MORNINGSTAR Indexes

Thematic Investing: Performance and Rotation Insights

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Executive Summary

This paper examines the performance of different Morningstar Thematic Indexes and illustrates how leadership shifts across themes and market environments. Excess-return correlations, active share dispersion, and regime analysis highlight meaningful differentiation despite shared mega-cap exposures. Rules-based rotation strategies using momentum, valuation (fair value/price), and factor signals are evaluated, with results underscoring both the potential benefits and the trade-offs associated with higher turnover and a more active risk profile.

Key Takeaways

- Shifting Leadership: Theme-level performance leadership rotates frequently, often changing from year to year and in some cases even across quarters. This reinforces the difficulty of relying on a single outperforming theme over short- to medium-term horizons.
- Intertheme Differentiation: Excess-return correlation analysis shows that thematic indexes exhibit lower co-movement, with themes such as Healthcare Innovation, Food Innovation, and Energy Transition offering comparatively stronger diversification potential. Active share analysis further indicates that meaningful differences exist in the underlying holdings across themes.
- Systematic Rotation: Rules-based signals such as momentum, valuation, and factor exposures can provide a disciplined framework for systematically reallocating across themes, thereby reducing reliance on discretionary decisions.
- Momentum Advantage: We introduce a rules-based approach that selects themes based on momentum among other signals. The rotation strategy based on momentum outperformed an equally weighted thematic portfolio by delivering higher returns, similar level of risk, and lower drawdowns but also came with extremely high turnover, reflecting the inherently volatile nature of momentum.

Introduction

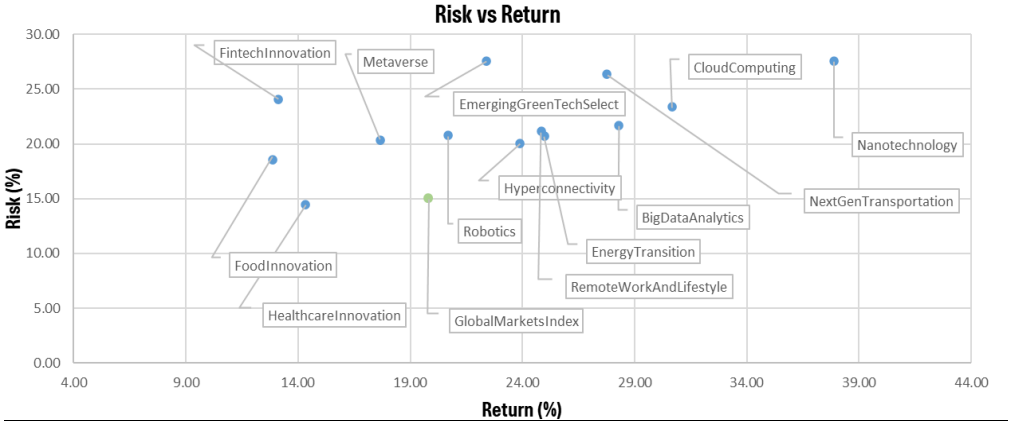
Thematic funds have grown globally in terms of size and number in recent years. These funds allow investors to tap into emerging megatrends such as artificial intelligence, aging demographics, and alternative energy while reducing the concentration risk associated with investing in individual stocks. In the five years through September 2025 global assets in thematic funds more than doubled, rising from USD 269 billion to USD 779 billion. However, performance across themes has been uneven, with periods of strong outperformance often offset by sharp reversals.

We examine the individual performance of the Morningstar Thematic Indexes[1] ,which are designed to deliver unparalleled thematic purity by drawing on the in-depth knowledge and forward-looking insights of Morningstar's equity research team. Correlations, active shares, and behavior across different market regimes are also analyzed.

Risk vs Returns of Individual Thematic Indexes

On an absolute return basis, performance across themes is mixed. Four themes lagged the Morningstar Global Market Index, while nine other themes outperformed, highlighting the risk of selective exposure within thematic investing. Nanotechnology and cloud computing have historically delivered attractive returns and stand out on a risk-adjusted basis relative to many other themes, though they may not necessarily continue to offer attractive performance in the future.

Exhibit 1: Risk vs Return



Source: Morningstar Indexes

1 Refer to Appendix 1 for list of indexes included in the analysis.

Rotating Thematic Leadership

Exhibit 2 ranks thematic indexes by annual returns till 19th December 2025. The results underscore that no single theme consistently dominates performance year after year. Leadership rotates meaningfully across time, underscoring the challenges of timing a specific theme and the potential value of a rotation-based approach.

