
Morningstar Indexes' ESG Risk/Return Analysis Reveals Mixed Results for 2021, Good Five-Year Numbers, and Stellar Downside Protection

Sector tilts and security selection have driven ESG index behavior.

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"Sustainable investors should neither expect to always outperform nor to always underperform, but they should expect investment returns that are competitive with those of conventional investments," wrote Jon Hale, Morningstar's head of sustainability research.¹ Hale's statement is an important level set. Investing based on environmental, social, and governance criteria does not necessarily require a return sacrifice, as is sometimes assumed, but neither is it a guaranteed route to market-beating performance. What is certain is that any deviation from a market portfolio will produce a different outcome. Studying past behavior can help guide sustainability-focused investors going forward.

Since 2018, we have published an annual study gauging the performance of Morningstar's ever-growing range of ESG indexes. Short- and longer-term returns are examined for both equity and bond indexes. Observers will note that the track record of most sustainable investments is limited; ESG is still evolving in terms of methodology and data availability, and years of technology sector leadership of equity markets has provided a tailwind. Even so, examining the behavior and the complexion of Morningstar's ESG indexes — and their changes through time — can shed light on a burgeoning field.

It's also critical to look at risk in addition to return. Risk characteristics tend to be more stable over time than returns, which are highly changeable depending on market conditions. Also, the Sustainalytics ESG Risk Rating, the foundation for many Morningstar indexes, is focused on material financial impact. So, the ability of those indexes to mitigate risk can help gauge the rating's efficacy.

Among the findings of this report:

- ▶ In calendar-year 2021, 66 of Morningstar's 116 ESG indexes (57%) outperformed their non-ESG equivalents, down from 75% ESG outperformance in 2020.
- ▶ Over the five-year period ended Dec. 31, 2021, 88 of the 110 (80%) Morningstar ESG indexes with five-year histories outperformed.
- ▶ Over the five-year period ended Dec. 31, 2021, 97 of the 110 (88%) Morningstar ESG indexes with five-year histories lost less than their broad market equivalents during down markets as measured by the downside capture ratio.
- ▶ Sector tilts, security selection, and other factors like geographic allocation and yield-curve positioning all help explain ESG index performance. Mixed results in 2021 can be partly attributed to the fact that the best performing global equity sector was energy. The ESG indexes tend to be light on the carbon-intensive energy sector. But technology, which represents a much larger chunk of the market (especially

¹ Hale, J. "4 Things to Keep in Mind About Sustainable Investing in 2022." Morningstar. Dec 21, 2021.
<https://www.morningstar.com/articles/1073065/4-things-to-keep-in-mind-about-sustainable-investing-in-2022>

in the United States), also performed well over the course of 2021, lifting many ESG indexes. In the first quarter of 2021, when technology lagged, just 24% of Morningstar's ESG indexes beat their equivalents.² Even within the technology sector, ESG indexes benefited from exposure to companies like Microsoft MSFT, Nvidia NVDA, ASML ASML, Taiwan Semiconductor Manufacturing TSM, and Infosys INFY.

Researching Morningstar's ESG Indexes

This study will focus on several series of Morningstar indexes that select and/or weight constituents on ESG criteria.³ Only ESG indexes launched in 2021 or earlier are included. A total of 114 unique indexes spanning equities and bonds are analyzed in 2021, and 108 are analyzed over the five-year period. The study includes several series of sustainable-investing solutions from Morningstar Indexes:

- ▶ Morningstar Sustainability Indexes (22)
- ▶ Morningstar Corporate Bond Sustainability Indexes (5)
- ▶ Morningstar Sustainability Leaders Indexes (10)
- ▶ Morningstar Sustainability Extended Indexes (3)
- ▶ Morningstar Sustainable Environment Indexes (10)
- ▶ Morningstar Low Carbon Risk Indexes (10)
- ▶ Morningstar Impact Indexes (10)
- ▶ Morningstar Renewable Energy Indexes (6)
- ▶ Morningstar Sustainability Moat Focus Indexes (5)
- ▶ Morningstar Sustainability Dividend Yield Focus Indexes (12)
- ▶ Morningstar E.U. Climate Indexes (8)
- ▶ Morningstar ESG Enhanced Indexes (6)
- ▶ Morningstar Global Treasury Bond Sustainability Indexes (2)
- ▶ Additional Morningstar Sustainability Indexes (7)

Except where mentioned, the indexes discussed use data and research provided by Sustainalytics, a Morningstar company focused on ESG. A range of Sustainalytics' capabilities are employed for index selection and weighting, including Product Involvement Research, ESG Risk Ratings, Carbon Risk Ratings, Country Risk Ratings, Sustainable Product Research, and Carbon-Score Exposure data.⁴

The Sustainalytics ESG Risk Rating,⁵ its flagship analytic, is the foundation for many Morningstar ESG indexes, just as it is also the basis for the Morningstar Sustainability Rating for funds.⁶ The risk rating

2 Lefkowitz, D. & Solberg, L. "ESG Doesn't Thrive in Every Market Environment." Morningstar. April 12, 2021.
<https://www.morningstar.com/articles/1033246/esg-doesnt-thrive-in-every-market-environment>

3 For a full methodological discussion of the indexes mentioned, refer to their construction rules and other documentation posted on the Morningstar Indexes website. <https://indexes.morningstar.com/>

4 <https://www.sustainalytics.com/>

5 For a full discussion of the rating methodology, see <https://connect.sustainalytics.com/esg-risk-ratings-methodology>

6 Morningstar Research. 2019. "Morningstar Sustainability Rating Methodology"

https://www.morningstar.com/content/dam/marketing/shared/research/methodology/744156_Morningstar_Sustainability_Rating_for_Funds_Methodology.pdf

assesses firms' exposure to and management of financially material ESG risks. Key ESG issues and risk exposures vary and can be mitigated by a company's management practices. Risk ratings are absolute, not relative, and are therefore comparable across sector and industry. Roughly 13,000 companies are rated globally.

