
Morningstar® Thematic Consensus Indexes

A market-driven view of thematic relevance.

Morningstar Inc.

July 2024

Contents

2	A Market-Driven Approach to Thematic Indexing
3	Mapping the Thematic Fund Universe
5	Three-Tier Framework
6	Fund-Tagging Process
7	Theme Consensus Fit Score
Methodology	
9	Stable, Complementary, and Globally Relevant
13	Index Outcomes
14	Harnessing the Wisdom of the Market
15	Appendix

Alex Bryan, CFA
Director of Product Management, Equity Indexes
alex.bryan@morningstar.com

Aniket Gor, CFA
Lead Quantitative Analyst, New Product Development
aniket.gor@morningstar.com

Kenneth Lamont
Senior Analyst, Manager Research
Kenneth.lamont@morningstar.com

<https://indexes.morningstar.com/>

The Morningstar Thematic Consensus Indexes capture a market-driven view of thematic relevancy through an objective scoring model that leverages public fund holdings data to identify the companies most commonly held in funds mapped to the targeted theme. To strengthen focus, the methodology orients the indexes toward companies most closely aligned to the theme and away from companies associated with multiple unrelated themes. The indexes are built for scale, with liquidity screens, turnover buffers, and a weighting scheme that incorporates float-adjusted market cap in addition to the thematic exposure score to support high investment capacity.

Key Takeaways

- ▶ It can be challenging to benchmark thematic funds or identify which companies are most relevant to a given theme. Companies typically do not report their financial results in a manner that clearly aligns with a targeted theme, and approaches to estimate exposure often rely on models that are not transparent and that can produce false positives.
- ▶ The Morningstar Thematic Consensus Indexes attempt to address these challenges by applying an objective framework to target companies widely associated with a specific theme based on fund holdings data. The aim is to focus on companies where there is the greatest consensus of thematic relevance.
- ▶ The Morningstar Theme Consensus Fit Scores underpinning these indexes are driven by how widely each stock is held across funds tagged to the target theme. Those scores are adjusted to de-emphasize companies associated with multiple unrelated themes.
- ▶ In this framework, thematic exposure does not always align cleanly with traditional industry and sector classifications.
- ▶ There is little overlap among the holdings across the portfolios of the Morningstar Thematic Consensus Indexes. Each of these indexes offers highly differentiated exposure from the others in the family.
- ▶ The Morningstar Thematic Consensus Indexes have tended to perform better than a simple composite of the underlying funds from December 2018 through April 2024.

A Market-Driven Approach to Thematic Indexing

Index investing is rooted in the premise that the market's collective wisdom is hard to consistently beat. This has been well-documented for broad market indexes, but applying a market-driven view can also be a powerful framework for thematic investing, for both performance benchmarking and portfolio construction.

Thematic investing strategies target securities expected to benefit from long-term macroeconomic or structural trends, such as demographic shifts and technological advances, which do not closely align with traditional industry classifications. These strategies rarely fit the mold of well-established categories or market segments. This can make it challenging to benchmark thematic funds or even identify which companies are most relevant to a given theme. Companies typically do not report their financial results in a manner that clearly aligns with a targeted theme, which creates even more of a challenge.

There are different approaches to solve this problem. Some indexes use natural language processing, or NLP, to infer thematic relevance. This technique relies on keywords and context in company and media reports to gauge thematic exposure. But these models can produce false positives, as the link between how often certain thematic keywords appears and actual cash flows that are driven by a theme can be tenuous.

Other indexes attempt to estimate revenue tied to each theme, often using a combination of analysts, quantitative models, and reported financial statements. However, these estimates are not perfect: They often rely on assumptions that may or may not be valid and ignore the net impact of exposure to the theme. For example, most legacy automakers have topline revenue exposure to electric vehicles, but not all will benefit from the growth of EV, as that growth may cannibalize many of those firms' sales of legacy internal-combustion engine vehicles.

Active managers may overcome these limitations through fundamental research, but they introduce their own set of challenges, including key person risk, higher fees, as well as less transparency and consistency than an index-driven approach.

No approach is perfect, but many of these shortcomings can be mitigated by adopting a market-driven view of thematic relevance, as many of the errors of each construction approach are only slightly correlated.

This is the approach the Morningstar Thematic Consensus Indexes follow. These indexes are designed to provide exposure to companies that are widely held by funds (both active and passive) targeting a given theme. The index methodology leverages the thematic fund taxonomy developed by Morningstar Manager Research and the consensus ownership model maintained by the Morningstar Quantitative Research team to deliver exposure to companies widely associated with the target theme. These indexes strengthen their thematic exposure by focusing on companies where there is broad consensus of thematic relevance across managers who target the same theme. They also accomplish

this by de-emphasizing companies commonly associated with multiple unrelated themes and, therefore, may not offer a high degree of exposure to any single theme.