Exhibit 2: Themes ranked by annual returns

Theme Correlations

The excess-return correlation matrix (Exhibit 3) shows lower cross-theme co-movement once broad market effects are removed by way of calculating excess returns with correlations ranging from -0.46 to 0.84. Active share analysis (Exhibit 4) also reveals meaningful differences in holdings with a lot of combinations having 100% overlap signifying no common holdings. This divergence in underlying exposures suggests that a rotation framework can potentially capture shifting leadership and redistribute risk more efficiently.

Healthcare Innovation stands out as one of the least correlated themes, making it a potential diversifier within a thematic portfolio. Conversely, themes such as Nanotechnology and Next Gen Transportation displayed relatively low active share, averaging around 62%, pointing to pockets of overlap and shared exposures

Exhibit 3: Correlation Matrix2

	BigData & Analytics	Cloud Computing	Fintech Innovation	Healthcare Innovation	Hyperconnectivity	Nanotechnology	NextGen Transportation	Robotics	RemoteWork & Lifestyle	Energy Transition	EmergingGreen Technologies	Food Innovation	Metaverse
BigData & Analytics	1.00												
Cloud Computing	0.84	1.00											
Fintech Innovation	0.48	0.54	1.00										
Healthcare Innovation	-0.26	-0.25	-0.11	1.00									
Hyperconnectivity	0.68	0.72	0.35	-0.23	1.00								
Nanotechnology	0.72	0.67	0.24	-0.33	0.77	1.00							
NextGen Transportation	0.52	0.50	0.25	-0.37	0.59	0.77	1.00						
Robotics	0.02	-0.01	-0.01	-0.22	0.18	0.35	0.39	1.00					
Remote Work & Lifestyle	0.79	0.82	0.47	-0.24	0.65	0.68	0.57	0.04	1.00				
Energy Transition	-0.08	-0.01	-0.07	-0.12	0.12	0.14	0.24	0.28	-0.08	1.00			
EmergingGreen Technologies	-0.04	-0.03	0.04	-0.25	0.00	0.13	0.38	0.37	-0.02	0.39	1.00		
Food Innovation	-0.46	-0.42	-0.21	0.07	-0.28	-0.29	-0.18	0.13	-0.40	0.17	0.10	1.00	
Metaverse	0.67	0.63	0.53	-0.14	0.45	0.47	0.45	0.08	0.71	-0.11	0.12	-0.38	1.00

Source: Morningstar Indexes

Exhibit 4: Active share matrix[3]

	Big Data & Analytics	Cloud Computing	Fintech Innovation	Healthcare Innovation	Hyperconnectivity	Nanotechnology	Next Gen Transportation	Robotics	Remote Work & Lifestyle	Energy Transition	Emerging Green Technologies	Food Innovation	Metaverse
Big Data & Analytics	0%												
Cloud Computing	74%	0%											
Fintech Innovation	84%	97%	0%										
Healthcare Innovation	98%	100%	100%	0%									
Hyperconnectivity	90%	83%	96%	99%	0%								
Nanotechnology	78%	81%	100%	96%	64%	0%							
Next Gen Transportation	87%	91%	100%	99%	71%	62%	0%						
Robotics	98%	99%	98%	95%	84%	84%	82%	0%					
Remote Work & Lifestyle	75%	71%	89%	100%	84%	81%	90%	97%	0%				
Energy Transition	100%	100%	100%	99%	92%	91%	79%	83%	100%	0%			
Emerging Green Technologies	100%	100%	100%	100%	100%	100%	93%	98%	100%	90%	0%		
Food Innovation	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	
Metaverse	78%	87%	97%	100%	94%	90%	90%	96%	70%	100%	100%	100%	0%

Source: Morningstar Indexes

2 Calculated based on excess returns of GR USD return & currency variant from December 2018 to December 2025. Morningstar Global Markets GR USD index is used as the benchmark for calculating excess returns.

3 Calculated by taking average active exposure across all December reconstitutions from 2018 to 2024.

Scenario Analysis

We also analyzed how different themes have performed in certain regimes, as defined below:

1. Covid rebound (March 20, 2020, to Aug. 31, 2020): Following the pandemic-induced drawdown, global equity markets staged a rapid recovery. This period was marked by aggressive monetary easing, with major central banks lowering policy rates.

2. Fed hike/tech crash (Jan. 1, 2022, to Dec. 31, 2022): After an extended phase of quantitative easing, inflation accelerated globally and became a key concern for policymakers. Central banks, led by the Federal Reserve, shifted to aggressive tightening cycles. Higher discount rates and valuation pressures led to pronounced weakness in technology and growth-oriented sectors.