For the purposes of risk/return analysis, ESG indexes are compared with their parent indexes (from which they are derived). In the cases of the Morningstar Sustainability Moat Focus Indexes and the Morningstar Sustainability Dividend Yield Focus Indexes, the indexes are compared with their non-ESG equivalents, with the goal of isolating the effect of the ESG screens. For all indexes, gross return or total return index variants in U.S. dollars are examined for purposes of apples-to-apples comparison.

Indexes are compared with their parent indexes, or non-ESG equivalents, on three parameters:

- ▶ 2021 returns, with excess return depicted
- ▶ Five-year trailing returns through year-end 2021, with excess return depicted
- ▶ Five-year downside capture through year-end 2021

While the returns comparison is straightforward, downside capture is chosen from a variety of risk measures because it helps gauge a portfolio's ability to preserve capital in bad market conditions. A downside capture ratio above 100% implies greater losses than the market during losing periods; a downside capture ratio below 100% suggests lesser losses. Capital preservation is critical to long-term investment success.

As with any study, this one has limitations:

- ▶ Attribution analysis will be limited to the index series with the longest history—the Morningstar Sustainability Indexes and a couple of select others. Many of the performance drivers for the long-running sustainability indexes also apply to others.
- ▶ Morningstar ESG indexes transitioned from the Sustainalytics' ESG Rating, which was industry-relative, to the Sustainalytics ESG Risk Rating in 2019, in parallel with the methodological evolution of the Morningstar Sustainability Rating for funds. Returns until 2019 incorporate the ESG Rating, and from 2019 the ESG Risk Rating.
- ▶ Given the relatively recent development of ESG indexing, the time periods assessed sometimes include back-tested returns. The oldest and largest series studied, the Morningstar Sustainability Indexes, was launched in mid-2016, so its history spans the entire five years. Other indexes analyzed are newer. Pre-ception returns are simulated based on historical Sustainalytics ratings.
- ▶ Returns-based analysis is always deeply influenced by the nuances of the time period studied. Readers will note that the trailing five years through the end of 2021 was very strong for equities, characterized by growth stocks outperforming value, large caps beating small, and the technology sector leading. There have been rocky periods, though—most dramatically the pandemic-driven downturn in the first quarter of 2020, but also the first and fourth quarters of 2018. In the fourth quarter of 2018, the Morningstar Global Markets Index lost nearly 13% of its value, and in the first quarter of 2020, it fell more than 22%. These periods facilitate risk analysis.

- ▶ Each index included in this analysis is treated equally, when in fact, their scope varies considerably. Global indexes are all-encompassing, while regional and country-specific indexes (Europe, Asia, and the United States, for example) are carve-outs thereof. But it is worth examining the indexes separately, as each reflects a core exposure for investors based in different geographies. Many indexes are affected by regional weights, so their performance will be driven by the performance of different markets and currencies.

Morningstar Sustainability Indexes

The Morningstar Sustainability Indexes are equity-focused and methodologically aligned with the Morningstar Sustainability Rating for funds, or globe rating. After excluding companies involved with tobacco, controversial weapons, and civilian firearms, as well as companies experiencing serious ESG-related controversies according to Sustainalytics, the indexes select companies in order of their Sustainalytics ESG Risk Rating until 50% coverage of the parent index is reached by market cap. Sector and regional weights are kept within 2 percentage points of their equivalent market weight. Index constituents are weighted by market cap.

Exhibit 1 Morningstar Sustainability Indexes

Global Markets	Developed Markets	Emerging Markets	Single Country
Global Markets	Developed Markets ex-U.S.	Emerging Markets	United States
Global Markets ex-U.S.	Developed Europe	Emerging Americas	Japan
Asia	Developed Markets ex-North America		United Kingdom
Asia ex-Japan			Germany
Asia Pacific			Canada
Asia Pacific ex-Japan			Australia
Europe			India
Eurozone			Brazil
Nordic			

Source: Morningstar Indexes.

The Morningstar Sustainability Index series launched in 2016, though a couple of index variants, including Developed Markets ex-North America and Brazil, were created later. The sustainability indexes are derived from the large- and mid-cap segment of the equivalent Morningstar region/country index. Indexes include back-tested returns based on historical Sustainalytics' company-level assessments. Some of the indexes overlap; for example, the U.S. represents more than 50% of the Morningstar Global Markets Sustainability Index's weight.

As displayed in Exhibit 2, 15 of the 22 Morningstar Sustainability Indexes outperformed in calendar-year 2021. Underperformers include Emerging Markets, Emerging Americas, Nordics, Germany, Canada, and India. On a five-year basis, results improve, with 17 of 22 sustainability indexes outperforming their parent indexes. The five-year underperformers include the U.S., Emerging Americas, and Canada. In

terms of risk, 21 of 22 sustainability indexes lost less than their broad market equivalents during down markets over the past five years.

Exhibit 2 Morningstar Sustainability Indexes Risk/Return Record vs. Large-Mid-Cap Index Equivalent

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
Global Markets	2.24	0.65	95.63
US	2.70	-0.19	96.01
Global Markets ex-US	1.87	1.67	93.37
Developed Markets ex-North America	0.88	1.80	94.61
Developed Markets ex-US	1.28	1.95	93.52
Asia Pacific	1.74	0.91	94.36
Asia Pacific ex-Japan	0.85	0.90	90.61
Asia	1.11	0.79	94.68
Asia ex-Japan	0.27	1.59	93.70
Europe	2.39	2.75	90.76
Developed Europe	2.55	2.79	90.23
Eurozone	2.87	3.04	89.57
Emerging Markets	-1.69	0.18	97.84
Nordics	-1.81	-1.31	99.72
Emerging Americas	-1.81	-1.62	96.95
Japan	3.62	2.08	89.46
UK	4.01	3.11	95.85
Germany	-5.52	0.22	92.66
Canada	-3.17	-2.39	103.57
Australia	2.01	0.49	94.93
India	-4.15	0.53	95.51
Brazil	-10.17	-4.58	96.91

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Sector tilts, security selection, and other factors like geographic allocation all help explain performance. Mixed results in 2021 can be partly explained by the fact that the best performing global equity sector was energy, thanks to surging oil prices. From a sector perspective, 20 of the 22 Morningstar Sustainability Indexes were overweight technology and underweight energy in 2021. Stock-specific dynamics were also at play.

