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# Morningstar Quarterly Style Monitor: Q4 2022

## Fundamentals reset in Q4 2022, with outperformance in value stocks relative to growth

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### Morningstar Inc.

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### Executive Summary

This is the latest installment of the Morningstar Quarterly Style Monitor, which is designed to help investors stay on top of style trends. This publication tracks several members of the Morningstar Broad Style Index family, as well as the recently launched Global Style family, providing insights into their performance drivers and portfolio composition.

### Key Takeaways

- ▶ Receding inflation during the fourth quarter made for a more-favorable market environment, with all style indexes closing in positive territory. Across the globe, value fared better than growth.
- ▶ The margin of victory for U.S. large value was higher than for other size segments, with mid-cap segments following closely behind.
- ▶ Stocks' movement across the value-growth spectrum accounted for many of the changes to the value and growth indexes across the market-cap ladder and across regions during the reconstitution.
- ▶ Globally, value stocks' superior performance relative to growth was driven largely by differences in intra-sector stock selection.
- ▶ Changes in sector weights were more pronounced during this reconstitution. In the United States, large-growth stocks' underperformance relative to value was driven primarily by differences in sector allocations. The technology and consumer cyclical sectors played a role in growth's underperformance.
- ▶ Valuation spreads between growth and value stocks, measured by P/E (trailing 12 months) have compressed over the past year. They remained historically high as of December 2022 for most segments, except for U.S. small-caps.
- ▶ The underperformance of the Morningstar Developed Markets ex-US Growth TME Index was driven mostly by stock exposure as opposed to regional tilts.
- ▶ Volatility differences between growth and value were negligible over the past year for developed markets (with U.S. large-caps the one exception) and emerging markets.
- ▶ Over the past year market betas across the U.S. size spectrum, small-cap stocks were less sensitive to movements in the broader market.
- ▶ There were increases in exposure to healthcare and financial services sectors, with major stock turnover across most broad style indexes.
- ▶ While comparatively higher valuation spreads have historically presaged subpar returns for the more-expensive style, the converse seems to be true for large- to mid-cap stocks in ex-U.S. developed markets.

## Performance Highlights

### Returns

During the fourth quarter of 2022, mid-cap U.S. stocks outpaced the small and large counterparts, and value performed much better than growth across all segments, as Exhibit 1 shows. Several macro dynamics were at play, such as stubbornly high inflation, a potential economic recession, rising bond yields, and tightening of central bank policy rates.

Similarly, in emerging markets and developed markets outside the U.S., value stocks outpaced their growth counterparts. We're able to glean these insights from the Global Style family, which applies Morningstar Indexes' broad style methodology to our suite of Target Market Exposure indexes, which target large- and mid-cap stocks representing 85% of the investable market.

**Exhibit 1** Returns (%)

US	1 Qr	1 Yr	5 Yr	10 Yr	Since Inception*
Morningstar US Market Extended	7.21	-19.48	8.75	12.13	8.01
Morningstar US Market Broad Growth Extended	1.51	-31.29	9.06	12.55	7.29
Morningstar US Market Broad Value Extended	12.57	-7.22	7.81	11.35	8.28
Morningstar US Large Cap	6.58	-20.42	9.41	12.54	7.56
Morningstar US Large Broad Growth	-0.47	-33.28	9.78	13.18	7.01
Morningstar US Large Broad Value	13.02	-7.09	8.29	11.47	7.61
Morningstar US Mid Cap	9.50	-16.06	8.12	11.77	9.20
Morningstar US Mid Cap Broad Growth	7.33	-25.83	8.52	11.68	8.11
Morningstar US Mid Cap Broad Value	11.70	-6.57	6.96	11.50	9.78
Morningstar US Small Cap Extended	7.23	-19.26	4.10	9.05	8.17
Morningstar US Small Broad Growth Extended	4.40	-26.74	3.71	8.91	6.58
Morningstar US Small Broad Value Extended	10.39	-10.45	4.76	9.30	9.58
<b>Global</b>					
Morningstar Global Target Market Exposure	10.00	-17.63	5.81	8.56	6.50
Morningstar Global Growth	5.95	-27.84	5.84	8.84	6.78
Morningstar Global Value	13.92	-7.35	5.14	7.91	6.12
Morningstar Developed Markets ex-US	16.40	-13.67	2.54	5.18	3.30
Morningstar Developed Markets ex-US Growth	14.73	-21.46	3.13	5.46	3.47
Morningstar Developed Markets ex-US Value	18.08	-5.46	1.51	4.61	3.12
Morningstar Emerging Markets	9.39	-17.81	-0.05	2.46	2.61
Morningstar Emerging Markets Growth	7.92	-20.85	-1.16	2.67	2.78
Morningstar Emerging Markets Value	10.73	-15.30	0.85	2.22	2.83

Source: Morningstar Direct. Data as of Dec. 30, 2022.