3. Global AI Frenzy (Nov. 30, 2022, to June 30, 2023): The public release of ChatGPT on Nov. 30, 2022, triggered a surge in investor enthusiasm around artificial intelligence. AI-linked and semiconductor stocks, which had been under pressure the prior year, experienced outsize gains. Market momentum culminated in the first half of 2023, when many technology indexes posted strong performance in the first half, largely driven by AI beneficiaries.

The following table displays the Top 3 thematic indexes by absolute returns in each of these periods:

Exhibit 5: Top performers in different periods

	1	2	3
Covid Rebound/lower interest rates	Morningstar Emerging Green Technologies Select Index (110.78%)	Morningstar Global NextGen Transportation Index (93.54%)	Morningstar Global Fintech Innovation Index (90.30%)
Fed hike/tech crash	Morningstar Global Healthcare Innovation Index (1.28%)	Morningstar Global Energy Transition Index (-5.97%)	Morningstar Global Food Innovation Index (-11.57%)
Global AI Frenzy	Morningstar Global Nanotechnology Index (37.18%)	Morningstar Global Cloud Computing Index (35.61%)	Morningstar Global Big Data & Analytics Index (33.04%)

Source: Morningstar

Why Rotate Across Themes Systematically?

Thematic leadership tends to shift as adoption cycles, regulatory environments, and macroeconomic conditions evolve. Hence, compared with holding a single theme, rotating across themes may help reduce reliance on the trajectory of any one adoption cycle, policy shift, or sentiment-driven phase. It may also mitigate persistent concentration in mega-cap names that appear across multiple themes and better distribute theme-specific risks across the portfolio.

One way to address this risk is through a naive diversification strategy, in which all themes are equally weighted. This strategy offers simplicity, lower turnover, and better tax efficiency, but it also results in holding underperforming themes alongside the winners. This can be countered through a rules-based rotation framework that uses signals such as momentum (measured over different horizons), Fair Value/Price (based on Morningstar equity research analysts' forward-looking cash flow projections), factor exposures (Momentum, Growth, Quality), or composite signals (such as, momentum combined

with FV/P). However, this active selection may lead to higher turnover and lower tax efficiency, even as it has the potential to improve returns.

Thematic Rotation Methodology

We study a simple rules-based rotation across the Morningstar thematic indexes mentioned in Appendix 1. We tested the following signals:[4]

1. 3-month momentum (excluding the most recent month)
2. 12-month momentum (excluding the most recent month)
3. FV/P valuation
4. 12-month momentum & FV/P composite
5. Momentum + Quality + Growth factor exposures

Based on these signals, we created the following three distinct selection frameworks:

1. Select the top three themes (retain existing constituents as long as they rank in the top five) as per the respective signal, reconstitute/rebalance quarterly, and equal-weight the selected themes.
2. Select the top three themes as per the respective signal (retain existing constituents as long as they rank in the top five), reconstitute/rebalance quarterly in a staggered manner, and equal-weight the selected themes. Staggered reconstitution involves splitting the portfolio into two sub-portfolios and only reconstituting one sub-portfolio each quarter, drifting the other half of the portfolio until the next quarter. Every six months the weights of the sub-portfolios are reset to 50% each.
3. Equal-weight all themes and then apply tilts calculated based on the respective signal and reconstitute/rebalance quarterly.

We also compare these rotation strategies with the naïve diversification option where all the themes are included at an equal weight.

4 Refer to Appendix 2 for signal construction.

Historical Performance[5]

During the backtest period, all simulations, except the FV/P, outperformed the equally weighted simulation. However, all these simulations had significantly higher average annual turnover as well.

Exhibit 6: Key Metrics for Top 3 Themes

	Global Markets Index	Equal Weighted	3-Month Momentum	12-Month Momentum	Fair Value / Price	Fair Value / Price & 12-Month Momentum	Momentum + Quality + Growth
Return (%)	19.81	23.63	30.53	28.63	18.87	24.12	28.78
Risk (%)	15.03	19.44	20.38	20.41	20.69	19.35	24.20
Return / Risk	1.32	1.22	1.50	1.40	0.91	1.25	1.19
Sharpe Ratio	1.14	1.08	1.37	1.27	0.78	1.11	1.08
Max Drawdown (%)	-26.28	-34.47	-25.76	-32.96	-38.09	-36.47	-42.52
Active Return (%)	0.00	3.82	10.71	8.81	-0.94	4.30	8.96
Tracking Error (%)	0.00	6.76	10.72	10.07	9.09	8.30	13.48
Information Ratio		0.57	1.00	0.87	-0.10	0.52	0.66
Avg. Ann. Turnover (%)	3.49	8.70	259.09	87.22	131.77	186.77	54.42