This is a fully transparent, rules-based methodology built on public holdings data. While the data is public, the fund thematic taxonomy it relies on is unique to Morningstar.

The Morningstar Thematic Consensus Indexes are built for scale. They support high investment capacity with liquidity screens, turnover buffers, and weighting driven by both float-adjusted market cap and thematic exposure.

Mapping the Thematic Fund Universe

The Morningstar Thematic Consensus Indexes rely on the Morningstar Global Thematic Fund Classification System. This framework is used to assign thematic tags to investment funds based on thematic intentionality, which provides clarity into the range of thematic funds available to investors and can reveal the companies most commonly associated with each theme.

Tags are awarded to all funds in the Morningstar equity fund universe including both active and passive strategies. The framework allows thematic funds to be quickly identified and global thematic peer groups to be formed, facilitating peer-to-peer comparison and further analysis.

Exhibit 1 The Morningstar Global Thematic Fund Classification System

Physical World Energy Transition Alternative Energy Carbon Transition Clean Energy Clean Tech Climate Solutions Energy Transition Green Energy Green Tech Hydrogen Economy New Energy Nuclear Renewable Energy Renewable Infrastructure Smart Energy Solar Sustainable Disruptors Wind Food Agribusiness AgriTech Fishing Food Food Security Food Tech Future of Food Livestock Breeding Nutrition Regenerative Agriculture Logistics + Transportation Jets Logistics Shipping Transport Multiple Physical World Themes Clean Economy Environmental Opportunities Resource Management Blue Economy Circular Economy Ecology Future Resources Green Metals Rare Resources Resource Technology Timber Upstream Natural Resources Uranium Water Other Disaster Recovery Future Infrastructure Smart Construction	Social Cannabis Cannabis Psychedelics Consumer Alcohol Brands Changing Lifestyles Consumer Consumer Electronics Consumer Finance Consumer Health Consumer Joy Consumer Tech Cosmetics EM Consumption Entertainment Future Consumer Generation z Household Appliances KPOP Leisure Luxury Millennials Next Generation Consumer Pets Retail and Commerce Sports Subscription Economy Sustainable Consumer Demographics Aging Population Demographics Future of Humans Urbanization Political China Policy Energy Independence Infrastructure Spending Korea New Deal Korea Unification National Industrial Improvements New Silk Road Policy driven Regional Development State-Owned Enterprises Strategic Infrastructure Structural Reform US Policy Post-Corona Airlines, Hotels, Cruise Lines Hotel Restaurants Tourism Work From Home	Security National Security Safety Security Wellness Alternative Health Better Health Education Healthy Living Korean Culture Obesity Self Development/Fulfillment Traditional Medicine Wellness Other Vice Technology Artificial Intelligence + Big Data Artificial Intelligence Artificial Intelligence of Things Big Data Data Centers Battery Technology Battery Technology Lithium Producers Next Gen Fuel Cell Cloud Computing Cloud Computing Cyber Security Cyber Security Digital Economy Advertising + Marketing Tech Connectivity Convergence Technology Data Economy Data Sharing Digital Economy Digital Media Digital Opportunities Digitalisation Disruptive Commerce E-commerce Entertainment Film and Television Information Industry Internet Internet of Things Multimedia Online Consumption Pop and Media Sharing Economy	Smart Commerce Smart Equipment Smart Home Social Media Tech Platforms Web x.0 Webtoons and Drama Fintech Blockchain Digital Payments Digital Trading ETF Industry Financial Innovation Fintech Pay Infrastructure Future Mobility Automated Driving Cleaner Transport Disruptive Automation Electric Vehicle Future Mobility Green Vehicles Hybrid Car Internet of Vehicle New Energy Vehicles Next Gen Auto Smart Mobility Life Sciences Biotech Biothreat Brand Name Drugs Cancer Digital Health Genomics Health Innovation Immunology Medical Devices Medtech Neuroscience New Drugs Public Health Sustainable Health Telemedicine + Digital Health Treatments Testing Advancements Virology Multiple Tech Themes 4th Industrial Revolution Early Stage Innovation Electric Vehicle + Battery Emerging Industry Exponential Tech Metaverse Moonshot Tech	Nano Technology + New Materials Disruptive Materials Nano Tech New Materials Smart Materials Next Gen Communications + Digital Infrastructure 5G Digital Infrastructure Mobile Internet Next Gen Communications Smart Cities Smart Connectivity Smart Grid Wearables Wireless Robotics + Automation 3D Printing Advanced Manufacturing Automation Drones High-End Equipment Hi-Tech Manufacturing Optical Technology Robotics + Automation Smart Industrial Technology Space Space Virtual Reality and Gaming Digital Entertainment ESports Gaming + Esports K-Game Virtual Reality Other Integrated Circuits New Economy Real Estate Real Estate Tech Broad Thematic Broad Thematic Broad Thematic
---	---	--	---	--

Source: Morningstar Direct. Data as of June 2024.

