

Morningstar Factor Monitor: Q3 2025

Momentum was the best-performing factor in the third quarter, while low volatility finished last, continuing the trend from Q2.

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This is the latest installment of the Morningstar Quarterly Factor Monitor, which is designed to highlight factor performance trends. Factors are key drivers of stock returns. These are common security characteristics, like low valuations or small size, that can help explain why one group of stocks performs differently from another. Factors provide an effective lens through which to understand market performance.

This publication tracks the Morningstar Global Factor Indexes, providing insights into their performance drivers and notable facets of their portfolio composition. These indexes are designed to deliver strong, investable exposure to their target factors. They apply a consistent framework, each covering stocks representing 30% of their parent benchmarks by market value, and tilt weighting their constituents (from float market cap) to upweight those with the strongest factor characteristics. The appendix provides additional details on the index construction methodology.

Key Takeaways

- ▶ Consistent with the trend observed in the second quarter of 2025, momentum was the top-performing factor globally, while low volatility was the worst-performing.
- ▶ The value factor performed much better in the third quarter than it did in the second, ranking as the second-best-performing factor behind momentum globally and as the best-performing in developed markets outside the U.S.
- ▶ All factors experience performance cyclicalities. Because of their volatility, it is difficult to effectively time factor exposures.
- ▶ Factors are complementary and offer strong diversification benefits when combined in a portfolio; in other words, the correlation of market-relative performance between factors is low.
- ▶ Regardless of the market conditions, the Morningstar Global Factor Indexes are effective tools for monitoring factor trends.

Performance (Q3 2025)

Global

In a continuation of the trend from the second quarter, momentum was the top-performing factor globally in the third quarter, while low volatility remained at the bottom of the rankings. The value factor performed considerably better than it had in the second quarter, finishing the third quarter in second place, just slightly behind momentum. It had previously finished second-to-last.

This joint strong performance of value and momentum is somewhat unusual as the market-relative performance of these two factors has tended to be negatively correlated. Conditions, including low market volatility and an upward-trending market, were conducive to short-term performance persistence, the foundation of the momentum factor. In contrast, the value factor tends to benefit from mean-reversion, which is less prevalent in strong-trending markets.

Exhibit 1 Global Performance Summary

	Q3 2025		1 Year		5 Year		10 Year		Since Inception		SR
	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	
Morningstar Gbl Low Vol Ftr	0.90	7.59	7.99	8.41	10.13	11.80	9.64	11.65	7.84	12.28	0.57
Morningstar Gbl Mtum Ftr	9.62	11.93	29.46	15.06	15.15	17.44	15.57	16.66	9.40	18.36	0.51
Morningstar Gbl Qual Ftr	7.51	9.64	13.97	12.19	12.84	16.82	12.60	15.57	9.74	16.35	0.57
Morningstar Gbl Size Ftr	4.99	10.50	12.30	11.75	12.24	16.28	10.03	16.23	7.97	18.09	0.44
Morningstar Gbl Val Ftr	9.55	10.18	17.27	11.85	16.51	15.44	11.24	15.04	8.11	17.00	0.47
Morningstar Gbl Yld Ftr	6.81	10.14	19.29	9.66	18.43	14.69	13.19	14.80	9.83	16.47	0.57
Morningstar Global Multifactor	4.21	7.44	12.74	9.20	14.18	13.48	11.94	12.88	9.78	13.88	0.65
Morningstar Global TME	7.70	8.78	17.37	10.55	14.07	14.93	12.44	14.60	8.78	16.27	0.52

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

Exhibit 2 Global Risk Summary (Since Inception)

	Tracking Error	Beta	Max Drawdown	Down-Capture Ratio	Up-Capture Ratio
Morningstar Gbl Low Vol Ftr	6.83	0.70	-30.68	68.25	74.53
Morningstar Gbl Mtum Ftr	6.67	1.05	-53.92	106.70	106.93
Morningstar Gbl Qual Ftr	3.41	0.98	-41.50	96.43	100.90
Morningstar Gbl Size Ftr	3.73	1.09	-49.07	108.54	103.10
Morningstar Gbl Val Ftr	4.91	1.00	-47.38	99.86	97.47
Morningstar Gbl Yld Ftr	3.97	0.98	-45.44	94.15	99.62
Morningstar Global Multifactor	4.52	0.83	-36.90	80.76	90.08
Morningstar Global TME	0.00	1.00	-46.15	100.00	100.00