Source: Morningstar

To reduce turnover, we implemented a staggered reconstitution. These sets of simulations also outperformed (except for FV/P) the equal-weighted simulation and with lower turnover than the first set of simulations. However, the returns also dropped, except for the FV/P and FV/P & 12-month Momentum simulations where the returns increased. The most notable decrease in turnover was for the 3-Month Momentum simulation where the average annual one-way turnover dropped from 259% to 158%.

Exhibit 7: Key Metrics for Top 3 Themes with Staggered Rebalancing

	Global Markets Index	Equal Weighted	3-Month Momentum (Staggered)	12-Month Momentum (Staggered)	Fair Value / Price (Staggered)	Fair Value / Price & 12-Month Momentum (Staggered)	Momentum + Quality + Growth (Staggered)
Return (%)	19.81	23.63	27.37	27.23	20.93	25.08	28.02
Risk (%)	15.03	19.44	19.37	20.71	20.10	19.53	24.45
Return / Risk	1.32	1.22	1.41	1.31	1.04	1.28	1.15
Sharpe Ratio	1.14	1.08	1.28	1.19	0.91	1.15	1.04
Max Drawdown (%)	-26.28	-34.47	-27.39	-35.09	-33.41	-35.25	-43.09
Active Return (%)	0.00	3.82	7.56	7.42	1.12	5.26	8.20
Tracking Error (%)	0.00	6.76	7.95	10.04	8.61	8.35	13.74
Information Ratio		0.57	0.95	0.74	0.13	0.63	0.60
Avg. Ann. Turnover (%)	3.49	8.70	158.19	84.92	97.15	127.82	48.49

Source: Morningstar

5 Backtest period ranges from March 2020 to December 2025.

Lastly, our third framework applied tilts to an equally weighted portfolio instead of selecting the top three themes. We observed that the returns decreased further, except for the FV/P simulation where the returns increased. Turnover also dropped, with the greatest reduction in the FV/P simulation.

Exhibit 8: Key Metrics for selection with Tilt weighing

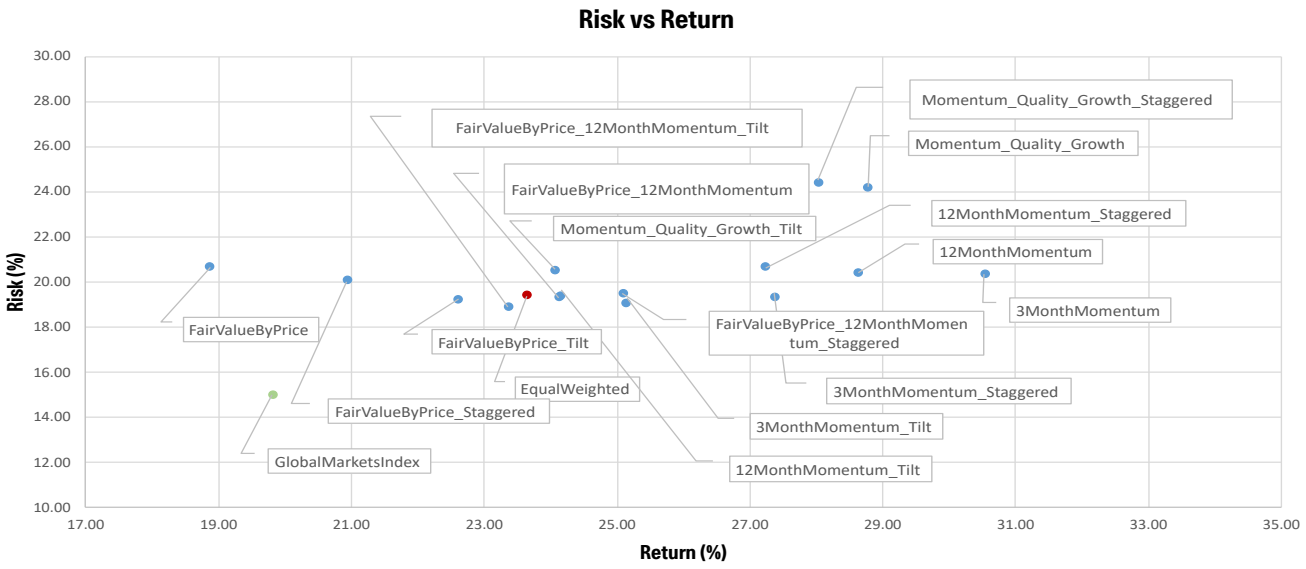
Metric	Global Markets Index	Equal Weighted	3-Month Momentum (Tilt)	12-Month Momentum (Tilt)	Fair Value / Price (Tilt)	Fair Value / Price & 12-Month Momentum (Tilt)	Momentum + Quality + Growth (Tilt)
Return (%)	19.81	23.63	25.14	24.15	22.61	23.36	24.07
Risk (%)	15.03	19.44	19.10	19.40	19.27	18.95	20.56
Return / Risk	1.32	1.22	1.32	1.24	1.17	1.23	1.17
Sharpe Ratio	1.14	1.08	1.18	1.11	1.04	1.09	1.04
Max Drawdown (%)	-26.28	-34.47	-33.10	-34.00	-34.92	-33.28	-38.30
Active Return (%)	0.00	3.82	5.33	4.33	2.80	3.55	4.26
Tracking Error (%)	0.00	6.76	6.98	7.14	6.67	6.85	8.47
Information Ratio		0.57	0.76	0.61	0.42	0.52	0.50
Avg. Ann. Turnover (%)	3.49	8.70	137.69	54.23	17.24	56.88	37.54