\*This includes performance backtested to the end of June 1997 for U.S. indexes and June 2008 for global indexes.

Relative to its value counterpart, the Morningstar US Large Broad Growth Index's underperformance in fourth-quarter 2022 was predicated primarily on intra-sector selection effects, particularly within the consumer cyclical and technology sectors, which created a significant drag. Being overweight the

technology and consumer cyclical sectors, along with being underweight financial services, were the most notable sector tilts that contributed to underperformance in large-cap growth stocks in the U.S. Within technology, criticized names like Salesforce.com CRM, Apple AAPL, Alphabet GOOG, and Meta Platforms META were relative detractors this quarter, while in consumer cyclical, Amazon.com AMZN and Tesla TSLA stymied performance. These stocks stumbled owing to increases in high inflation, rising policy rates, decreases in ad revenue, restrictions on user tracking, increases in redundant hiring costs, and other issues. We also saw some countervailing factors, with better performance from growth names like Nike NKE, NVIDIA NVDA, Adobe ADBE, and Mastercard MA. During the past year, both sectors' allocation and selection affected the underperformance of growth with respect to value. Major allocation and selection effects resided in the technology sector, with Amazon.com and Microsoft MSFT being the top detractors.

Globally, the underperformance of the Morningstar Developed Markets ex-US Growth TME Index was driven mostly by stock exposure as opposed to regional tilts, although the index was overweight France and underweight Great Britain. Similarly, in emerging markets, the outperformance of the value style in the large-mid universe was mainly the result of stock selection, with India underweight and Korea overweight with respect to growth style. It's worth noting that the Global Style indexes are constructed from various regional indexes that ascribe style scores relative to other companies within the respective region. Consequently, there is a structural ceiling on the regional differences that can exist between global value and growth indexes. As such, it is unlikely that country tilts would ever be the primary driver of return differences between value and growth. Sector tilts played a negligible role in relative performance across ex-U.S. developed markets, though they were more meaningful across emerging economies (particularly technology and financial services).

Over the past decade in the U.S., growth beat value and large-caps beat small-caps. That's the opposite of what many factor investors have come to expect, as data going back to the 1920s suggests smaller and more value-oriented stocks have tended to do better over the long term.<sup>1</sup> This trend was reversed during 2022, however, and punctuated during the fourth quarter, with value prevailing over growth by a wide margin.

Extending the review period to the end of June 1997, which is the earliest available for the U.S. broad style indexes, small- and mid-cap stocks did in fact beat large-caps, though the all-cap Morningstar US Market Broad Value Extended Index lagged its growth counterpart. Globally, since the end of June 2008 (the longest available performance horizon), growth stocks also outperformed value. Still, in the U.S., there was a notable trend across the lower ends of the market-cap spectrum: Smaller value stocks tended to do better than their growth counterparts. This is consistent with academic studies, which have shown the value effect has historically been the most pronounced among the smallest stocks.<sup>2</sup>

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<sup>1</sup> Source: French Data Library.

<sup>2</sup> Fama, Eugene F. and Kenneth French. "A Five-Factor Asset Pricing Model." Sept 2014.  
[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2287202](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2287202)

## Risk

Not surprisingly, over long time horizons, smaller-cap stocks in the U.S. have tended to exhibit greater volatility and sensitivity to market fluctuations than their larger counterparts, as Exhibits 2 and 3 show. These companies tend to have more volatile earnings as they're more leveraged to the vagaries of niche markets and have a lower likelihood of enjoying durable competitive advantages relative to larger stocks.

That said, over the past year, the converse has held true for market betas across the U.S. size spectrum, with small-cap stocks being less sensitive to movements in the broader market. While we wouldn't expect this trend to hold over the long term, we find it more plausible over short time horizons. In addition to structural characteristics of the larger-cap indexes (including higher concentration and larger stocks being more prone to frequent news flow that can drive short-term trading activity), fluctuations in sector weightings also play a role.

**Exhibit 2** Standard Deviation (%)

US	1 Yr	5 Yr	10 Yr	Since Inception*
Morningstar US Market Extended	23.23	19.25	15.21	16.06
Morningstar US Market Broad Growth Extended	26.88	21.17	16.59	18.48
Morningstar US Market Broad Value Extended	21.37	18.83	14.94	15.28
Morningstar US Large Cap	23.12	18.77	14.81	15.68
Morningstar US Large Broad Growth	27.82	21.52	16.78	18.32
Morningstar US Large Broad Value	20.62	17.79	14.17	14.74
Morningstar US Mid Cap	23.50	20.61	16.33	17.62
Morningstar US Mid Cap Broad Growth	25.50	21.25	16.83	19.95
Morningstar US Mid Cap Broad Value	23.05	21.39	16.87	17.36
Morningstar US Small Cap Extended	25.13	23.85	19.31	20.29
Morningstar US Small Broad Growth Extended	25.41	23.18	18.96	22.56
Morningstar US Small Broad Value Extended	25.85	25.70	20.55	19.78
<b>Global</b>				
Morningstar Global Target Market Exposure	21.04	17.66	14.27	16.97
Morningstar Global Growth	23.86	18.50	14.82	17.04
Morningstar Global Value	19.67	18.21	14.69	17.36
Morningstar Developed Markets ex-US	21.34	17.57	14.77	18.02
Morningstar Developed Markets ex-US Growth	23.77	17.20	14.33	17.13
Morningstar Developed Markets ex-US Value	20.38	19.22	16.10	19.40
Morningstar Emerging Markets	20.47	18.49	16.45	21.20
Morningstar Emerging Markets Growth	20.62	18.89	16.28	20.87
Morningstar Emerging Markets Value	20.62	19.52	17.75	21.70