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

Exhibit 3 Global Attribution

	Top Contributors			Top Detractors				
	Name	Active Weight	3-Month Returns	Effect	Name	Active Weight	3-Month Returns	Contr. To Active Return
Morningstar Global Low Volatility Factor	Johnson & Johnson	0.82	22.28	0.25	Gartner Inc	0.52	-34.97	-0.23
	TE Connectivity PLC Registered Shares	0.75	30.60	0.21	Tata Consultancy Services Ltd	0.79	-19.14	-0.17
	TJX Companies Inc	1.04	17.42	0.19	Visa Inc Class A	2.68	-3.68	-0.14
	Royal Bank of Canada	1.12	13.04	0.19	Roper Technologies Inc	0.88	-11.89	-0.11
	Berkshire Hathaway Inc Class B	4.26	3.49	0.18	Infosys Ltd	0.73	-13.06	-0.11
Morningstar Global Momentum Factor	Tesla Inc	3.64	40.00	1.88	Netflix Inc	2.15	-10.47	-0.35
	Palantir Technologies Inc Ordinary Shares - Class A	4.44	33.82	1.47	Strategy Inc Class A	0.93	-20.29	-0.22
	AppLovin Corp Ordinary Shares - Class A	1.37	105.25	1.42	SAP SE	1.25	-11.63	-0.19
	Broadcom Inc	3.81	19.89	0.96	Philip Morris International Inc	1.17	-10.94	-0.18
	Alibaba Group Holding Ltd Ordinary Shares	0.42	62.64	0.44	Intuitive Surgical Inc	0.37	-17.70	-0.11
Morningstar Global Quality Factor	Alphabet Inc Class A	5.07	38.07	2.37	Novo Nordisk AS Class B	0.71	-20.66	-0.22
	NVIDIA Corp	4.03	18.10	1.57	Visa Inc Class A	3.17	-3.68	-0.15
	Taiwan Semiconductor Manufacturing Co Ltd	2.35	18.46	0.64	Intuitive Surgical Inc	0.54	-17.70	-0.14
	ASML Holding NV	1.44	22.64	0.44	Lululemon Athletica Inc	0.38	-25.11	-0.12
	Microsoft Corp	2.77	4.30	0.31	Hermes International SA	0.95	-9.31	-0.10
Morningstar Global Size Factor	Western Digital Corp	0.28	87.83	0.23	The Trade Desk Inc Class A	0.25	-31.92	-0.09
	AppLovin Corp Ordinary Shares - Class A	0.13	105.25	0.2	Gartner Inc	0.16	-34.97	-0.08
	Warner Bros. Discovery Inc Ordinary Shares - Class A	0.22	70.42	0.17	FactSet Research Systems Inc	0.09	-35.76	-0.06
	Robinhood Markets Inc Class A	0.22	52.92	0.16	GoDaddy Inc Class A	0.18	-24.01	-0.06
	Corning Inc	0.24	56.63	0.14	Fiserv Inc	0.07	-25.22	-0.05
Morningstar Global Value Factor	Alphabet Inc Class A	3.12	38.07	1.67	Strategy Inc Class A	0.65	-20.29	-0.16
	Micron Technology Inc	0.98	35.89	0.43	Comcast Corp Class A	0.92	-11.15	-0.13
	Western Digital Corp	0.52	87.83	0.42	Accenture PLC Class A	0.46	-17.07	-0.12
	Johnson & Johnson	1.03	22.28	0.34	United Parcel Service Inc Class B	0.54	-15.68	-0.11
	JPMorgan Chase & Co	2.27	9.32	0.3	Fiserv Inc	0.15	-25.22	-0.08
Morningstar Global Yield Factor	Apple Inc	4.71	24.25	1.89	Fiserv Inc	0.59	-25.22	-0.20
	HSBC Holdings PLC	1.18	17.32	0.25	China Construction Bank Corp Class A	1.64	-8.19	-0.14
	Samsung Electronics Co Ltd	0.44	34.96	0.22	Fidelity National Information Services Inc	0.52	-18.51	-0.11
	Johnson & Johnson	0.47	22.28	0.19	United Parcel Service Inc Class B	0.46	-15.68	-0.09
	Caterpillar Inc	0.54	23.36	0.17	Salesforce Inc	0.41	-12.94	-0.09

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

While conditions were more favorable for momentum, the Morningstar Global Value Factor Index posted strong performance, buoyed by strong intrasector stock exposure, particularly within the healthcare, financial services, and consumer defensive sectors. These included overweighting companies such as Johnson & Johnson, JPMorgan Chase, and Altria. The value index's overweighting of Alphabet also helped. Because sector tilts are tightly constrained relative to the parent benchmark, sector allocation did not have a strong impact on the value index's market-relative performance.

The Morningstar Global Momentum Factor Index benefited from strong stock exposure within the consumer cyclical and financial-services sectors, such as overweighting Tesla. Sector tilts relative to the parent benchmark (the Morningstar Global Target Market Exposure Index) did not significantly impact performance.

At the other end of the spectrum, the defensive low-volatility factor lagged, as it often does when the market moves sharply higher. However, it lived up to its name, delivering a smoother ride than the market and any other factor during the turbulent quarter. Unfavorable stock exposure in several sectors, including technology, financial services, and industrials, hurt performance. Sector tilts also contributed to the index's underperformance, including its overweighting of the poor-performing consumer defensive sector and underweighting of the strong-performing technology sector.

US

The results in the US mirrored the global trends, with momentum at the top and low volatility at the bottom of the rankings. While momentum also outperformed its parent benchmark in the US small-cap segment, yield was the top performer in that category, in a turn of fortune after being one of the worst performers in the previous quarter.

Exhibit 4 US Performance Summary

	Q3 2025		1 Year		5 Year		10 Year		Since Inception		
	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	SR
Morningstar US Low Vol Ftr	1.72	9.86	8.08	10.35	10.87	13.16	11.59	12.74	10.17	12.29	0.74
Morningstar US Mtum Ftr	9.59	14.19	30.30	19.22	17.09	19.67	18.27	18.25	12.64	18.73	0.66
Morningstar US Qual Ftr	7.99	11.27	17.82	14.17	16.86	18.45	15.84	16.82	13.65	16.24	0.79
Morningstar US Size Ftr	5.05	13.50	12.25	14.59	12.77	17.46	11.65	17.21	10.73	18.19	0.58
Morningstar US Yld Ftr	7.68	12.17	12.91	14.49	15.83	17.18	11.87	16.72	10.14	17.26	0.57
Morningstar US Val Ftr	6.63	12.04	15.48	11.88	19.02	15.85	14.13	16.15	12.22	16.31	0.71
Morningstar US Multifactor	7.18	9.86	14.19	11.56	15.42	14.56	14.32	14.10	12.61	13.90	0.83
Morningstar US TME	8.11	10.40	17.99	12.98	16.13	16.07	15.25	15.52	12.21	15.85	0.73
Morningstar US Small Low Vol Ftr	2.52	13.55	3.25	12.60	9.90	14.95	9.25	14.49	10.26	14.19	0.67
Morningstar US Small Mtum Ftr	11.59	19.17	36.97	30.02	18.31	25.48	15.41	22.80	10.43	22.89	0.49
Morningstar US Small Quality Ftr	7.30	16.84	4.00	16.65	12.12	19.09	12.01	17.60	11.05	17.45	0.61
Morningstar US Sml Cap Size Ftr	11.43	21.84	10.47	21.75	13.35	23.44	10.10	22.12	10.53	22.37	0.50
Morningstar US Small Value Ftr	7.19	19.42	13.43	20.34	17.40	23.67	10.49	22.85	10.55	23.07	0.50
Morningstar US Small Yield Ftr	12.23	23.01	9.73	17.47	18.10	21.00	11.73	20.81	12.44	20.11	0.62
Morningstar US Small TME	8.75	17.76	11.62	19.35	12.23	20.52	10.76	19.74	10.19	19.89	0.52