The Morningstar US Sustainability Index's above-market exposure to Microsoft and Nvidia lifted returns in 2021, overcoming the burden of not holding Alphabet GOOGL, Tesla TSLA, ConocoPhillips COP, and other soaring energy stocks. Over five years, the U.S. index has suffered from not including Tesla, Amazon.com AMZN, and other superstars. Strong performer Alphabet was dropped in 2019 because of controversy; and market leader Apple AAPL was only added in 2021.

The Morningstar Europe Sustainability Index's above-market exposure to ASML, LVMH Moët Hennessy Louis Vuitton LVMHF, L'Oréal LRLCF, Diageo DGE, and Novo Nordisk NVO boosted returns in 2021. These same stocks, with the additions of Allianz ALIZF, SAP SAP, and Roche RHHVF, also helped over the five-year period.

The Morningstar Asia Pacific Sustainability Index benefited from above-market exposure to Sony SNEJF, Taiwan Semiconductor Manufacturing, Recruit Holdings RCRRF, and Infosys in 2021. Over the past five years, Tencent TCTZF was also an important contributor.

The Morningstar Emerging Markets Sustainability Index's above-market exposure to Tencent as well as Naspers NPSNY undermined returns in 2021. The Chinese technology stocks suffered from a regulatory crackdown. But returns over the five-year period are strong, thanks to above-market weights in stocks like Taiwan Semiconductor, Tencent, and Infosys.

For the Morningstar Emerging Americas Sustainability Index and the Morningstar Brazil Sustainability Index, where there is little technology, the below-market exposure to energy, especially not including Petrobras PBR, was a significant headwind in 2021. For Emerging Americas, above-market exposure to Itau Unibanco ITUB and other stock-specific issues were headwinds over the trailing five years. Itau and other stocks like Ambev ABEV and Cielo CIOXY hurt the Morningstar Brazil Sustainability Index's five-year record.

The Morningstar Japan Sustainability Index's above-market exposure to stocks like Sony and Tokyo Electron TOELF were tailwinds over the one- and five-year periods.

The Morningstar UK Sustainability Index benefited from its above-market exposure to stocks like Diageo, GlaxoSmithKline GSK, and even energy player BP BP in 2021. BP was a headwind over the five-year period but was overshadowed by the sustainability index's avoidance of HSBC HSBA and British American Tobacco BTI and above-market exposure to Diageo, RELX REL, and Ferguson FERG.

The Morningstar Germany Sustainability Index was held back in 2021 by not including Siemens SIN and Daimler DTG1 and maintaining above-market exposure to Allianz. Over five years, Allianz was a tailwind, however, as was above-market exposure to Adidas ADS and Merck MRK.

The Morningstar Australia Index was lifted by stocks like Macquarie MQG, ANZ Bank ANZHA, and Wesfarmers WES in 2021. Over the five-year period, below-market exposure to the underperforming big banks has been a tailwind for this sustainability index, as has above-market exposure to Rio Tinto RIO and Fortescue Metals FMG in the basic materials sector.

The Morningstar India Sustainability Index was hurt by not including ICICI Bank IBN in 2021, while over five years, a tilt to the consumer defensive sector, as well as stocks like Titan and Wipro WIT, helped.

Morningstar Corporate Bond Sustainability Indexes

The Morningstar Corporate Bond Sustainability Indexes are essentially the fixed-income equivalents of the Morningstar Sustainability Indexes, methodologically aligned with the Morningstar Sustainability Rating for funds, or globe rating. After excluding issuers involved with tobacco, controversial weapons, and civilian firearms, as well as companies experiencing serious ESG-related controversies according to Sustainalytics, the indexes select securities reflecting the top 50% of the parent universe by market cap of securities with the lowest Sustainalytics ESG Risk Ratings across 27 distinct categories. The indexes maintain similar interest-rate sensitivity, yield, sector weights, and credit quality as the corporate bond index parents from which they are derived. The Morningstar US Corporate Bond Sustainability Index launched in 2019, and the other indexes launched in 2021 with performance modeled from 2016. The indexes are:

- ▶ Morningstar Global Corporate Bond Sustainability Index
- ▶ Morningstar US Corporate Bond Sustainability Index
- ▶ Morningstar Eurozone Corporate Bond Sustainability Index
- ▶ Morningstar UK Corporate Bond Sustainability Index
- ▶ Morningstar Canada Corporate Bond Sustainability Index

As displayed in Exhibit 3, two of the five Morningstar Corporate Bond Sustainability Indexes outperformed in calendar-year 2021. On a five-year basis, results improve, with four of the five indexes outperforming their parents. In terms of risk, four of five corporate bond sustainability indexes lost less than their non-ESG equivalents during down markets over the past five years. The margins of underperformance and outperformance are small by design, in line with the indexes' mission to provide marketlike exposure. Small differences in sector weights, yield-curve positioning, credit quality, and other factors contribute to divergence.

Exhibit 3 Morningstar Corporate Bond Sustainability Indexes Risk/Return Record vs. Large-Mid-Cap Index Equivalent

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
Global Markets	-0.15	0.08	94.15
US	-0.22	0.15	92.33
Eurozone	-0.03	-0.01	98.32
U.K.	0.46	0.08	98.64
Canada	0.17	0.13	100.57

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Sustainability Leaders Indexes

The Morningstar Sustainability Leaders Indexes, which are equity-focused, are similar to the broad sustainability indexes but are more concentrated. They can deviate further from market weights by sector and region, and they exclude more classes of companies. Not only do the sustainability leaders indexes exclude companies involved with tobacco, controversial weapons, and civilian firearms, they also avoid nuclear products and companies with significant exposure to gambling, alcohol, or adult entertainment. Companies experiencing serious ESG-related controversies according to Sustainalytics are excluded, as are companies that have a poor Sustainalytics Carbon Risk Rating or that are not compliant with the United Nations Global Compact. The sustainability leaders indexes select companies in order of their Sustainalytics ESG Risk Ratings and are fixed-count in nature. Index constituents are weighted by market cap.

