which include aligning with a 1.5°C trajectory. The EU PABs are built for investors who feel the immediate urgency of moving to a 1.5°C world, and these have more stringent requirements. The EU CTBs are aimed at a broader audience of investors who are looking to hedge against the risks of climate change; these benchmarks have less strict requirements.

Alignment with 1.5°C is important to forward-looking climate investors, and investor groups have been established to support this ambition. The Investor Agenda is "a collaborative initiative to accelerate and scale up the investor actions that are critical to tackling climate change and achieving

the goals of the Paris Agreement."[16] The Net Zero Alliance is "an international group of 26 institutional investors delivering on a bold commitment to transition our investment portfolios to net-zero GHG emissions by 2050."[17]

The S&P PACT Indices provide a science-based, holistic approach to climate investing aligned with 1.5C.

The S&P PACT Indices

The S&P PACT Indices launched in 2020, and they provide a science-based, holistic approach to climate investing aligned with 1.5°C. These indices:

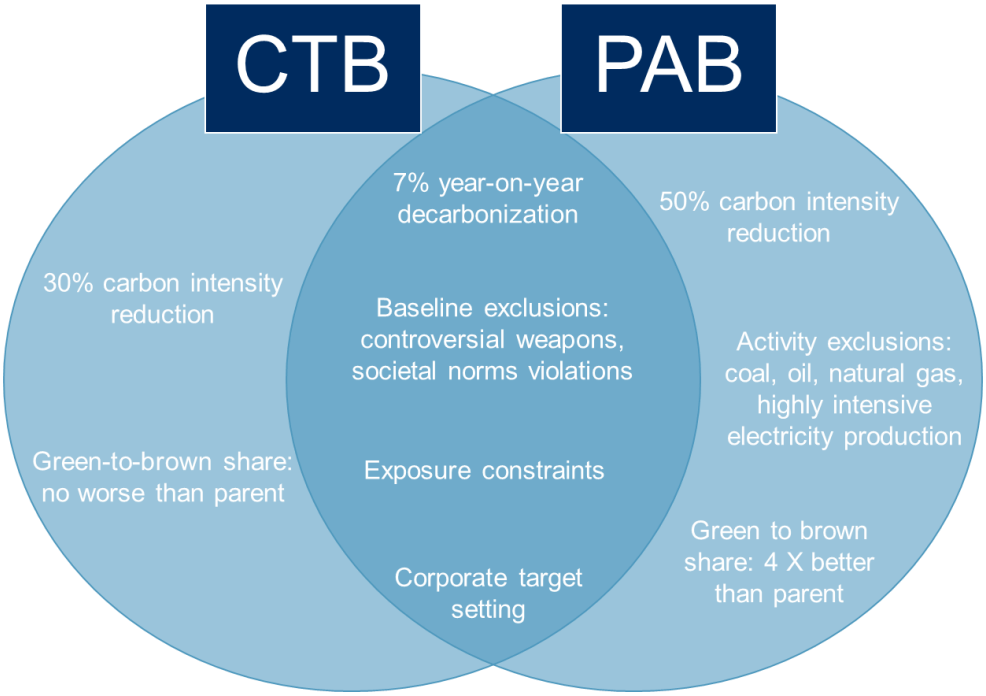
- Exceed the Paris agreement by aligning with a 1.5°C trajectory;
- Meet the minimum standards of the EU PAB and EU CTB labels and align with TCFD recommendations; and
- Stay as close as possible to the benchmark index, offering broad, diversified exposure.

They stay as close as possible to the benchmark index, offering broad, diversified exposure.

Alignment with the EU Climate Labels

Climate considerations that have been applied to the S&P PACT Indices, per the EU's minimum standards for EU CTBs and EU PABs, are highlighted in Exhibit 10.[18]

Exhibit 10: Comparison of EU CTB and EU PAB Requirements



The S&P PACT Indices align with the EU's minimum standards and go beyond.

Source: S&P Dow Jones Indices LLC. Chart is provided for illustrative purposes.

[16] https://theinvestoragenda.org/about-the-agenda/

[17] https://www.unepfi.org/net-zero-alliance/

[18] As per the Technical Expert Group proposed minimum standards for these benchmarks in its final report.

The S&P PACT Indices reduce exposure to fossil fuel reserves to lower stranded assets risk.