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

Exhibit 5 US Risk Summary (Since Inception)

	Tracking Error	Beta	Max Drawdown	Down-Capture Ratio	Up-Capture Ratio
Morningstar US Low Vol Ftr	7.82	0.68	-28.62	65.92	72.80
Morningstar US Mtum Ftr	7.45	1.09	-50.93	107.74	106.12
Morningstar US Qual Ftr	4.29	0.99	-37.20	96.18	102.34
Morningstar US Size Ftr	5.27	1.11	-46.51	112.39	102.73
Morningstar US Val Ftr	6.66	1.01	-44.76	104.44	95.92
Morningstar US Yld Ftr	5.06	0.98	-42.02	94.13	96.44
Morningstar US Multifactor	4.63	0.84	-32.73	79.49	88.86
Morningstar US TME	0.00	1.00	-41.49	100.00	100.00
Morningstar US Small Low Vol Ftr	8.51	0.66	-32.47	62.47	73.37
Morningstar US Small Mtum Ftr	9.68	1.04	-54.37	105.12	104.44
Morningstar US Small Quality Ftr	4.99	0.85	-36.42	83.67	90.70
Morningstar US Sml Cap SizeFtr	5.34	1.10	-46.23	113.24	110.66
Morningstar US Small Value Ftr	6.08	1.13	-49.74	114.29	111.49
Morningstar US Small Yield Ftr	4.62	0.98	-44.16	92.74	101.26
Morningstar US Small TME	0.00	1.00	-45.80	100.00	100.00

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

The strong performance of the Morningstar US Momentum Factor Index was largely due to strong stock exposure within the consumer cyclical and financial-services sectors. Among the most favorable constituent effects were overweighting AppLovin, Tesla, and Palantir, as well as the omission of stragglers, like Amazon and Microsoft. Sector tilts did not materially impact performance.

The Morningstar US Low Volatility Factor Index continued its losing streak from the second quarter. Stock exposure was particularly unfavorable in the technology sector. Sector tilts slightly detracted from performance, including overweighting the poor-performing consumer defensive sector and underweighting the strong-performing technology sector.

Developed Markets ex-US

The value factor was the top performer in developed markets outside the US, though yield and momentum also had solid showings here, beating the market and ranking second and third, respectively. The quality factor was the worst performer in this region.

The Morningstar Developed Markets ex-US Value Factor Index's strong performance can be primarily traced to favorable stock exposure within the financial-services and consumer defensive sectors, including underweighting underperformers like Commonwealth Bank of Australia and overweighting outperformers like British American Tobacco.

The market-relative performance of value and quality has historically been negatively correlated, so it's not surprising to see the Morningstar Developed Markets ex-US Quality Factor Index underperform, given the strong showing of the value factor index. The weak showing for the quality index was largely attributable to unfavorable stock exposure in the financial-services and consumer cyclical sectors, such as overweighting Hermes International and Tokio Marine Holdings. The underweighting in SoftBank Group also hurt performance.

Exhibit 6 Developed Markets ex-US Performance Summary

	Q3 2025		1 Year		5 Year		10 Year		Since Inception		
	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	SR
Morningstar DM xUS Low Vol Ftr GR USD	3.40	8.37	15.54	10.98	10.76	12.86	8.44	12.18	6.42	13.41	0.43
Morningstar DM xUS Mtum Ftr GR USD	6.81	12.89	31.37	12.56	12.84	16.38	10.54	15.55	5.80	18.14	0.33
Morningstar DM xUS Qual Ftr GR USD	2.31	12.92	5.60	12.95	8.10	17.89	9.50	15.77	6.15	17.48	0.36
Morningstar DM xUS Size Ftr GR USD	3.89	11.08	17.55	11.74	11.06	16.61	8.59	16.09	5.92	18.47	0.33
Morningstar DM xUS Val Ftr GR USD	8.71	12.13	25.02	10.99	17.75	16.91	9.62	16.62	6.07	18.86	0.34
Morningstar DM xUS Yld Ftr GR USD	7.70	11.67	22.39	10.33	17.64	15.83	11.54	15.18	7.38	18.04	0.41
Morningstar DM xUS Multifactor GR USD	3.25	9.74	14.73	10.81	12.79	14.22	9.79	13.27	7.33	15.15	0.46
Morningstar DM xUS TME GR USD	5.48	10.84	16.44	11.10	12.18	15.83	9.06	14.93	5.49	17.29	0.32

Source: Morningstar Indexes. Performance shown in GR USD. Date as of Sept. 30, 2025.