Exhibit 4 Morningstar Sustainability Leaders Indexes—Membership and Constituent Counts

Broad Regional Markets		Developed Markets		Emerging Markets		Single Country	
Global Markets	100	Developed Markets	75	Emerging Markets	50	United States	50
Global Markets ex-U.S.	75	Developed Markets ex-U.S.	50			Japan	25
Asia ex-Japan	50	Developed Europe	50				
		Nordics	50				

Source: Morningstar Indexes.

The Morningstar Sustainability Leaders Indexes launched in 2018 but have returns back-tested to December 2012 based on Sustainalytics' company-level ratings. The indexes are derived from the large-cap segment of the equivalent Morningstar region/country index. The indexes are not mutually exclusive; for example, the U.S. represents more than 50% of the Morningstar Global Markets Sustainability Leaders Index's weight.

As displayed in Exhibit 5 below, seven of 10 Morningstar Sustainability Leaders Indexes outperformed in 2021, nine of 10 beat their parent index over the five-year period through the end of 2021, and eight of 10 lost less in down markets than their non-ESG equivalents. The sustainability leaders indexes are more concentrated and less constrained in their sector weights than the Morningstar Sustainability Indexes, increasing their margins of outperformance/underperformance. Concentration helped the Morningstar U.S. Sustainability Leaders Index and Morningstar Global Markets Sustainability Leaders Index in 2021.

Exhibit 5 Morningstar Sustainability Leaders Indexes Risk/Return Record vs. Large-Cap Equivalent

Indexes	2021 Excess Return	5-Year Excess Return	5-Year Downside Capture Ratio
Global Markets	11.73	3.01	96.68
Developed Markets	12.01	4.29	98.20
US	6.16	2.00	92.66
Global Markets ex-US	7.66	5.45	91.66
Developed Markets ex-US	7.85	4.64	102.12
Asia ex-Japan	-0.88	1.77	82.38
Developed Europe	2.92	5.20	95.91
Emerging Markets	-5.60	0.69	84.60
Japan	7.04	5.35	74.09
Nordics	-9.57	-1.29	103.60

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Sustainability Extended Indexes

The Morningstar Sustainability Extended Indexes launched in 2020 with returns modeled to December 2014 based on Sustainalytics' company-level ratings. The sustainability extended indexes are equity-focused and methodologically similar to the Morningstar Sustainability Indexes and are aligned with the Morningstar Sustainability Rating for funds. The sustainability extended indexes are derived from the large- and mid-cap segment of the equivalent region/country index. After excluding companies involved with tobacco, controversial weapons, and civilian firearms, as well as companies experiencing serious ESG-related controversies according to Sustainalytics, the indexes select companies in order of their Sustainalytics-assigned ESG Risk Rating until 67% coverage of the parent index is reached by market cap. Until 2019, the indexes used the Sustainalytics' ESG Rating, which was an industry-relative measure of a company's ESG profile. Sector and regional weights are kept within 2 percentage points of their equivalent market weight. Index constituents are weighted by market cap. The indexes are:

- ▶ Morningstar US Sustainability Extended Index
- ▶ Morningstar Canada Sustainability Extended Index
- ▶ Morningstar Developed Markets ex-North America Extended Index

As displayed in Exhibit 6 below, all three indexes outperformed in 2021. Over the five-year period, two of the three outperformed and three of the three lost less during down markets.

Exhibit 6 Morningstar Sustainability Extended Indexes Risk/Return Record vs. Large-Mid Cap Index Equivalent

Indexes	2021 Excess Return	5-Year Excess Return	5-Year Downside Capture Ratio
US	0.56	0.92	95.91
Canada	0.09	-0.15	95.29
Developed Markets ex-North America	0.51	1.54	93.20

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Sustainable Environment Indexes

The Morningstar Sustainable Environment Indexes are equity-focused and emphasize ESG risk related to the environment. Material ESG issues include emissions, effluents, and waste; carbon—own operations; and land use and biodiversity. The indexes exclude companies involved with controversial weapons and thermal coal, as well as companies experiencing a serious environmental controversy, according to Sustainalytics, and those carrying a Sustainalytics Carbon Risk Rating of Severe. The indexes then select companies in order of their Sustainalytics Environmental Risk score until 50% coverage of the parent index, the large-mid-cap regional equivalent, is reached by market cap. Sector and regional weights are kept within 2 percentage points of their equivalent market weight, and index constituents are market-cap-weighted.

Exhibit 7 Morningstar Sustainable Environment Indexes

Broad Regional Markets	Developed Markets	Emerging Markets	Single Country
Global Markets	Developed Markets	Emerging Markets	United States
Global Markets ex-U.S.	Developed Markets ex-U.S.		Japan
Asia ex-Japan	Developed Europe		
	Nordics		

Source: Morningstar Indexes.

The Morningstar Sustainable Environment Indexes launched in 2018, but most have returns back-tested to June 2012 based on Sustainalytics' company-level ratings. The constituents of the sustainable environment index series are derived from the large- and mid-cap segment of the equivalent Morningstar region/country index. The indexes are not mutually exclusive; for example, the U.S. represents more than 50% of the Morningstar Global Markets Sustainable Environment Index's weight.

As displayed in Exhibit 8 below, three of the 10 sustainable environment indexes outperformed in 2021, nine of 10 achieved superior returns for the five-year period, and eight of 10 lost less than their non-ESG equivalents during down periods. The global index and many others benefited from their below-market exposure to the poor-performing energy sector in 2020 and for the five-year period.

