RESEARCH INSIGHT

Understanding MSCI Resilient Future Indexes

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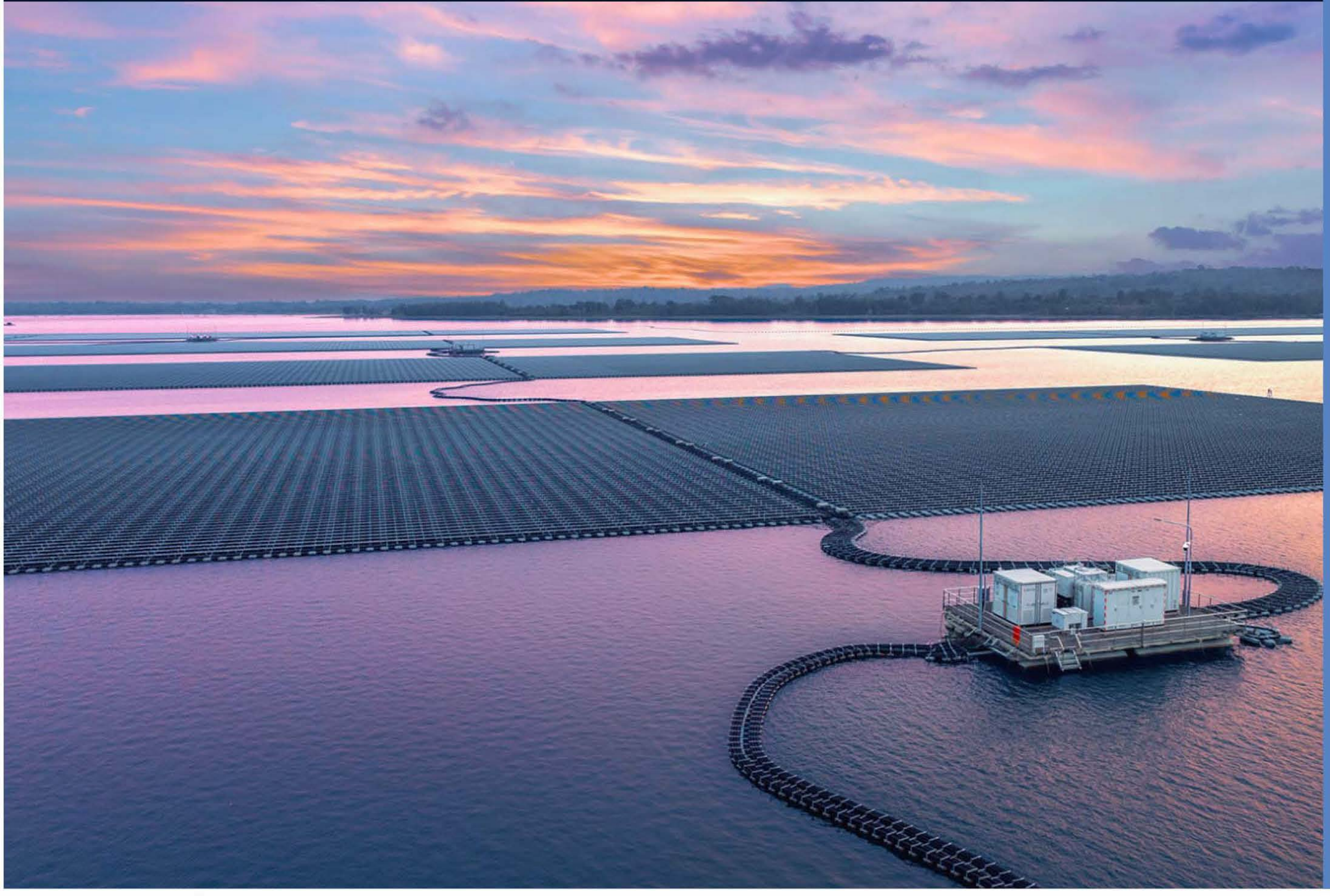

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Evolving to a sustainable economy requires new investment

Environmental solutions, as wide ranging as renewable-energy technologies, meat substitutes and batteries, could play a critical role in achieving the shift toward a more sustainable global economy and building a more resilient future. Adopting these solutions could potentially help in reducing the likelihood of crossing irreversible environmental tipping points, such as significant climate change, groundwater depletion and biodiversity loss.