Exhibit 7 Developed Markets ex-US Risk Summary (Since Inception)

	Tracking Error	Beta	Max Drawdown	Down-Capture Ratio	Up-Capture Ratio
Morningstar DM xUS Low Vol Ftr	6.81	0.72	-32.11	71.10	79.86
Morningstar DM xUS Mtum Ftr	6.57	0.98	-52.26	96.57	98.36
Morningstar DM xUS Qual Ftr	4.35	0.98	-46.02	97.05	100.06
Morningstar DM xUS Size Ftr	2.90	1.06	-49.83	102.72	103.85
Morningstar DM xUS Val Ftr	4.83	1.06	-45.20	105.72	106.91
Morningstar DM xUS Yld Ftr	3.53	1.02	-49.58	96.49	104.13
Morningstar DM xUS Multifactor	4.21	0.85	-39.37	81.72	91.86
Morningstar DM xUS TME	0.00	1.00	-48.51	100.00	100.00

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

Emerging Markets

Consistent with global trends, momentum was the best-performing factor in emerging markets in the second quarter, while low volatility was the worst. The value factor also had a strong showing in this region, ranking second, similar to the global trend.

The Morningstar Emerging Markets Momentum Factor Index's strong performance primarily stemmed from favorable intrasector stock exposure, rather than from sector tilts. Exposure was particularly helpful in the consumer cyclical, industrials, and financial-services sectors, such as the overweightings in Alibaba Group, BYD, and Hanwha Aerospace.

The Morningstar Emerging Markets Low Volatility Factor Index suffered from unfavorable sector tilts, including overweighting the poor-performing financial-services sector. Unfavorable stock exposure

within the technology and financial-services sectors, such as overweighting Tata Consultancy Services and China Construction Bank Corp, also hurt performance.

Exhibit 8 Emerging Markets Performance Summary

	Q3 2025		1 Year		5 Year		10 Year		Since Inception		
	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	Rtn	Std Dev	SR
Morningstar EM Low Vol Ftr GR USD	-2.69	7.05	-2.13	9.59	10.69	11.41	9.01	12.25	6.42	15.05	0.40
Morningstar EM Mtum Ftr GR USD	13.33	13.54	21.27	14.81	8.50	16.62	10.91	17.34	5.07	21.43	0.28
Morningstar EM Qual Ftr GR USD	4.32	12.23	9.28	12.89	11.04	19.75	8.88	17.75	5.39	20.94	0.29
Morningstar EM Size Ftr GR USD	10.07	11.14	16.24	11.45	11.06	15.71	8.14	16.77	4.88	20.84	0.27
Morningstar EM Val Ftr GR USD	11.37	12.66	22.15	13.60	15.86	16.38	11.23	17.91	6.29	21.25	0.33
Morningstar EM Yld Ftr GR USD	5.86	10.63	13.14	8.63	14.62	14.57	10.05	15.49	6.17	19.02	0.34
Morningstar EM Multifactor GR USD	5.44	9.73	11.39	11.66	10.49	13.48	9.18	14.40	6.75	17.88	0.38
Morningstar EM TME GR USD	10.25	12.25	16.06	11.49	7.97	15.47	8.77	16.30	4.62	20.17	0.26

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

Exhibit 9 Emerging Markets Risk Summary (Since Inception)

	Tracking Error	Beta	Max Drawdown	Down-Capture Ratio	Up-Capture Ratio
Morningstar EM Low Vol Ftr	7.84	0.70	-41.20	61.23	72.81
Morningstar EM Mtum Ftr	7.67	0.99	-58.53	100.87	102.34
Morningstar EM Qual Ftr	13.13	0.83	-46.25	85.01	89.65
Morningstar EM Size Ftr	4.51	1.01	-51.16	96.78	98.09
Morningstar EM Val Ftr	5.60	1.02	-51.17	96.88	103.09
Morningstar EM Yld Ftr	4.79	0.92	-47.43	86.95	94.03
Morningstar EM Multifactor	4.90	0.86	-47.88	80.05	90.05
Morningstar EM TME	0.00	1.00	-53.11	100.00	100.00

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

Performance Cyclicalities

While momentum has been sitting at the top of the factor leaderboard in 2024 and for the year to date, it has also gone through stretches of terrible underperformance, such as 2021-23, as Exhibit 10 illustrates. Momentum is not the only factor to thrive in one period and struggle in the next. Notably, the quality factor moved from a strong position in 2024 to a more lackluster position behind the market in 2025.

The silver lining is that factors' market-relative returns are lowly correlated with each other, as Exhibit 11 shows. As such, they are complementary and can offer strong diversification benefits when combined in a portfolio.

Exhibit 10 Global Quilt Chart

2016	2017	2018	2019	2020	2021	2022	2023	2024	YTD	Q3 2025
Value Factor 15.9	Momentum Factor 34.8	Low Volatility Factor -4.5	Quality Factor 30.0	Momentum Factor 37.5	Yield Factor 22.2	Value Factor -5.1	Quality Factor 31.2	Momentum Factor 32.8	Momentum Factor 30.0	Momentum Factor 9.6
Yield Factor 14.4	Quality Factor 29.8	Momentum Factor -6.4	Momentum Factor 27.4	Quality Factor 23.9	Multifactor 22.1	Yield Factor -6.6	Yield Factor 24.0	Quality Factor 22.6	Value Factor 22.4	Value Factor 9.5
Size Factor 9.8	Multifactor 26.4	Multifactor -8.4	Global TME 27.1	Global TME 16.4	Value Factor 20.0	Low Volatility Factor -9.1	Global TME 22.7	Multifactor 21.4	Yield Factor 21.7	Global TME 7.7
Low Volatility Factor 8.7	Global TME 24.5	Yield Factor -8.5	Size Factor 26.0	Multifactor 11.7	Size Factor 19.4	Multifactor -13.3	Value Factor 18.1	Global TME 17.7	Global TME 18.7	Quality Factor 7.5
Global TME 8.6	Size Factor 22.7	Global TME -8.7	Yield Factor 25.3	Size Factor 10.7	Global TME 19.1	Size Factor -15.0	Size Factor 16.3	Yield Factor 14.4	Multifactor 17.4	Yield Factor 6.8
Multifactor 5.7	Low Volatility Factor 21.4	Value Factor -9.1	Multifactor 23.1	Low Volatility Factor 5.9	Quality Factor 18.3	Global TME -17.6	Multifactor 16.0	Low Volatility Factor 12.2	Quality Factor 15.5	Size Factor 5.0
Quality Factor 4.4	Yield Factor 21.3	Quality Factor -10.6	Low Volatility Factor 20.9	Yield Factor 5.8	Low Volatility Factor 18.2	Momentum Factor -18.9	Momentum Factor 11.6	Value Factor 10.4	Size Factor 15.1	Multifactor 4.2
Momentum Factor 1.2	Value Factor 19.2	Size Factor -11.7	Value Factor 20.7	Value Factor 0.7	Momentum Factor 16.0	Quality Factor -27.4	Low Volatility Factor 10.3	Size Factor 10.4	Low Volatility Factor 12.5	Low Volatility Factor 0.9