The Morningstar Research team has defined the universe of thematic funds as those that explicitly select holdings based on their exposure to one or more environmental, technological, or societal structural trends that transcend the traditional business cycle.

While many active managers select investments based on exposure to a theme as part of their investment process, this framework can help identify a distinct subset of funds that explicitly target these themes.

This definition includes funds like cannabis strategies, which hope to capitalize on the legalization and commercialization of cannabis globally but excludes funds that might be useful for making tactical economic calls but lack a cohesive longer-term narrative, such as those that target Japanese exporters.

The framework is ESG agnostic. Funds are included if their investment strategy is designed to profit from the development of a given theme regardless of their sustainable merit. For example, a nuclear-themed fund may not meet many sustainable criteria, but it would be tagged under the energy transition theme, alongside explicitly sustainable green energy funds.

Funds that aim primarily to reward companies with strong environmental, social, and governance credentials are excluded from the framework. These include most broad ESG funds, which select a diverse group of companies based on ESG scores and more targeted impact funds, which attempt to maximize measurable sustainable impact.

A fund that uses artificial intelligence or machine learning in its stock-selection process will be included only if it also targets specific themes. For example, a fund leveraging AI to pick stocks based solely on alpha potential would not be considered thematic, whereas a fund using NLP to identify stocks related to the AI and Big Data themes would be.

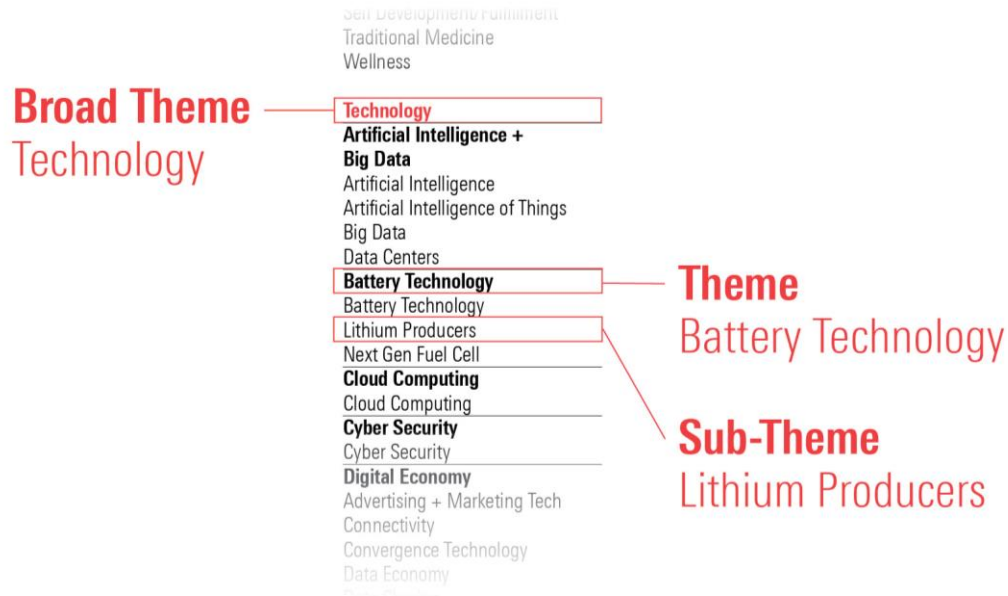
As a rule of thumb, funds that either track standard sector, industry, or subindustry indexes or closely resemble mainline sector funds are excluded from our definition of thematic funds. To help separate these groups as cleanly as possible, we have referenced the Industry Classification Benchmark, the Global Industry Classification Standard, and Morningstar's own Global Equity Classification Structure. For example, semiconductor funds are considered sector rather than thematic even though they may be used to play themes because semiconductors and semiconductor equipment is a GICS grouping and therefore a widely recognized and well-defined investment area.

Finally, any fund that fails to differentiate itself from a broad growth or broad tech fund is also excluded.

Three-Tier Framework

Each equity fund in the Morningstar equity fund universe that is considered thematic given the above definition, receives three increasingly granular tags based on their thematic intentionality: broad theme/theme/subtheme.

Exhibit 2 Three-Tiered Global Thematic Fund Classification System



Source: Morningstar Direct. Data as of June 2024.

For example, a blockchain technology-focused strategy would be assigned technology/financial technology/blockchain tags. While a genomics-focused fund would be tagged as technology/life sciences/genomics.

The framework provides a consistent taxonomy, which can then be leveraged to award stock-level thematic exposure scores, as discussed in the Theme Consensus Fit Score Methodology section.

For a more in-depth discussion of the Morningstar Global Thematic Fund Classification System including theme definitions, please refer to the latest Morningstar Global Thematic Fund Landscape [report](#).