An increasing number of investors are keen to capitalize on the financial opportunities presented by companies participating in this change. The economic rationale is that the shift to a low-carbon and resource-efficient economy necessitates major investment in new technologies (e.g., installing new wind- or solar-power capacity, increasing energy efficiency, and carbon-capture and storage solutions) to replace existing resource-intensive and less-efficient processes and operations. The resultant technological innovation presents an opportunity to invest in companies at the forefront of this shift.

An indexed approach built on environmental-opportunity themes

We describe an indexed approach that could help pinpoint companies with exposure to these environmental opportunities.

The first step in selecting companies would be to identify business activities or themes that are likely to aid the shift toward a sustainable economy and also to experience significant growth tailwinds as a result of mass adoption by stakeholders, such as corporations, governments and the public. This assessment could begin using a broad framework of environmental-opportunity themes that leverages MSCI ESG Research's environmental-impact themes and publicly available taxonomies and frameworks developed by the European Commission and the United Nations Environment Program.

The second step would be to evaluate a company's exposure to these themes. Practical challenges exist in quantifying the extent of many companies' exposures, however. One way to approach this analysis would be to estimate a company's anticipated revenues related to the theme. Certain companies, especially in emerging technologies, do not offer full disclosure of their revenues and revenue sources. To address this limited visibility, we would need to use a different approach to understand their likely exposures.

The final step would be to combine the universe of eligible companies simply and transparently in a way that can illuminate the rationale behind each company's inclusion.

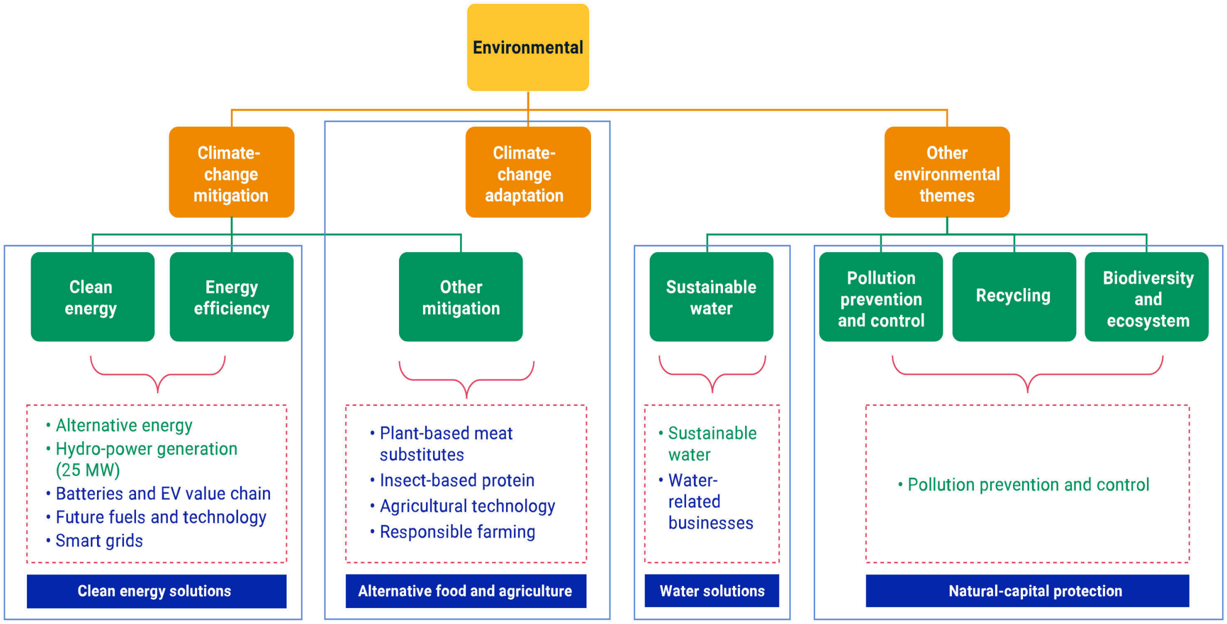
MSCI's ESG and thematic data can help define opportunity set

The foregoing approach presents some data challenges. To address them, we combine the datasets of MSCI Sustainable Impact Metrics and MSCI ESG Climate Change Metrics (we refer to these together as "ESG revenues") with the MSCI Thematic Relevance Score, which assesses the strength of a company's economic link to a theme. By using ESG revenues, we benefit from an analyst-derived assessment of the strength of a company's alignment with one or more of the environmental-opportunity themes. Using the MSCI Thematic Relevance Score helps capture quickly evolving technologies and solutions and the companies that have exposure to them along the value chain of businesses aligned with these themes.