Source: Morningstar Indexes. Performance shown in GR USD. Data as of Sept. 30, 2025.

Exhibit 11 Global Excess Return Correlation Matrix (10-Year)

1 Morningstar Gbl Low Vol Ftr	1.00							
2 Morningstar Gbl Mtum Ftr	-0.19	1.00						
3 Morningstar Gbl Qual Ftr	-0.33	0.28	1.00					
4 Morningstar Gbl Size Ftr	-0.06	-0.29	-0.34	1.00				
5 Morningstar Gbl Val Ftr	0.32	-0.53	-0.63	0.47	1.00			
6 Morningstar Gbl Yld Ftr	0.35	-0.59	-0.59	0.45	0.89	1.00		
7 Morningstar Global Multifactor	0.75	0.16	-0.09	-0.24	0.16	0.14	1.00	

Source: Morningstar Indexes. Excess return against Morningstar Global Target Market Exposure. Data as of Sept. 30, 2025.

Long-Term Performance

A long investment horizon can reduce timing risk, but it does not eliminate the risk of underperformance. From their inception in June 2008 through the end of September 2025, three global factors (low volatility, size, and value) underperformed their parent benchmarks, and three (momentum, quality, and yield) outperformed.

The value factor has generated pain for many investors over its extended dry spell, particularly in the US. The Morningstar US Yield Factor Index was the worst-performing factor since its inception, lagging its parent benchmark by 2.07 percentage points annualized. That margin of underperformance was even larger over the past decade. The global value factor also landed toward the bottom of the leaderboard but lagged by a smaller margin than the value factor in the US.

While the yield factor is highly correlated with value, it fared considerably better, ranking as the best-performing single factor index globally over its life, as well as in developed markets outside the US and among US small caps. The yield factor is similar to value in that stocks trading at lower valuations tend to offer higher yields, which the Morningstar yield factor indexes measure based on both net buybacks and dividend distributions. However, it offers distinct portfolio and performance characteristics.

High-yielding stocks tend to generate strong free cash flow, be more mature than their lower-yielding counterparts, and be more defensive. While the value factor may also pick up some of these companies, it also tends to include distressed stocks with weak or deteriorating cash flows. As such, the yield factor tends to exhibit lower volatility and sensitivity to market fluctuations (measured by beta) than the value factor.

High volatility is a trademark of emerging-market stocks, so it's notable that the low-volatility factor index was the best-performing in emerging markets since inception. Low volatility should not be expected to top the return leaderboards over the long run. If anything, lower-risk portfolios should be expected to deliver lower returns, as investors should be willing to accept lower compensation for lower risk. That said, the low-volatility factor has consistently lived up to its name, providing a smoother ride

than the market, which often sets up more attractive risk-adjusted performance, even if its raw returns do not always impress.

Portfolio Highlights

September Rebalance

The Morningstar Global Factor Indexes reconstitute twice a year, in June and December, and rebalance quarterly. As such, there tend to be bigger changes in the second and fourth quarters than in the first and third. There were no new constituents added to any of the factor indexes covered in this report at the September rebalance.

Sectors

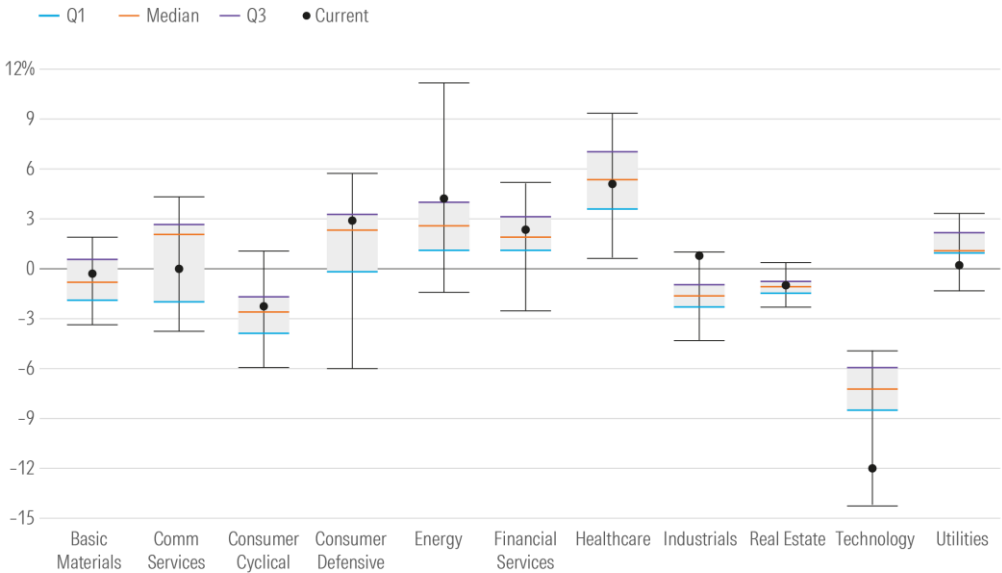
The Morningstar Global Factor Indexes anchor their regional and sector weightings to those of their parent benchmarks. The slower-moving, fundamental factor indexes of value, quality, size, and yield apply tighter sector and regional constraints and measure factor exposures on a sector-relative basis within each region to determine eligibility. This process is intended to mitigate unintended biases that might otherwise creep into the indexes and facilitate greater comparability. Consequently, these indexes share similar sector exposures to their benchmarks.