Fund-Tagging Process

The Morningstar Global Thematic Fund Classification System is based on manager intentionality rather than simply fund holdings. To identify intentionality, we rely on a combination of the fund’s legal name (a strong indicator of intentionality), its KIID Objective/Investment Policy, and stated Investment Strategy taken from fund legal documentation. These sources may also be supplemented where necessary by other fund documentation or company marketing materials.

Theme Consensus Fit Score Methodology

The Morningstar Thematic Consensus Indexes synthesize Morningstar Manager Research's Thematic Fund tagging taxonomy and Morningstar Quant Research's Ownership Consensus Fit Scoring system to construct an objective, rules-based market-driven view of thematic exposure.

At the heart of the index construction lies the Theme Consensus Fit Score methodology, which is built on the hypothesis that companies widely held across multiple funds tied to a specific theme offer greater thematic relevancy than less commonly held firms. Similarly, it assumes the more themes a company is associated with, the weaker its ties to any single theme.

Stocks receive higher theme consensus fit scores based on the percentage of funds tagged to the target theme in which they appear. These raw scores are adjusted downward based on the number of themes they are associated with.¹

¹ A company is considered materially associated with a theme if at least 10% of the funds tagged to that theme hold it.

Exhibit 3 lays out an example scoring process for the future mobility theme, which has 61 associated funds as of February 2024. These include both active and passive funds that have a clear mandate to invest in that specific theme.

Exhibit 3 Theme Consensus Fit Score Example

Fund Holdings (61 funds)

BetaShares Electric Vehicles and Future Mobility ETF	Candriam Sustainable Equity Future Mobility	Capital Electric Vehicles And Smart Mobility Fund	iShares Electric Vehicles and Driving Technology UCITS ETF	Global X Autonomous & Electric Vehicles ETF
Tesla	Tesla	Tesla	Tesla	Tesla
Aptiv	Aptiv	Aptiv	Aptiv	Aptiv
Visteon	Toyota Motor	Toyota Motor	Visteon	Visteon
Luminar Technologies		BMW	General Motors	General Motors
		Amazon.com	Blink Charging	Toyota Motor
			Dassault Systemes	

Calculate Raw Theme Consensus Fit Score based on the count of holdings across funds

Apply a penalty factor to the raw score based on the count of occurrence across Themes

Theme Consensus Fit Score calculated using percentiles bucketing of adjusted consensus fit score

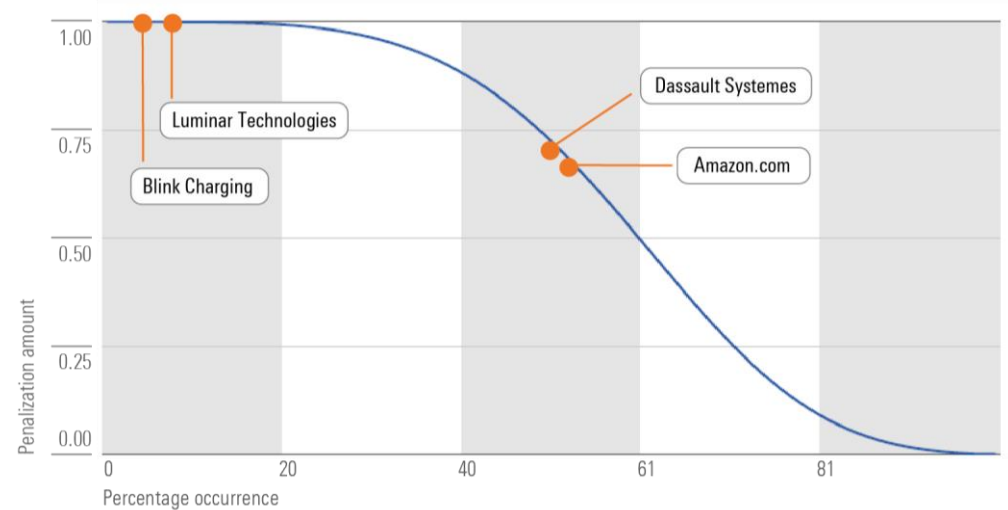
Security Name	Frequency of Occurance across Funds	Raw Consensus Fit Score (%)	Frequency of Occurance across Themes	Penalty Factor	Adjusted Consensus Fit Score (%)	Percentile	Consensus Fit Score
Tesla	44	72	11	0.70	50	97	3
Aptiv	38	62	5	0.98	61	99	3
Visteon	21	34	1	0.99	34	95	3
General Motors	20	33	1	0.99	32	97	3
Toyota Motor	19	31	3	0.99	31	94	3
BMW	11	18	5	0.98	18	80	3
Dassault Systemes	8	13	12	0.70	9	64	2
Amazon.com	6	10	13	0.65	6	39	2
Luminar Technologies	9	15	2	0.99	15	78	3
Blink Charging	6	10	1	0.99	10	76	3
Autodesk	4	7	8	0.95	6	24	1
Ferrari NV	3	5	2	0.99	5	23	1
Mitsubishi Motors	1	2	1	0.99	2	-	-

Source: Morningstar. Data as of February 2024.