We use natural-language processing (NLP) to generate, at scale, granular phrases associated with the products, services and investments that characterize a theme. These phrases and their synonyms can then be compared to information from companies on their self-declared business lines and publicly sourced business descriptions. An example of how we use the MSCI Thematic Relevance Score methodology is in capturing the subtheme of batteries and electric vehicles (EV) to find firms whose operations deal with, among other activities, battery packing, battery-charging infrastructure, battery recycling and battery technologies. This approach would also include companies that produce non-lithium-based batteries, such as hydrogen fuel cells and solid-state batteries, as well as metal and mining companies that extract the raw materials for batteries, such as lithium and zinc. All of these related companies are key players in the subtheme's value chain. The words and phrases used in the calculation of the MSCI Thematic Relevance Score are updated annually to reflect the latest developments within each subtheme. The MSCI Thematic Relevance Score supplements the exposures from ESG revenues by establishing an economic linkage with emerging technologies, enhancing the potential to capture both positive environmental outcomes and innovative or forward-looking environmental solutions.

The themes that MSCI can currently establish economic linkages for are illustrated in Exhibit 1.

Exhibit 1: MSCI can measure exposures for these environmental-opportunity themes



We use a combination of MSCI ESG Research datasets and thematic exposures, built using NLP techniques, to measure these themes. Themes in the green font use MSCI's ESG data, and themes in the blue font use MSCI's thematic data.

The MSCI Resilient Future Indexes

The MSCI Resilient Future Indexes use the framework in Exhibit 1 and include companies associated with the development of products or the provision of services focused on the following eight subthemes: alternative energy, hydro-power generation,[1] batteries and EV value chain, smart grids, future fuels and technology (the preceding are collectively known as clean-energy solutions), alternative food and agriculture, water solutions and natural-capital protection.

Constituent selection. Consistent with the indexed approach described previously, the eligible universe of the MSCI Resilient Future Indexes is selected based on ESG revenues and the MSCI Thematic Relevance Score.[2] Constituents that meet the eligibility criteria for each subtheme are then pooled to form the index's constituents.

The indexes also apply a set of exclusion screens whose goal is to control for headline risk and reduce negative externalities from certain business activities. However, when screening on

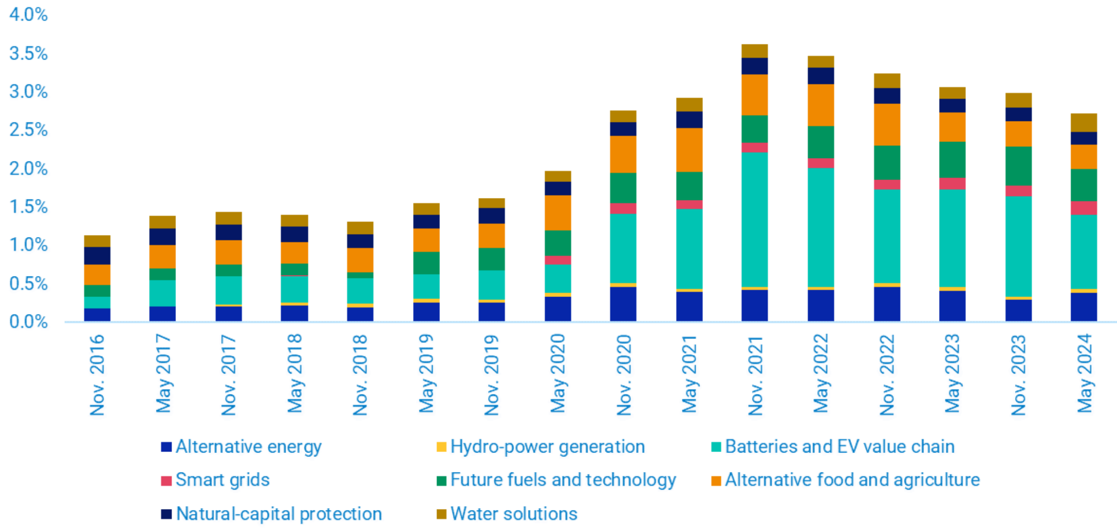
[1] This category includes power generation from hydro-power plants that have a capacity larger than 25 MW. Small hydro-power plants with a maximum capacity of 25 MW are included in the alternative-energy subtheme.