The faster-moving, price-driven low-volatility and momentum factor indexes apply looser regional and sector constraints. These indexes also measure factor exposures on a regional-relative basis without adjusting for sector membership. This approach is favorable because these price-driven factors are more comparable across sectors than the fundamental factors.

Not surprisingly, the Morningstar low-volatility factor indexes tend to overweight more defensive sectors, such as utilities, healthcare, and consumer defensive, and underweight technology and industrials.

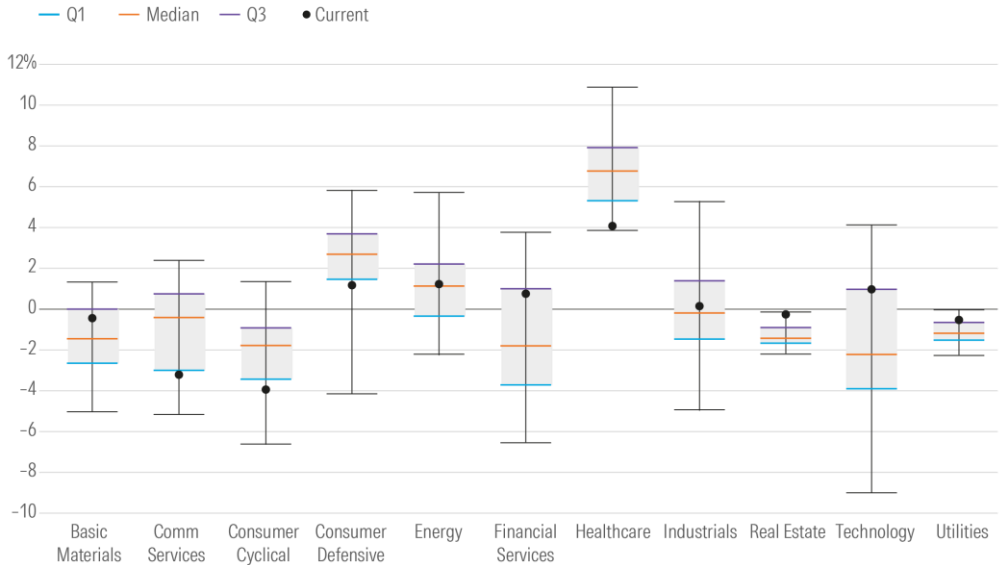
Over time, some of the low-volatility factor's sector tilts fluctuate. For example, financial-services stocks are currently more heavily represented in the Morningstar Global Low Volatility Factor Index than they are in the benchmark. But during the 2008-09 global financial crisis, this sector was one of the more volatile areas of the market and was underweight in the index.

Exhibit 12 Value Factor Active Sector Weights



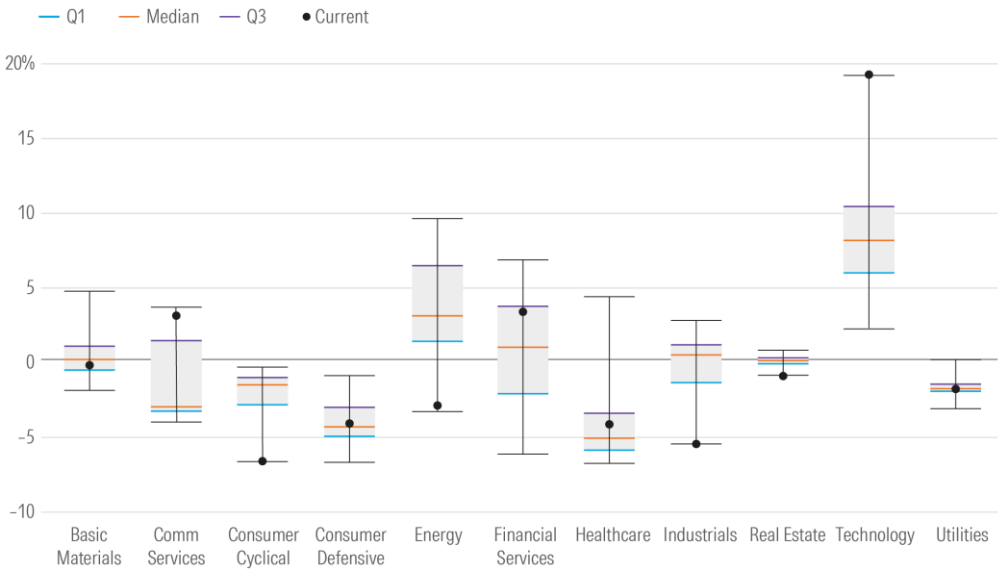
Source: Morningstar Indexes. Data as of Sept. 30, 2025.