The S&P PACT Indices align with the EU's minimum standards and go beyond by:

- Using forward-looking datasets to overweight companies on 1.5°C-aligned pathways, allowing for the selection of companies that are decarbonizing;
- Overweighting companies with strong environmental policies that may be better positioned to transition to a 1.5°C scenario, as identified by ESG specialists SAM, part of S&P Global;
- For the Paris-Aligned indices, overweighting companies with better green-to-brown revenue share, allowing investors to have greater exposure to climate-related opportunities;
- Reducing exposure to fossil fuel reserves to lower stranded assets risk;
- Reducing exposure to the physical risks of climate change by capping the weight of companies with higher exposure to physical risks and ensuring the index as a whole has lower physical risk exposure relative to its benchmark; and
- Including Scope 3[19] emissions from the outset, ensuring that the impacts across the full value chain of the companies are taken into consideration.

S&P DJI offers a broad, diversified set of climate indices aligned with a 1.5°C scenario and TCFD recommendations.

Results

S&P DJI offers a broad, diversified set of climate indices aligned with a 1.5°C scenario and TCFD recommendations, while meeting EU Climate Benchmark label requirements. These aim to help investors contribute to achieving net zero emissions by 2050.

We have created these indices to meet multiple climate constraints while minimizing changes to the benchmark index.

We have created these indices to meet multiple climate constraints while minimizing changes to the benchmark index. The S&P 500 Paris-Aligned Climate Index still has 349 constituents. It also has a carbon-to-revenue reduction of 67% and an excess return of 5.23% compared with the S&P 500 over a one-year period ending June 30, 2020 (see Exhibit 11).

Exhibit 11: Return and Carbon Characteristics

CHARACTERISTIC	S&P 500	S&P 500 PARIS-ALIGNED CLIMATE INDEX	S&P 500 CLIMATE TRANSITION INDEX
Constituents	505	349	402
1--Year Annualized Returns (%)	7.51	12.74	11.27
Carbon-to-Revenue Footprint*	214.88	71.68	138.47

Source: S&P Dow Jones Indices LLC. Data as of June 30, 2020. Past performance is no guarantee of future results. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information on the inherent limitations of back-tested performance. *Metric tons of CO2e per USD 1 million of revenue.

[19] The GHG Protocol classifies a company's GHG emissions into three scopes. Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in Scope 2) that occur in the company's value chain—including both upstream and downstream emissions.

CONCLUSION

Many investors recognize the challenges and opportunities of climate change, and portfolio managers have deployed climate strategies to meet the expectations of asset owners.

Earth is warming. The unfortunate consequences of this can be witnessed around the globe. Many investors recognize the challenges and opportunities of climate change, and portfolio managers have deployed climate strategies to meet the expectations of asset owners. At S&P DJI, we have developed a suite of climate indices to assist investors whatever their climate objectives, from established strategies focused on divestment, decarbonization and engagement to nascent strategies assessing future transition risks and strategies based on science, aligned with the goal to limit global temperature rise to 1.5°C.

PERFORMANCE DISCLOSURE

The S&P 500 Fossil Fuel Free Index was launched August 28, 2015. The S&P 500 Carbon Efficient Index was launched October 22, 2018. The S&P 500 Carbon Price Risk 2030 Adjusted Index was launched May 31, 2018. The S&P 500 Paris-Aligned Climate Index and S&P 500 Climate Transition Index were launched June 1, 2020. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spdji.com. Past performance of the Index is not an indication of future results. Prospective application of the methodology used to construct the Index may not result in performance commensurate with the back-test returns shown.

S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the Index is set at a fixed value for calculation purposes. The Launch Date designates the date upon which the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered back-tested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its datafeed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date.

The back-test period does not necessarily correspond to the entire available history of the Index. Please refer to the methodology paper for the Index, available at www.spdji.com for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations.

Another limitation of using back-tested information is that the back-tested calculation is generally prepared with the benefit of hindsight. Back-tested information reflects the application of the index methodology and selection of index constituents in hindsight. No hypothetical record can completely account for the impact of financial risk in actual trading. For example, there are numerous factors related to the equities, fixed income, or commodities markets in general which cannot be, and have not been accounted for in the preparation of the index information set forth, all of which can affect actual performance.

The Index returns shown do not represent the results of actual trading of investable assets/securities. S&P Dow Jones Indices LLC maintains the Index and calculates the Index levels and performance shown or discussed, but does not manage actual assets. Index returns do not reflect payment of any sales charges or fees an investor may pay to purchase the securities underlying the Index or investment funds that are intended to track the performance of the Index. The imposition of these fees and charges would cause actual and back-tested performance of the securities/fund to be lower than the Index performance shown. As a simple example, if an index returned 10% on a US $100,000 investment for a 12-month period (or US $10,000) and an actual asset-based fee of 1.5% was imposed at the end of the period on the investment plus accrued interest (or US $1,650), the net return would be 8.35% (or US $8,350) for the year. Over a three year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US $5,375, and a cumulative net return of 27.2% (or US $27,200).

GENERAL DISCLAIMER