Tesla, which is held across 44 of the 61 funds receives a raw score of 72%, while Dassault Systemes and Luminar Technologies receive a raw score of 13% and 15%, respectively. The raw consensus fit score does not differentiate between future mobility pure plays like Luminar Technologies and Blink Charging, versus the more-diversified Dassault Systemes and Amazon, for which tailwinds from electric and self-driving cars would contribute a much smaller fraction of their total revenues. To address this limitation, a

penalty is applied to companies that appear often across multiple themes. The inverted S-curve function shown in Exhibit 4 is used to achieve this purpose.

Exhibit 4 Theme Consensus Fit Score Penalization Factor



Source: Morningstar. Data as of March 2024.

For example, the raw score for Amazon, which appears in 13 of 24 themes, is reduced by a factor of 0.35, from 10.0% to 6.5% using this function. Luminar Technologies' and Blink Charging's raw frequency score of 15% and 10%, respectively, undergoes minimal change because of low presence across multiple themes. Once the scoring process is complete, the companies are then ranked in descending order of their adjusted consensus fit score and bucketed into percentiles based on the ordinal rank.

The final scores are on a scale from one to three. A score of 3 is indicative of the strongest association with the theme and this forms the basis of eligibility for the Morningstar Thematic Consensus Indexes. This corresponds to companies that rank in the top 25% of securities held across funds mapped to the theme. A score of 2 is given to the middle 50% and a 1 to companies in the bottom 25%. Companies not held across any of the tagged thematic funds do not receive a consensus fit score and are not eligible for inclusion in the Morningstar Thematic Consensus Indexes.

For further information about the construction methodology for the Morningstar Thematic Consensus Indexes, refer to the appendix.

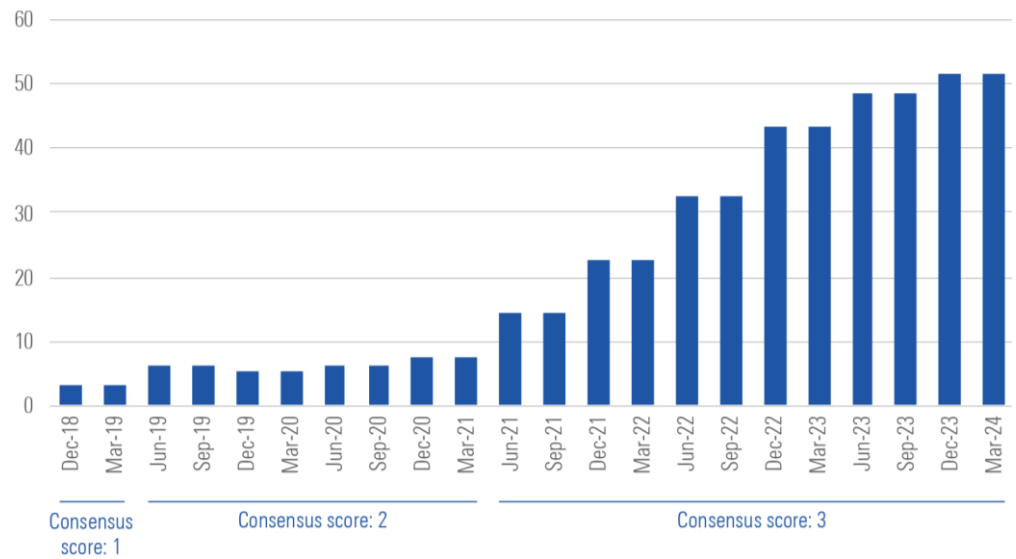
Stable, Complementary, and Globally Relevant

The theme consensus fit scores tend to be stable in aggregate, based on the coverage of companies that receive a score between 2018 through 2024. On average, 88% of companies that received a score of 3 maintained that score over the next six months, 81% maintained a score of 3 over the next 12 months,

and 69% had a score of 3 over the next two years. This implies that empirically, thematic funds do not change their views on thematic relevancy frequently, making this signal conducive to index representativeness and investability.

Changes in the consensus frequency score associated with the theme reflect the markets’ changing conviction in terms of thematic association. For example, Linde plc, a German multinational chemical company and the world's largest industrial gas company has seen an increase in its consensus frequency score associated with the energy transition theme. Over the past few years, Linde PLC has been investing in decarbonization projects, sourcing low-carbon electricity, and investing in promising green hydrogen technologies. The company’s consensus frequency score gradually increased from 1 in 2018 to 3 in June 2021. Linde PLC has continued to receive a consensus frequency top score of 3 since June 2021.