Exhibit 13 Yield Factor Active Sector Weights



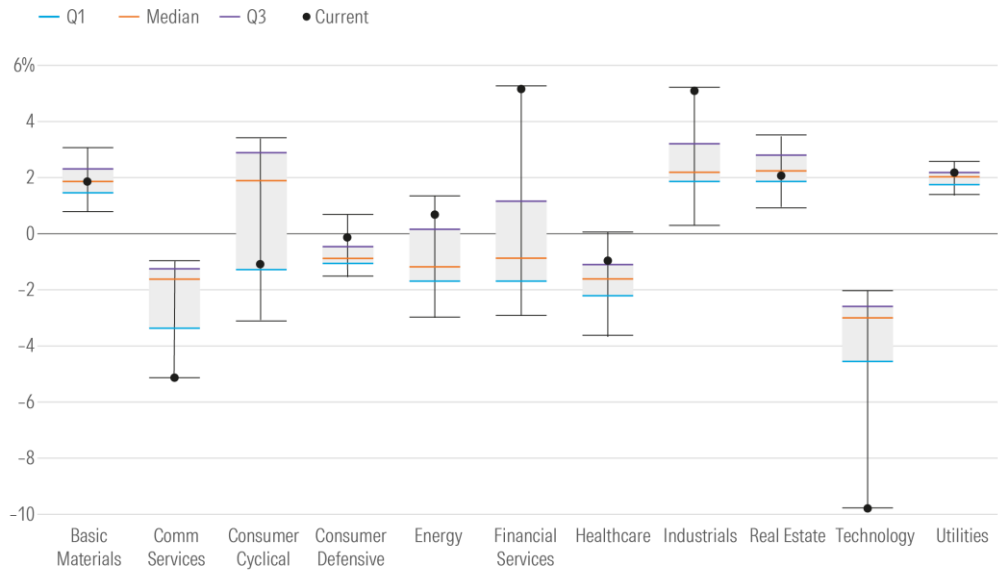
Source: Morningstar Indexes. Data as of Sept. 30, 2025.

Exhibit 14 Quality Factor Active Sector Weights



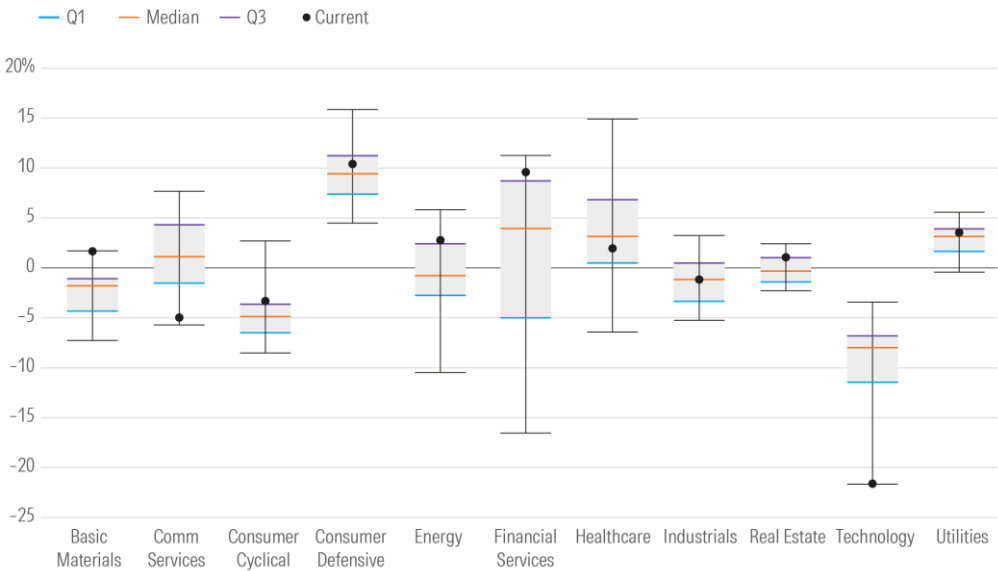
Source: Morningstar Indexes. Data as of Sept. 30, 2025.

Exhibit 15 Size Factor Active Sector Weights



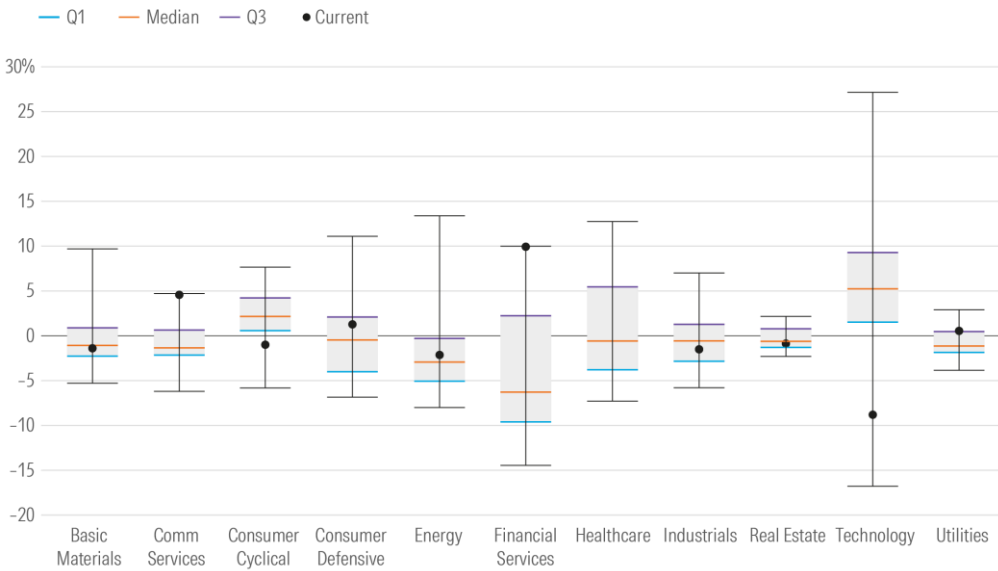
Source: Morningstar Indexes. Data as of Sept. 30, 2025.