Exhibit 8 Morningstar Sustainable Environment Indexes Risk/Return Record vs. Large-Mid Cap Equivalent

Indexes	2021 Excess Return	5-Year Excess Return	5-Year Downside Capture Ratio
Global Markets	0.92	1.37	99.29
Developed Markets	1.44	1.48	96.62
US	-1.05	0.73	98.18
Global ex-US	-1.13	0.15	98.55
Developed Markets ex-US	-0.14	0.40	97.83
Asia ex-Japan	-0.04	1.64	91.51
Developed Europe	0.04	0.68	95.81
Emerging Markets	-2.86	0.06	101.77
Japan	-1.40	0.21	97.31
Nordics	-4.44	-2.50	102.00

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Low Carbon Risk Indexes

The Morningstar Low Carbon Risk Indexes are equity-focused and methodologically aligned with the Morningstar Low Carbon Designation. They allow investors to mitigate risks associated with climate change. Leveraging the Sustainalytics Carbon Risk Rating, the indexes emphasize companies across regions that are aligned with a low-carbon economy. Some industries are inherently better positioned for a world less dependent upon fossil fuels, but individual companies can take actions to mitigate their climate-related risk. The indexes are created through an optimization process that targets low portfolio-level carbon risk and fossil fuel exposure, while minimizing deviation from the broad market. Only high-carbon-risk companies are excluded; otherwise, most members of the parent index are included in the indexes, with weights tilted based on Carbon Risk Ratings. The number of constituents in each index is variable. Regional and sector weights are kept to within 4 percentage points of market weight.

Exhibit 9 Morningstar Low Carbon Risk Indexes

Broad Regional Markets	Developed Markets	Emerging Markets	Single Country
Global Markets	Developed Markets	Emerging Markets	United States
Global Markets ex-U.S.	Developed Markets ex-U.S.		Japan
Asia ex-Japan	Developed Europe		
	Nordics		

Source: Morningstar Indexes.

The Morningstar Low Carbon Risk Indexes launched in 2018, but the indexes have returns back-tested to December 2012. The Morningstar Low Carbon Risk Indexes are derived from the large- and mid-cap

segment of the equivalent region/country index. The indexes are not mutually exclusive; for example, the U.S. represents more than 50% of the Morningstar Global Markets Low Carbon Risk Index's weight.

As displayed in Exhibit 10 below, nine of the 10 Morningstar Low Carbon Risk Indexes in 2021, while eight of 10 outperformed over the trailing five-year period and 10 of 10 lost less than their non-ESG equivalents over the five-year period.

Exhibit 10 Morningstar Low Carbon Risk Indexes Risk/Return Record vs. Equivalent Large/Mid-Cap Index

Indexes	2021 Excess Return	5-Year Excess Return	5-Year Downside Capture Ratio
Global Markets	1.09	0.50	98.01
Developed Markets	0.34	0.25	98.72
US	-0.17	0.15	98.86
Global Markets ex-US	0.95	0.28	97.76
Developed Markets ex-US	0.19	0.12	99.36
Asia ex-Japan	2.17	0.40	93.85
Developed Europe	0.23	-0.11	99.30
Emerging Markets	2.14	0.51	93.82
Japan	0.07	0.38	99.51
Nordics	0.90	-0.26	98.24

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Below-market exposure to the underperforming energy sector contributed during both periods but not enough to overcome below-market weight to some high-flying U.S. technology stocks. All 10 indexes lost less than their non-ESG equivalents during down markets over the past five years. For the U.S. index, below-market exposure to Apple and Amazon.com hurt returns in 2020. The small margins of deviation from the parent index reflect the indexes' optimization methodology and constrained nature.

Morningstar Impact Indexes

Morningstar Impact Indexes are focused on effecting positive societal change through the deployment of capital. All are equity-focused. The Morningstar Societal Development Index targets the shares of 200 companies from developed and emerging markets that are contributing to the United Nations' 17 Sustainable Development Goals, which target global challenges such as poverty, inequality, and stewardship of land, air, and sea. Its scoring considers policies and programs related to human rights, labor protection, environmental protection, and corruption as assessed by Sustainalytics. The index has an emphasis on companies that are contributing to global development, so companies active in lesser-developed countries are emphasized.

The Morningstar Minority Empowerment Index targets the shares of 200 U.S. companies selected for commitment to diversity and inclusion. Its scoring leverages indicators researched by Sustainalytics, including board diversity, discrimination policies, and support for community development programs.

The Morningstar Women's Empowerment Index targets 200 companies listed in the U.S., but its focus is a commitment to gender equity. Specialist researcher Equileap assesses firms on 19 criteria, including workforce, board, and executive ranks gender balance; equal compensation; and paid maternity leave.

The Morningstar Gender Diversity Indexes also use Equileap assessments but hold most of the same constituents as their parent indexes with weights tilted toward better-scoring companies.

All impact indexes are derived from their equivalent large- and mid-cap market segment. Sector and regional weights for the Minority Empowerment, Women's Empowerment, and Societal Development indexes are kept to within 4 percentage points of their market weight. The Gender Diversity indexes are more tightly constrained. The indexes are:

- ▶ Morningstar Minority Empowerment Index
- ▶ Morningstar Women's Empowerment Index
- ▶ Morningstar Societal Development Index
- ▶ Gender Diversity Indexes (7)

Seven of 10 impact indexes outperformed in 2021 (Exhibit 11). Three of the indexes launched in August 2018 with no back-testing. The regional gender diversity indexes launched in 2020 with back-tested history from 2014 based on historical Equileap data. Of the seven gender-focused indexes, five outperformed and six of seven lost less during down markets over the five-year period.

Exhibit 11 Morningstar Impact Indexes Risk/Return Record vs. Equivalent Large/Mid-Cap Index

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
Societal Development	6.12	N/A	N/A
Minority Empowerment	4.36	N/A	N/A
Women's Empowerment	1.25	N/A	N/A
Developed Markets Gender Diversity	-0.16	0.10	99.19
Developed Europe Gender Diversity	0.01	-0.27	97.83
US Gender Diversity	-0.86	0.12	99.03
Developed Markets ex-Japan Gender Diversity	-0.60	0.07	99.26
Japan Gender Diversity	0.99	0.35	99.03
Canada Gender Diversity	0.74	-0.08	100.02
UK Gender Diversity	0.87	0.72	94.27

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Renewable Energy Indexes

The Morningstar Renewable Energy Indexes highlight the shares of companies leading the transition to the low-carbon economy. With the exception of the Morningstar Developed Markets Renewable Energy 30 Index and the Morningstar Developed Europe Renewable Energy 30 Index, the renewable energy indexes select both companies involved in renewable energy or green transportation and include companies that meet a significant percentage of their energy needs from renewable sources. The 30-stock indexes focus solely on renewable energy and green transportation. The indexes rely on Sustainalytics' Sustainable Product Research and Carbon-Exposure Score data using revenue to determine a company's involvement. For the indexes that include both producers and users of renewable energy, there are two index sleeves. The first sleeve, which selects companies for their renewable energy or green transportation involvement, represents 75% of index weight. The second, which highlights heavy users of renewable energy, represents 25% of index weight. Companies are equally weighted within their sleeves.