Source: Morningstar

These simulations show that focusing on the top three themes delivers stronger results than spreading exposure across all themes with tilts (except for the FV/P simulation). This is largely because, in most periods, the leading themes account for most of the return contributions. The results also show that momentum appears to be the strongest signal of those tested for identifying leading themes. Within momentum, the three-month signal did slightly better than the 12-month signal.

The Exhibit 9 summarizes the returns versus risk for all the simulations.

Exhibit 9: Risk vs Return distribution



As demonstrated, almost all simulations have similar levels of risk. The Momentum + Quality + Growth Factor Exposure simulation displayed higher risk, whereas the three-month momentum simulation offered the highest risk-adjusted returns, followed by 12-month momentum.

Conclusion

Thematic indexes generally exhibit trend-following behavior. A disciplined rotation framework, particularly using momentum signals, can generate higher returns with lower drawdowns relative to a static equally weighted multitheme diversification approach. However, this comes at the cost of elevated turnover and an active bet not only on the themes but also on the timing signal, underscoring the need to balance signal strength against practical considerations.

Appendix 1

Following Morningstar Equity Research-powered thematic indexes are included as part of the analysis:

1. Morningstar Global Big Data & Analytics Index
2. Morningstar Global Cloud Computing Index
3. Morningstar Global Fintech Innovation Index
4. Morningstar Global Healthcare Innovation Index
5. Morningstar Global Hyperconnectivity Index
6. Morningstar Global Nanotechnology Index
7. Morningstar Global Next-Gen Transportation Index
8. Morningstar Global Robotics Index
9. Morningstar Global Energy Transition Index
10. Morningstar Global Remote Work & Lifestyle Index
11. Morningstar Global Emerging Green Technologies Select Index
12. Morningstar Global Food Innovation Index
13. Morningstar Global Metaverse & Virtual Interaction Select Index.

Appendix 2

For each theme, three-month and 12-month momentum signals were constructed using the GR USD index levels of the respective Morningstar Thematic Index, following the standard 3-1 and 12-1 methodology.

The Fair Value/Price ratio: Fair value estimates are determined through independent research conducted by the Morningstar Equity Research team. For more information on the fair value estimation refer to Morningstar Equity Research Methodology. The theme-level FV/P is calculated by aggregating the weighted average FV/P values of the securities within each theme.

The momentum, quality, and growth factor exposures are based on data from the Morningstar Global Industry Standard Risk Model. For more information on Morningstar risk models, please refer to Morningstar Risk Model Methodology. The theme-level factor score is calculated by aggregating the weighted average composite factor score (average of Momentum, Quality, and Growth Scores) of the securities within each theme.

The tilt factor for the FV/P signal is calculated by normalizing each theme's score by dividing it with the maximum value. This provides a linear tilt, ensuring themes with slightly weaker P/FV scores are not overly penalized. For the other signals, we normalize using z-scores and calculate the tilt factor as 1+Z when $Z > 0$, and $1/(1-Z)$ otherwise. This creates a nonlinear weight distribution, giving stronger emphasis to themes with superior signals.

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.

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