[2] A threshold of 25% is applied as the screen for MSCI ESG revenues, and a threshold of 50% is applied as the screen for the MSCI Thematic Relevance Score.

fossil-fuel-based power generation, the index methodology accounts for market sentiment that supports a nuanced approach, which allows select utilities constituents to remain eligible for the indexes.[3] The screening approach balances the potential for negative externalities with utilities-sector[4] companies' potential to shift away from traditional thermal coal-based power generation to renewable resources or green activities.

Broad adoption across the eight subthemes being captured in the MSCI ACWI Investable Market Index (IMI) Resilient Future Index (i.e., the resilient-future subthemes) by stakeholders, such as governments, investors and corporations, helped drive the outperformance of the MSCI ACWI IMI Resilient Future Index (13.6%) versus the MSCI ACWI IMI Index (11.1%) from Nov. 30, 2016, to May 31, 2024.[5] Enthusiasm in supporting the move toward sustainability contributed to the growth of the subthemes' weight in the MSCI ACWI IMI over this period.

Exhibit 2: Weights of resilient-future subthemes in the MSCI ACWI IMI Index



Data from the November 2016 to May 2024 index reviews. The weights include overlaps pertaining to companies with exposure to more than one subtheme.

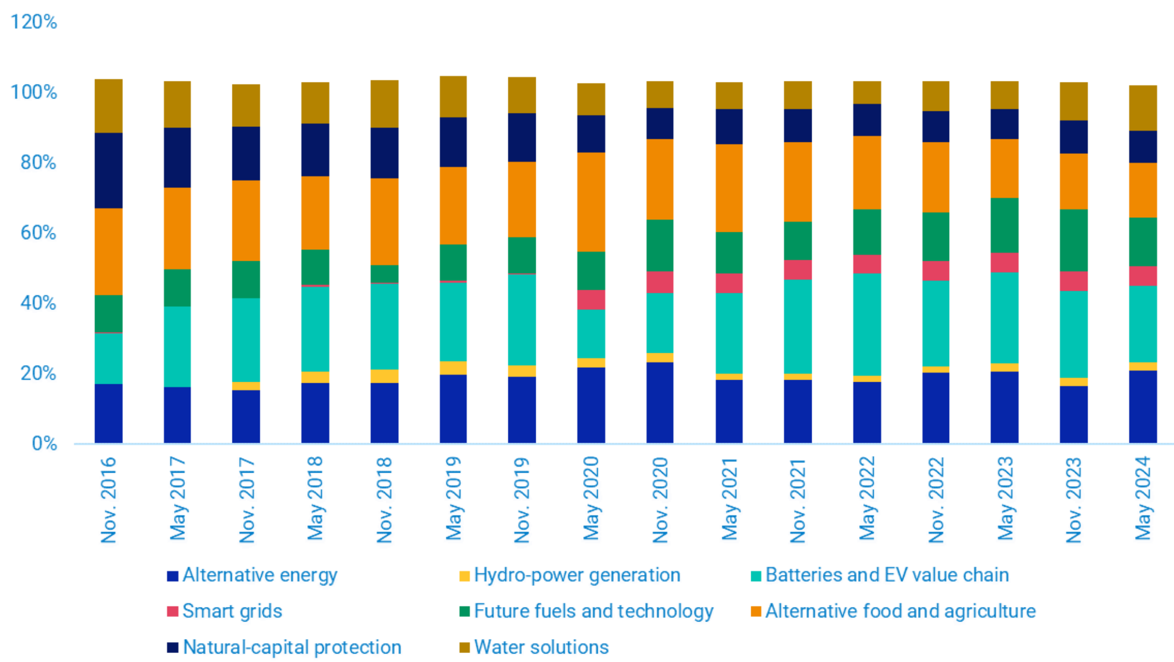
[3] All companies deriving 5% or more of their revenues (either reported or estimated) from thermal coal-based power generation are excluded, unless they derive 50% or more of their aggregate revenues from alternative energy, hydro-power generation, sustainable water and natural-capital protection. Based on targeted engagement prior to the launch of the MSCI Resilient Future Indexes, market participants expressed the need to apply the screening on thermal coal-based power-generation revenues with a 5% threshold, as also commonly applied in other MSCI ESG and Climate Indexes, while concurrently recognizing the potential for the transition of this sector.

[4] We define sectors using the Global Industry Classification Standard (GICS®). GICS is the industry-classification standard jointly developed by MSCI and S&P Global Market Intelligence.