The Morningstar North America Renewable Energy Index launched in 2019, with back-tested returns to June 2018 based on historical Sustainalytics data. The other indexes launched in 2020 with back-tested returns to December 2015 based on historical Sustainalytics data. The indexes are derived from their equivalent all-capitalization market segment. The indexes are:

- ▶ Morningstar Global Markets Renewable Energy Index
- ▶ Morningstar Developed Markets Renewable Energy Index
- ▶ Morningstar Developed Markets Renewable Energy 30 Index
- ▶ Morningstar North America Renewable Energy Index
- ▶ Morningstar Developed Europe Renewable Energy Index
- ▶ Morningstar Developed Europe Renewable Energy 30 Index

As displayed in Exhibit 12 below, it was a bad year for renewable-energy-focused investments. All six of the renewable energy indexes underperformed in 2021 by wide margins. But longer-term returns were strong enough to lift five-year returns, with four of five indexes with five-year performance histories outperforming and five of five losing less than their broad market equivalents.

Exhibit 12 Morningstar Renewable Energy Indexes Risk/Return Record vs. Equivalent Index

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
Global Markets	-7.32	0.60	84.96
Developed Markets	-17.68	-1.43	86.76
Developed Markets 30	-34.70	5.67	48.09
North America	-15.47	N/A	N/A
Developed Europe	-13.37	3.69	95.39
Developed Europe 30	-20.67	5.22	91.33

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Sustainability Moat Focus Indexes

The Morningstar Sustainability Moat Focus Indexes target the shares of a select set of companies with durable competitive advantages, relatively attractive valuations, and moderate to low exposure to ESG risks. The principal sustainability screen, the Sustainalytics' ESG Risk Rating, focuses on the issues most likely to affect a company's financial results. The other two inputs rely on Morningstar's team of stock analysts, who assign Morningstar Economic Moat Ratings and fair value estimates to each company they cover. The indexes exclude tobacco, controversial weapons, companies with Sustainalytics ESG Risk Ratings of High or Severe, those that have experienced serious ESG-related controversies over the past three years, and companies carrying Sustainalytics Carbon Risk Ratings of High or Severe. The indexes also screen out securities in the bottom 20% in terms of negative share price momentum. Every quarter, the indexes select a target number of companies with wide or narrow economic moat ratings that carry the lowest current price/fair value ratios that meet the ESG criteria. The indexes launched in 2020 with back-tests from 2014. Although the Morningstar Sustainable Moat Focus Indexes are derived from their all-capitalization market equivalents, for the purposes of this study they are compared with their equivalent Morningstar Moat Focus Index. This isolates the risk/return effect of the sustainability screens. The indexes are:

- ▶ Morningstar Global Markets Sustainability Moat Focus Index
- ▶ Morningstar Developed Markets Sustainability Moat Focus Index
- ▶ Morningstar US Sustainability Moat Focus Index
- ▶ Morningstar Global Markets ex-US Sustainability Moat Focus Index
- ▶ Morningstar Developed Europe Sustainability Moat Focus Index

In 2021, four of the five Morningstar Sustainability Moat Focus Indexes outperformed their non-ESG screened equivalents. Over the five-year period, three of the five indexes outperformed their non-ESG screened equivalents and three of five lost less during down periods.

Exhibit 13 Morningstar Sustainability Moat Focus Indexes Risk/Return Record vs. Morningstar Moat Focus

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
Global Markets	2.84	-0.72	108.09
Developed Markets	1.23	-0.53	111.60
U.S.	0.12	2.77	81.22
Global Markets ex-US	6.99	2.44	87.02
Developed Europe	-0.67	3.79	89.62

Equivalent Index

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Sustainability Dividend Yield Focus Indexes

The Morningstar Sustainability Dividend Yield Focus Indexes select the shares of dividend-paying companies that are competitively advantaged and financially healthy, and it creates a portfolio that carries low levels of ESG risk. To be eligible, a security must have paid a dividend in the past 12 months, be assigned a Morningstar Economic Moat Rating or a Quantitative Economic Moat Rating, an ESG Risk Rating, a Sustainalytics Controversy Rating, and a Morningstar Distance to Default score. The indexes exclude tobacco, controversial weapons, and companies with serious ESG-related controversies. Eligible securities that are assigned wide or narrow moat ratings must land in the top 50% of their Morningstar region-sector cohort by Distance to Default score. The portfolio of securities passing the screens is optimized to achieve a high Morningstar Portfolio Corporate Sustainability Score. To maximize yield, the index is weighted on the basis of trailing 12-month available dividends, which considers dividend per share and number of shares. The indexes launched in 2020 with back-tests from 2012. Although the Morningstar Sustainability Dividend Yield Focus Indexes are derived from their all-capitalization market equivalent, for the purposes of this study, they are compared with their equivalent Morningstar Dividend Yield Focus Index. This isolates the risk/return effects of the sustainability screens. The indexes are:

- ▶ Morningstar Global Markets Sustainability Dividend Yield Focus Index
- ▶ Morningstar Developed Markets Sustainability Dividend Yield Focus Index
- ▶ Morningstar US Sustainability Dividend Yield Focus Index
- ▶ Morningstar Global Markets ex-US Sustainability Dividend Yield Focus Index
- ▶ Morningstar Developed Markets ex-US Sustainability Dividend Yield Focus Index
- ▶ Morningstar Emerging Markets Sustainability Dividend Yield Focus Index
- ▶ Morningstar Japan Sustainability Dividend Yield Focus Index
- ▶ Morningstar Developed Asia Pacific ex-Japan Sustainability Dividend Yield Focus Index
- ▶ Morningstar Developed Europe Sustainability Dividend Yield Focus Index
- ▶ Morningstar Nordic Sustainability Dividend Yield Focus Index
- ▶ Morningstar UK Sustainability Dividend Yield Focus Index
- ▶ Morningstar Canada Sustainability Dividend Yield Focus Index

In 2021, six of the 12 indexes outperformed their non-ESG screened equivalents. Over the five-year period, 10 of the 12 indexes have outperformed their non-ESG screened equivalents and nine of 12 have lost less during down periods.