Exhibit 16 Low Volatility Factor Active Sector Weights



Source: Morningstar Indexes. Data as of Sept. 30, 2025.

Exhibit 17 Momentum Factor Active Sector Weights



Source: Morningstar Indexes. Data as of Sept. 30, 2025.

Factors Drive Performance

Factor leadership is volatile, but factors are key return drivers that can help explain variations in performance across the market. Portfolio factor exposures often have a bigger impact on performance than a manager's stock-selection prowess. As such, factor performance is crucial to understand.

Regardless of the market conditions, the Morningstar Global Factor Indexes are effective tools for monitoring factor trends. These indexes are designed to provide efficient, investable exposure to industry-standard factors with a consistent framework. They can facilitate precise performance benchmarking and efficient asset allocation. For more information, visit

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

Appendix

Factor Definitions

Low Volatility: This factor is the weighted average of idiosyncratic volatility over the past six months (50%), total volatility over the past six months (25%), and MAX5/lottery factor (25%), which is based on the highest five-day returns over the past month, where lower values are favored. This composite provides a more complete view of risk than a security's total volatility alone.

Stocks with low past volatility tended to offer better risk-adjusted performance than those with high volatility. Unlike many of the other factors, there isn't a clear risk-based explanation for this effect. The anomaly is typically explained through investor behavior, given leverage and tracking-error constraints. Professional investors overly focused on returns and unable to leverage their portfolios might crowd into volatile stocks, which have greater upside potential than their more-staid counterparts. Retail investors looking for lotterylike upside might do the same. As a result, not only are low-volatility stocks more resilient during "risk-off" market environments, but they may also be priced to offer a more favorable risk/reward trade-off over the long term.

Momentum: This factor is measured as the trailing 12-month total return (in local currency), excluding the most recent month, minus the local risk-free rate. This definition aligns with the momentum factor as defined by academic literature.

Momentum describes short-term performance persistence. Momentum strategies target stocks with strong recent returns, based on the premise that they are likely to continue to outperform. Prices may adjust more slowly than they should to new information, as investors often initially underreact. This alone can cause performance to persist. Once a trend is established, more investors may continue to buy, further fueling price momentum.

Quality: This is measured as the equally weighted z-score of a company's profitability (trailing 12-month return on assets) and the z-score of its financial leverage (trailing 12-month debt/invested capital).

The shares of companies with strong profitability and balance sheets performed better historically than less profitable and more highly indebted counterparts. They tended to hold up better than the market during downturns, which intuitively wouldn't lead to an expectation of higher returns. However,

investors may have historically underestimated the long-term durability of these firms' strong cash flows, leading to an impressive long-term track record of risk-adjusted returns.

Value: This factor's definition aligns with the Morningstar Style Box methodology, which incorporates historical and forward-looking value and growth metrics. The actual factor is value-growth, where the value inputs include price/earnings (50.0%), price/book (12.5%), price/cash flow (12.5%), price/sales (12.5%), and dividend yield (12.5%).

The value factor targets stocks trading at low multiples on fundamental measures like earnings, book value, cash flow, sales, and dividends. Value investing is backed by strong economic rationale and empirical evidence. Lower valuations should reflect higher expected returns, either as compensation for risk or because investors may be overly pessimistic about these stocks' prospects.

Index Construction

Single-Factor Indexes

The Morningstar Global Factor Indexes are from a corresponding standard parent benchmark from the Morningstar Target Market Exposure Index family, which represents the top 85% of equity market capitalization in its segment. The focus on large- and mid-cap stocks facilitates high-investment capacity. To be eligible for inclusion, each stock must have valid factor exposure scores.

Within each parent index, constituents are ranked by their factor exposure. All factors are measured relative to each broad region. The quality, size, value, and yield factor exposures are also measured on a sector-relative basis. This improves comparability and mitigates persistent sector biases. For low volatility and momentum, no sector relative adjustments are made, as these price-driven signals tend to be more comparable across sectors. The highest ranking 30% of the parent index's float-adjusted market capitalization is targeted for inclusion in each index. Focusing on a percentage of the parent index as opposed to a fixed number of securities ensures that a consistent portion of the market is represented.

Constituents are weighted by the product of their float-adjusted market capitalization and strength of their factor exposure, subject to constraints to limit unintended risk. The indexes are reconstituted and rebalanced semiannually.

For further details, please reference the [Construction Rules for the Morningstar Global Factor Indexes](#).

Multifactor Indexes

The Morningstar Global Multifactor Indexes use optimization to target low volatility, momentum, quality, and value. As a part of this optimization framework, the indexes aim to maximize portfolio-level factor characteristics under constraints to limit unintended risk and transaction costs while offering significant liquidity.

Morningstar Indexes offers multifactor indexes derived from various broad regional parent indexes, and the construction rules that follow are applied similarly for each variant.

Each multifactor index is derived from its corresponding standard parent benchmark from the Morningstar Target Market Exposure Indexes, representing the top 85% of equity market capitalization in its segment. The focus on large- and mid-cap stocks facilitates high-investment capacity.

The portfolios are long-only and enforce a minimum nonzero weight of 1 basis point (0.01%) to avoid economically insignificant allocations. To limit unintended active risk against the parent index, sector and country constraints are enforced. This allows a bit of flexibility for the optimizer to over- and underweight securities relative to the parent indexes while limiting the deviations to mitigate unintended biases. Turnover is also controlled to mitigate transaction costs.

For further details, please reference the [Construction Rules for the Morningstar Global Multifactor Indexes](#).

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.

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