[5] The analysis and observations in this research insight are limited solely to the period of the relevant historical data, backtest or simulation. There are frequently material differences between backtested or simulated performance results and actual results subsequently achieved by any investment strategy. Past performance — whether actual, backtested or simulated — is no indication or guarantee of future performance. None of the information or analysis herein is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision or asset allocation and should not be relied on as such.

Securities in the MSCI Resilient Future Indexes are weighted in proportion to their weight in their respective parent index, with the maximum weight of any issuer capped at 5%.[6] Based on our historical simulations, the clean-energy-solutions subthemes have been more heavily weighted in the MSCI Resilient Future Indexes than the other subthemes — alternative foods and agriculture, water solutions and natural-capital protection. One reason for this is that clean-energy solutions are viewed as playing a critical role in addressing environmental challenges and shaping a resilient future. As the economy evolves and broadens into more diverse environmental themes, this weighting distribution could evolve.

Exhibit 3. Weights of resilient-future subthemes in the MSCI ACWI IMI Resilient Future Index



Data from November 2016 to May 2024 index reviews. The weights include overlaps pertaining to companies with exposure to more than one subtheme.

The MSCI ACWI IMI Resilient Future Index comprised 310 constituents as of the May 2024 index review, covering 3.4% of the constituents in the MSCI ACWI IMI. The index had an 80.2% weighted-average exposure to the themes captured by the MSCI Resilient Future Index,[7] a 35.2% weighted-average exposure to clean-tech solutions[8] and an 82.3% exposure to stocks with pure-

[6] Please refer to the MSCI Capped Indexes methodology.

[7] Exposure to the resilient-future subthemes is calculated based on the weighted-average of ESG revenues and MSCI Thematic Relevance Score.

[8] Exposure to clean-tech solutions is calculated based on the weighted-average clean-tech revenues. Clean-tech revenues are the ESG revenues from six clean-tech themes defined in MSCI Sustainable Impact Metrics: alternative energy, energy efficiency, green building, pollution prevention, sustainable water and sustainable agriculture.

play involvement in any of the subthemes.[9] These exposures were 19 times, 6 times and 30 times the respective exposures of the MSCI ACWI IMI. Fossil-fuel exposure[10] was also limited at 0.4%, significantly lower than the 3.5% level in the MSCI ACWI IMI Index.

Exhibit 4: Key metrics of the MSCI ACWI IMI and MSCI ACWI IMI Resilient Future Index

Key metrics	MSCI ACWI IMI	MSCI ACWI IMI Resilient Future Index
Total return	11.1%	13.6%
Total risk	16.0%	20.3%
Tracking error	-	8.5%
Number of constituents*	8,867	310
Turnover	1.9%	23.4%
Exposure to resilient-future subthemes*	4.3%	80.2%
Exposure to clean tech*	6.1%	35.2%
Exposure to pure play on stock*	2.8%	82.3%
Exposure to fossil fuels*	3.5%	0.4%

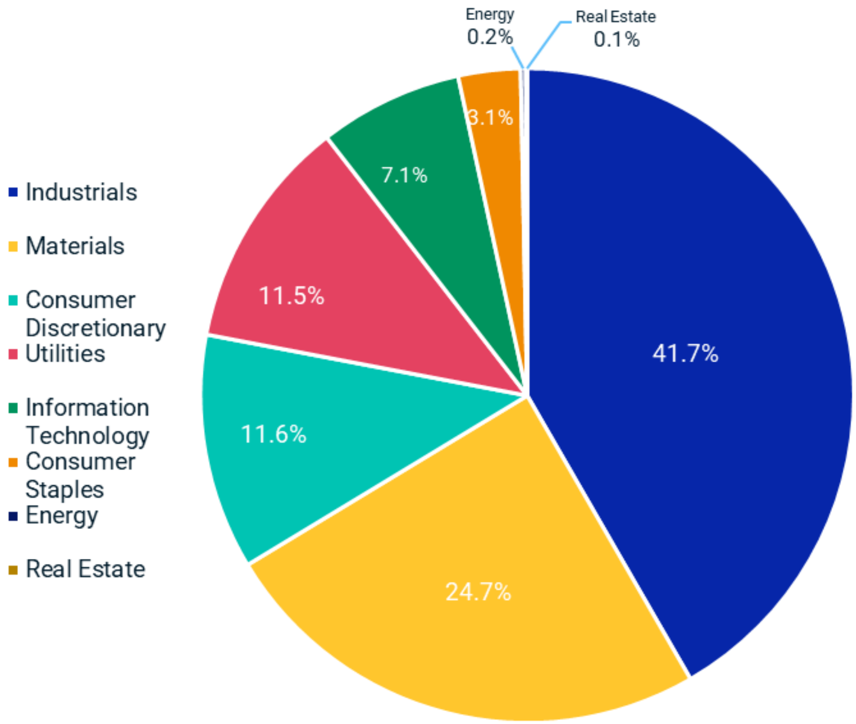
*Data from Nov. 30, 2016, to May 31, 2024. * denotes the value as of the latest index review. Gross returns are annualized in USD. Turnover is measured as annualized one-way index turnover over index reviews. The analysis and observations in this product insight are limited solely to the period of the relevant historical data, backtest or simulation. There are frequently material differences between backtested or simulated performance results and actual results subsequently achieved by any investment strategy. Past performance — whether actual, backtested or simulated — is no indication or guarantee of future performance. None of the information or analysis herein is intended to constitute investment advice or a recommendation to make (or refrain from making) any kind of investment decision or asset allocation and should not be relied on as such.*