Exhibit 14 Morningstar Sustainability Dividend Yield Focus Indexes Risk/Return Record vs. Equivalent Morningstar Dividend Yield Focus Index

Indexes	2021 Excess Return	5-Year Excess Return	5-Year Downside Capture Ratio
Global Markets	-0.06	2.87	90.29
Developed Markets	0.25	3.19	84.71
U.S.	3.35	5.38	71.29
Global Markets ex-US	3.08	1.71	97.28
Developed Markets ex-US	2.94	2.45	94.82
Emerging Markets	-0.56	0.28	106.97
Japan	-4.05	-1.31	112.53
Developed Asia Pacific ex-Japan	-2.23	-2.10	117.72
Developed Europe	-2.94	2.33	96.90
Nordics	0.22	1.06	85.26
UK	1.57	5.28	82.92
Canada	-2.68	2.78	85.33

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar EU Climate Indexes

The Morningstar EU Climate Indexes achieve the EU Carbon Transition Benchmark and Paris-Aligned Benchmark requirements by providing a decarbonization trajectory to limit the global increase in temperatures to below 1.5 C while minimizing tracking error to their parent indexes. The two climate indexes are powered by Sustainalytics' carbon emissions data, Carbon Solutions Involvement, and Carbon Risk Ratings. The CTB indexes target a 30% minimum reduction in average emissions versus their parents, while the PAB indexes target 50%. Both follow an ongoing decarbonization trajectory of at least 7% per year. The indexes are derived from the large- and mid-capitalization equivalent market segment. They exclude companies involved in controversial weapons, deemed to be noncompliant with the U.N. Global Compact, and with severe ESG controversies. For the PAB indexes, companies are also excluded if they earn more than 5% of revenue from thermal coal extraction, 10% or more from oil sands extraction, oil and gas production, and arctic oil extraction, and more than 50% of revenues from shale extraction, oil and gas generation, and coal power generation. Remaining constituents have their weights tilted based on decarbonization goals, corporate target setting, and whether they are aligned with a transition to a low carbon economy. The indexes launched in 2021 with back-tested returns to December 2014 based on historical Sustainalytics data. The indexes include:

- ▶ Morningstar Global Markets Climate Transition Benchmark Index
- ▶ Morningstar Global Markets Paris Aligned Index
- ▶ Morningstar Developed Markets Climate Transition Benchmark Index
- ▶ Morningstar Developed Markets Paris Aligned Index
- ▶ Morningstar Developed Europe Climate Transition Benchmark Index
- ▶ Morningstar Developed Europe Paris Aligned Index

- ▶ Morningstar Emerging Markets Climate Transition Benchmark Index
- ▶ Morningstar Emerging Markets Paris Aligned Index

As displayed in Exhibit 15 below, 2 of 8 outperformed in 2021. For the five-year period, 8 of 8 outperformed and 8 of 8 lost less than their parent index during down periods.

Exhibit 15 Morningstar E.U. Climate Indexes Risk/Return Record vs. Equivalent Large/Mid-Cap Index

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
Global Markets CTB	0.50	0.68	97.47
Global Markets PAB	-0.12	1.31	94.70
Developed Markets CTB	0.55	0.75	97.37
Developed Markets PAB	0.00	1.44	94.62
Developed Europe CTB	-0.14	0.41	98.30
Developed Europe PAB	-0.66	0.56	96.38
Emerging Markets CTB	-0.47	0.36	97.74
Emerging Markets PAB	-1.75	0.30	98.73

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar ESG Enhanced Indexes

The Morningstar ESG Enhanced Indexes aim to minimize portfolio-level ESG risk and reduced carbon emissions intensity while delivering diversified exposure similar to their parent indexes, the Morningstar Target Market Exposure Indexes, which target 85% of equity market capitalization. The ESG enhanced indexes exclude companies involved in tobacco, controversial weapons, and civilian firearms, as well as severe business controversies, and companies out of compliance with the UN global compact. They aim to minimize portfolio-level ESG risk as measured by aggregated Sustainalytics' ESG Risk Ratings. The indexes limit tracking error versus their parents by constraining active weights at individual holding, sector, and country level, employing the Morningstar Global Industry Standard Risk Model. The indexes were launched in 2021 with performance history from December 2015 based on historical Sustainalytics ratings. The indexes are:

- ▶ Morningstar US ESG Enhanced Index
- ▶ Morningstar UK ESG Enhanced Index
- ▶ Morningstar Developed Europe ex-UK ESG Enhanced Index
- ▶ Morningstar Japan ESG Enhanced Index
- ▶ Morningstar Developed Asia Pacific ex-Japan ESG Enhanced Index
- ▶ Morningstar Emerging Markets ESG Enhanced Index

As displayed in Exhibit 16 below, six of six indexes outperformed in 2021, while four of six indexes with five-year histories outperformed over the five-year period and six of six lost less than their non-ESG equivalents for the trailing five-year period.

Exhibit 16 Morningstar ESG Enhanced Indexes Risk/Return Record vs. Equivalent Index

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
U.S.	1.55	0.48	98.26
U.K.	0.54	0.34	98.32
Developed Europe ex-U.K.	0.54	0.58	97.41
Japan	0.65	0.86	96.61
Developed Asia Pacific ex-Japan	1.74	-0.02	97.61
Emerging Markets	0.27	-0.40	99.27

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar Global Treasury Bond Sustainability Indexes

Morningstar Global Treasury Bond Sustainability Indexes includes developed-markets, investment-grade Treasury bonds issued in each country's home currency. The indexes leverage Sustainalytics Country Risk Ratings, which are applied to 172 countries. The rating measures risk to a country's long-term prosperity and economic development by assessing how sustainably it is managing its natural, human, and institutional capital. Sustainalytics assesses more than 30 indicators to score three areas that correspond to the E, S, and G pillars. Meanwhile, an event rating assesses incidents that might have negative impact, such as state corruption or violent conflict. The indexes are tilted toward those countries with lower country sustainability risks and incorporates environmental, social, or governance criteria. The indexes are:

- ▶ Morningstar Global Treasury Bond Sustainability Index
- ▶ Morningstar Global ex-Japan Treasury Bond Sustainability Index

The indexes launched in 2021 with returns back-tested to 2014 based on Sustainalytics' ratings. As displayed in Exhibit 17 below, zero of two indexes outperformed in 2021, while one of two indexes with five-year histories outperformed over the five-year period and one of two lost less than its non-ESG equivalents for the trailing five-year period.