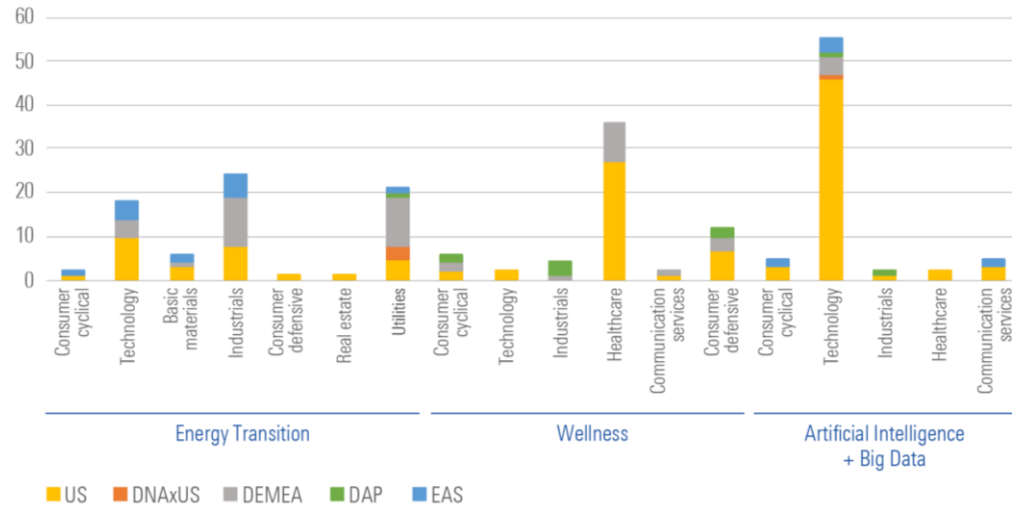
Exhibit 5 Energy Transition Theme Consensus Fit Score for Linde PLC



Source: Morningstar. Data as of December 2018 to March 2024.

Thematic exposure does not always align cleanly with traditional industry and sector classifications, as Exhibit 6 shows. This indicates the thematic framework may be complementary to traditional sector classifications, providing a more forward-looking and holistic view of companies that may be influenced by secular trends.

Exhibit 6 Distribution of Companies with a Theme Consensus Fit Score of 3



Source: Morningstar. Data as of March 2024.

For instance, the energy transition theme has limited exposure to the energy sector. Many traditional energy companies may be net losers in the transition to a low-carbon economy. Under the consensus frequency framework, notable energy transition leaders include NextEra Energy Inc (utilities), Schneider Electric (industrials), LG Energy Solutions (industrials), Tesla (consumer cyclical), Infineon (technology), First Solar (technology), and Enphase Energy (technology).

The consensus frequency scores are globally relevant and consider the holdings of funds from around the world. However, some themes provide less diversified geographical exposure than others. Many of the tech-heavy themes tilt toward North America, as shown in Exhibit 7.

Exhibit 7 Regional Composition of Companies With Theme Consensus Fit Scores of 3

Theme	DM Europe and Mid. East (%)	DM Asia Pac (%)	EM Asia (%)	North America (%)	Other EM (%)
Food	46	4	0	50	0
Energy Transition	37	1	22	40	0
Resource Management	33	8	5	53	1
Wellness	29	9	0	62	0
Battery Technology	3	25	58	13	3
Future Mobility	11	10	34	44	1
Nano Technology + New Materials	17	6	39	22	17
Robotics + Automation	20	17	5	58	0
Cyber Security	5	9	5	82	0
Artificial Intelligence + Big Data	6	3	11	80	0
Fintech	13	8	2	77	0
Digital Economy	5	3	23	68	1
Life Sciences	12	0	1	87	0
Space	18	4	0	79	0
Cloud Computing	0	0	4	96	0

Source: Morningstar. Data as of March 2024.

Index Outcomes

The Morningstar Thematic Consensus Indexes have tended to perform well relative to the underlying funds tagged to the target theme. The exhibit below compares the performance of the Morningstar Thematic Consensus Indexes with a composite portfolio of all the funds tagged to the respective theme. Historically, all the thematic indexes have performed better than the respective composite portfolio, as shown in Exhibit 8.