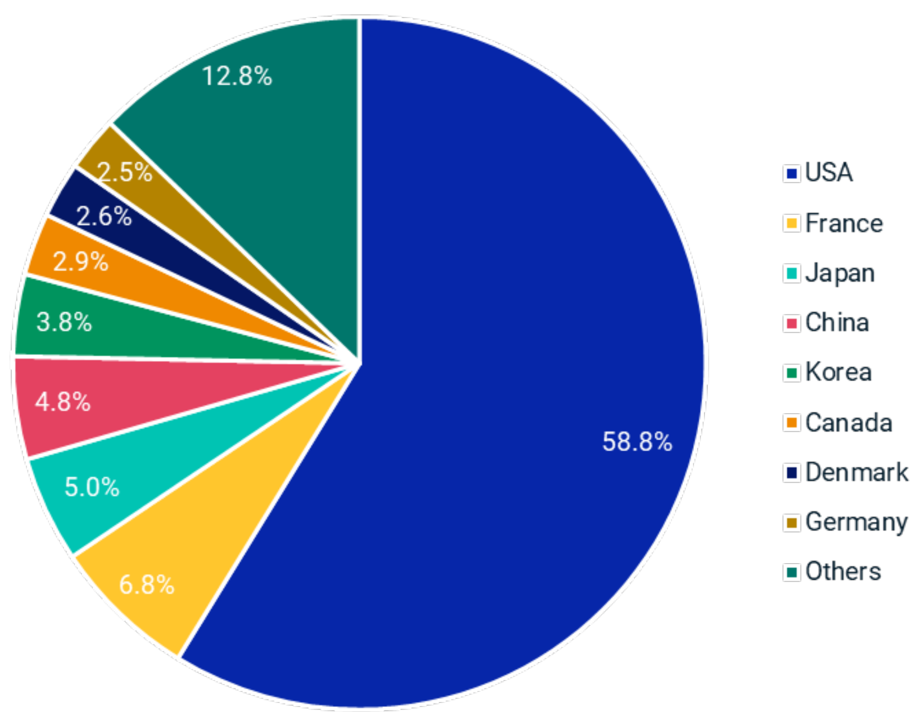
As of June 3, 2024, the four largest sectors in the MSCI ACWI IMI Resilient Future Index were industrials (41.7%), materials (24.7%), consumer discretionary (primarily due to the high allocation to the automobiles and components industry) (11.6%) and utilities (11.5%). In terms of country composition, the U.S. has the largest weight (58.8%) followed by France (6.8%), Japan (5%) and China (4.8%). The security-selection process within each subtheme spans sectors and countries.

[9] Exposure to pure-play stock is the weight of stocks that have 50% or higher ESG revenues or MSCI Thematic Relevance Score.

[10] Exposure to fossil fuels is defined as the sum of revenues from thermal coal mining, oil and gas extraction, oil and gas refining, and fossil-fuel-based power generation.

Exhibit 5: Sector and country distribution of the MSCI ACWI IMI Resilient Future Index





As of May 2024, the latest index review.

The road to a sustainable economy

Investors with sustainable objectives may be guided by different priorities. Some aim to reduce current carbon emissions and potential emissions from fossil-fuel reserves by limiting their exposure to likely stranded assets. Others seek to invest in environmental solutions that could support the shift to a sustainable economy, choosing to allocate to companies actively engaged in building a resilient future. The MSCI Resilient Future Indexes are aligned with the latter approach, selecting constituents that are exposed to environmental-opportunity themes through their products or services.

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