Exhibit 17 Morningstar Global Treasury Bond Sustainability Indexes Risk/Return Record vs. Parent Index

Indexes	2021 Excess Return	5-Year Excess Return (Annualized)	5-Year Downside Capture Ratio
Global	-0.10	1.36	96.16
Global ex-Japan	-0.58	-3.67	131.90

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Additional Morningstar Sustainability Indexes

Three fixed-count sustainability indexes are methodologically similar to the broad Morningstar Sustainability Indexes. They select compact cohorts of companies within different geographies based on their ESG Risk Ratings. The indexes exclude tobacco, controversial weapons, civilian firearms, and companies experiencing serious ESG-related controversies. Sector and regional weights are kept to within 2 percentage points of their parent index, and index constituents are weighted by market cap. The indexes are:

- ▶ Morningstar Global Markets Sustainability 50 Index
- ▶ Morningstar Developed Markets Sustainability 200 Index
- ▶ Morningstar Developed Markets Asia Pacific Sustainability 60 Index

Morningstar's focused sustainability indexes launched in 2018 with returns back-tested to December 2009 based on Sustainalytics' company-level ratings. The Morningstar Global Markets Sustainability 50 Index is derived from the large- and mid-cap segment of the global equity market. The Morningstar Developed Markets Sustainability 200 Index is derived from the large-cap segment, as is the Morningstar Developed Markets Asia Pacific Sustainability 60 Index. Other indexes are:

- ▶ The Morningstar Global Target Market Exposure Responsible Index represents the top 85% of market capitalization across developed and emerging markets after excluding companies associated with adult entertainment, alcohol, gambling, firearms, fossil fuels, and tobacco products. The index uses Sustainalytics' Controversial Product Involvement data and relies on revenue thresholds. The index launched in 2019 with returns back-tested to 2016 based on historical Sustainalytics data.
- ▶ The Morningstar Sweden Sustainability Selection 70 Index targets Swedish companies with a goal of achieving a lower ESG risk profile than the Morningstar Sweden (broad market) Index. It excludes companies involved in a range of areas, those that are not compliant with the U.N. Global Compact, and those with a serious level of ESG controversy. Sector weights may not deviate more than 4 percentage points from the Morningstar Sweden Index. The index launched in 2020 with returns back-tested to 2016 based on historical Sustainalytics data.
- ▶ The Morningstar Global ex-Fossil Fuels Index is derived from the Morningstar Global Markets Large-Mid Index. The index excludes companies that derive least 5% of revenue from thermal coal extraction, thermal coal power generation, oil and gas production, oil and gas power generation, oil sands extraction, and arctic oil and gas exploration and extraction. The index also excludes companies that derive more than 50% of revenue from oil- and gas-supporting products/services. The index launched in 2021 with returns back-tested to 2018 based on historical Sustainalytics data.
- ▶ The Morningstar Canada ex-Fossil Fuels Index is derived from the Morningstar Canada Large-Mid Cap Index. The index excludes companies that derive least 5% of revenue from thermal coal extraction, thermal coal power generation, oil and gas production, oil and gas power generation, oil sands extraction, and arctic oil and gas exploration and extraction. The index also excludes companies that

derive more than 50% of revenue from oil- and gas-supporting products/services. The index launched in 2020 with returns back-tested to 2018 based on historical Sustainalytics data.


As displayed in Exhibit 18 below, one of seven indexes outperformed in 2021, while four of five indexes with five-year histories outperformed over the five-year period and four of five lost less than their non-ESG equivalents for the trailing five-year period.

Exhibit 18 Additional Morningstar ESG Indexes Risk/Return Record vs. Parent Index

Indexes	2021 Excess Return	5-Year Excess Return	5-Year Downside Capture Ratio
Global Target Market Responsible	-0.10	1.36	96.16
Global Market Sustainability 50	-0.58	-3.67	131.90
Developed Markets Sustainability 200	3.70	0.07	98.13
Developed Asia Pacific Sustainability 60	-0.52	2.36	76.58
Sweden Sustainability Select 70	-4.75	0.13	95.59
Global ex-Fossil Fuels	-0.32	N/A	N/A
Canada ex-Fossil Fuels	-0.35	N/A	N/A

Source: Morningstar Direct. Data as of Dec. 31, 2021.

Morningstar ESG Indexes Exhibit Competitive Risk/Return Profile

The superior downside protection provided by the ESG indexes assessed in this paper supports the view that ESG risks are financially material and the Sustainalytics ESG Risk Rating helps mitigate risk. For sustainability-focused investors, the results are encouraging. Risk attributes tend to be more stable over time than relative returns. Lower-volatility investments have also historically been easier for investors to use—less susceptible to dramatic swings that tempt investors during good times and scare them away in bad times. The experiences of 2021 demonstrate that ESG investments will underperform in some markets and outperform in others. But thus far, risk and returns for Morningstar's ESG indexes can certainly be described as "competitive." 

About Morningstar Indexes

Morningstar Indexes combine the science and art of indexing to give investors a clearer view into the world's financial markets. Our indexes are based on transparent, rules-based methodologies that are thoroughly back-tested and supported by original research. Covering all major asset classes, our indexes originate from the Morningstar Investment Research Ecosystem—our network of accomplished analysts and researchers working to interpret and improve the investment landscape. Clients such as exchange-traded fund providers and other asset management firms work with our team of experts to create distinct, investor-focused products based on our indexes. Morningstar Indexes also serve as a precise benchmarking resource.

To learn more about Morningstar Indexes, visit: <http://global.morningstar.com/indexes>

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