Exhibit 8 Morningstar Thematic Consensus Indexes Performance Summary

Index	Composite Portfolio Return (%)	Index Return (%)	Index Risk (%)	Index Sharpe-Ratio	Index Max Drawdown (%)	Tracking Error vs Global All Cap TME (%)	2023 Index Ann. Turnover (%)	2023 Composite Portfolio Avg Ann. Turnover (%)	Index Avg No. of Stocks
Morningstar Global All Cap TME Index	-	12.48	17.80	0.60	-34.40	-	3	-	7338
Morningstar Thematic Consensus AI Big Data Index	15.28	22.70	23.79	0.86	-42.72	12.42	18	82	85
Morningstar Thematic Consensus Battery Technology Index	6.79	16.18	31.06	0.45	-39.82	19.42	34	48	31
Morningstar Thematic Consensus Cloud Computing Index	11.33	15.66	23.62	0.57	-49.40	9.49	12	112	38
Morningstar Thematic Consensus Cyber Security Index	13.64	17.71	22.04	0.70	-34.55	13.44	21	36	28
Morningstar Thematic Consensus Digital Economy Index	6.48	18.16	22.53	0.71	-45.19	10.92	11	81	95
Morningstar Thematic Consensus Energy Transition Index	10.89	17.25	25.19	0.60	-39.27	11.91	18	55	82
Morningstar Thematic Consensus Fintech Index	12.13	15.43	21.56	0.61	-41.67	7.97	22	93	64
Morningstar Thematic Consensus Food Index	-0.22	7.17	17.29	0.29	-31.34	6.62	26	67	39
Morningstar Thematic Consensus Future Mobility Index	12.07	23.26	27.82	0.76	-41.93	14.62	19	58	65
Morningstar Thematic Consensus Life Sciences Index	2.46	13.01	15.68	0.69	-25.84	4.40	6	51	78
Morningstar Thematic Consensus Nano Tech + New Materials Index	-14.11	13.19	26.35	0.31	-20.47	19.22	70	77	22
Morningstar Thematic Consensus Resource Management Index	11.65	14.43	19.74	0.62	-33.83	7.60	26	37	78
Morningstar Thematic Consensus Robotics + Automation Index	10.01	25.86	25.59	0.93	-43.91	12.95	14	46	61
Morningstar Thematic Consensus Space Index	2.93	12.63	19.25	0.53	-22.89	9.17	19	26	31
Morningstar Thematic Consensus Wellness Index	-0.58	12.82	14.68	0.73	-28.19	9.70	14	88	51

Source: Morningstar. Data as of December 2018 to April 2024.

The Morningstar Thematic Consensus Indexes also incurred lower turnover compared with the average turnover across funds tagged to the specific theme. This underscores the benefits of targeting companies held across many fund portfolios.

The theme consensus fit scores provide minimal overlap between themes.² This is reflected in the active share matrix between the Morningstar Thematic Consensus Indexes.

Exhibit 9 Active Share Across Morningstar Thematic Consensus Indexes

	Battery Technology	Cloud Computing	Cyber-security	Digital Economy	Energy Transition	Food	Future Mobility	Fintech	Life Sciences	Nano Tech + New Materials	Robotics + Automation	Resource Management	Space	Wellness
Artificial Intelligence + Big Data	97%	75%	98%	48%	97%	99%	71%	65%	97%	98%	48%	99%	92%	97%
Battery Technology		100%	100%	100%	90%	100%	90%	100%	100%	92%	97%	100%	100%	100%
Cloud Computing			88%	68%	100%	100%	93%	82%	100%	100%	78%	100%	90%	100%
Cybersecurity				95%	100%	100%	100%	100%	100%	100%	98%	100%	100%	100%
Digital Economy					100%	100%	83%	60%	100%	100%	68%	100%	90%	100%
Energy Transition						99%	79%	100%	100%	99%	89%	74%	100%	100%
Food							100%	100%	99%	100%	98%	88%	94%	93%
Future Mobility								81%	100%	99%	57%	94%	99%	100%
Fintech									100%	100%	72%	100%	100%	100%
Life Sciences										96%	94%	92%	100%	36%
Nano Technology + New Materials											92%	92%	100%	97%
Robotics + Automation												89%	86%	97%
Resource Management													93%	92%
Space														100%

Source: Morningstar. Data as of Date: March 2024.

Each of the 15 themes in Exhibit 9 had an average active share greater than 90% with all other themes. The Morningstar Thematic Consensus Indexes can also offer distinct exposures in seemingly related themes. For example, the battery technology theme had an active share of 86% with the future mobility theme.

Harnessing the Wisdom of the Market

The Morningstar Thematic Consensus Indexes seek to provide exposure to companies where there is broad consensus of thematic relevance across actual fund holdings. The indexes achieve this with a transparent, objective, and intuitive methodology. This market-driven view of thematic relevance, powered by fund holdings data, can facilitate efficient performance benchmarking and portfolio construction, giving thematically oriented investors effective tools to express their views on a range of themes. ■■

² <https://research.morningstar.com/articles/1227583/crafting-theme-consensus-fit-score>

Appendix

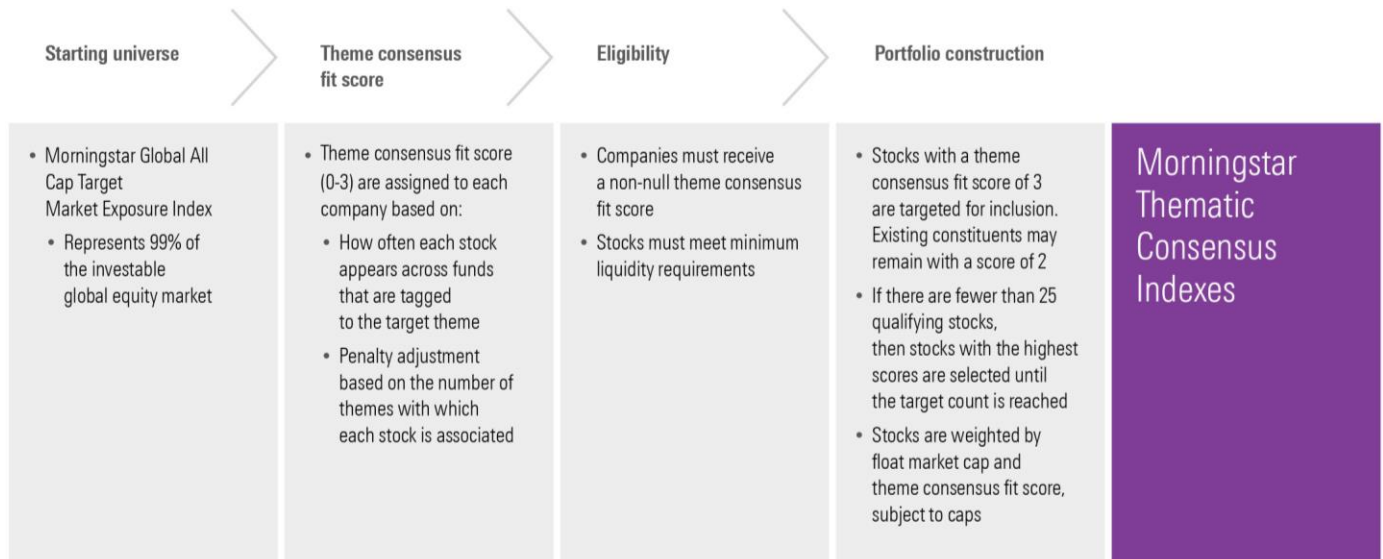
Morningstar Thematic Consensus Index Construction Methodology

The Morningstar Global Thematic Consensus Indexes leverage the theme consensus fit scores to provide exposure to the companies most commonly associated with the targeted theme. Portfolio construction starts with the Morningstar Global All Cap TME Index, which represents 99% of the global investable market.

All companies must have a non-null consensus fit score to be eligible for inclusion. Companies must pass minimum size and average daily trading volume criteria to ensure capacity and liquidity. Companies not already included in the index must have a consensus fit score of 3 to be added. To mitigate the turnover, existing index constituents with a score of 2 are allowed to remain in the index but at a reduced weight. This is achieved by tilting the float market-cap-based index weights by the consensus fit score. Constituents are subject to 5-10-40 capping constraints, which means no single constituent can have a weight greater than 10%, and the sum of those with weights greater than 5% cannot exceed 40%.

The indexes are reconstituted semiannually in June and December and rebalanced quarterly in March, June, September, and December.

Exhibit 10 Index Construction Summary



Source: Morningstar. Data as of June 2024.

For more details, refer to the [Morningstar Consensus Thematic Indexes Rulebook](#).

About Morningstar Indexes

Morningstar Indexes was built to keep up with the evolving needs of investors — and to be a leading-edge advocate for them. Our rich heritage as a transparent, investor-focused leader in data and research uniquely equips us to support individuals, institutions, wealth managers and advisors in navigating investment opportunities across major asset classes, styles and strategies. From traditional benchmarks and unique IP-driven indexes, to index design, calculation and distribution services, our solutions span an investment landscape as diverse as investors themselves.

Please visit indexes.morningstar.com for more information.

Contact:

indexes@morningstar.com

© 2024 Morningstar. All rights reserved. The information, data, analyses and opinions contained herein (1) include the proprietary information of Morningstar, (2) may not be copied or redistributed, (3) do not constitute investment advice offered by Morningstar, (4) are provided solely for informational purposes and therefore are not an offer to buy or sell a security, and (5) are not warranted to be correct, complete or accurate. Morningstar has not given its consent to be deemed an “expert” under the federal Securities Act of 1933. Except as otherwise required by law, Morningstar is not responsible for any trading decisions, damages or other losses resulting from, or related to, this information, data, analyses or opinions or their use. Past performance does not guarantee future results. Before making any investment decision, consider if the investment is suitable for you by referencing your own financial position, investment objectives, and risk profile. Always consult with your financial advisor before investing.

MORNINGSTAR Indexes

22 West Washington Street
Chicago, IL 60602 USA

©2024 Morningstar. All Rights Reserved.