Source: Morningstar Direct. Data as of Dec. 31, 2022.

\*This includes performance backtested to the end of June 1997 for U.S. indexes and June 2008 for global indexes. Returns longer than one year annualized. All index performance data displayed are for Total Return USD variants.



**Exhibit 3** Market Beta

<b>US</b>	<b>1 Yr</b>	<b>5 Yr</b>	<b>10 Yr</b>	<b>Since Inception*</b>
Morningstar US Market Extended	1.00	1.00	1.00	1.00
Morningstar US Market Broad Growth Extended	1.12	1.06	1.05	1.11
Morningstar US Market Broad Value Extended	0.88	0.94	0.94	0.90
Morningstar US Large Cap	0.99	0.97	0.97	0.97
Morningstar US Large Broad Growth	1.15	1.05	1.04	1.08
Morningstar US Large Broad Value	0.85	0.89	0.89	0.86
Morningstar US Mid Cap	1.00	1.04	1.05	1.06
Morningstar US Mid Cap Broad Growth	1.06	1.06	1.06	1.16
Morningstar US Mid Cap Broad Value	0.94	1.03	1.03	0.96
Morningstar US Small Cap Extended	1.05	1.16	1.17	1.14
Morningstar US Small Broad Growth Extended	1.03	1.11	1.13	1.22
Morningstar US Small Broad Value Extended	1.06	1.20	1.20	1.06
<b>Global</b>				
Morningstar Global Target Market Exposure	1.00	1.00	1.00	1.00
Morningstar Global Growth	1.10	1.01	1.01	0.99
Morningstar Global Value	0.90	0.99	1.00	1.00
Morningstar Developed Markets ex-US	1.00	1.00	1.00	1.00
Morningstar Developed Markets ex-US Growth	1.08	0.95	0.94	0.93
Morningstar Developed Markets ex-US Value	0.92	1.06	1.06	1.06
Morningstar Emerging Markets	1.00	1.00	1.00	1.00
Morningstar Emerging Markets Growth	0.99	0.99	0.96	0.97
Morningstar Emerging Markets Value	1.00	1.02	1.05	1.01

Source: Morningstar Direct. Data as of Dec. 31, 2022.

\*This includes performance backtested to the end of June 1997 for U.S. indexes and June 2008 for global indexes. Returns longer than one year annualized. All index performance data displayed are for Total Return USD variants.

Independent of size, value and growth stocks in the U.S. have tended to exhibit similar risk to each other over the past decade, though several periods have contravened this pattern. For example, growth stocks were a bit more volatile over the longest review period from July 1997 through September 2021. This is partly attributable to the dot-com bubble, and subsequent correction, during the early 2000s.

Globally, value stocks have tended to be more volatile over longer time horizons. However, the difference hasn't been demonstrable and was quite negligible over the past year. This is an interesting juxtaposition to the U.S. and global broad universe, where growth stocks were decidedly more volatile over the past year.

While their risk, when viewed through the conventional lens of return volatility, will go through periods of divergence and convergence, it's worth remembering that value and growth styles carry different fundamental risk profiles. Value stocks tend to have weaker profitability, encounter stiffer competition,

and face more daunting secular headwinds than growth stocks. Growth stocks tend to have healthier businesses and more auspicious industry positioning, but they often come with rich valuations that could compress if they fall short of (often lofty) investor expectations. That said, some of these value and growth risks are firm-specific, which the broad style indexes largely diversify away.

## Portfolio Highlights

### December Reconstitution

Morningstar's broad style index family was reconstituted in December (the next reconstitution will be in June). As a result, the composition of the indexes changed more significantly between the third and fourth quarters than they did between the previous two quarters. Changes can be driven by corporate actions, style migration, or price fluctuations of existing constituents. Exhibit 4 shows how much the U.S. indexes and select global variants changed over the past quarter, one year, and five years, using active share to measure the difference in the index portfolio pre- and post-reconstitution. Exhibit 5 shows the top five new constituents added to each index during the December reconstitution.

**Exhibit 4** Active Share (%) of Each Index Against Itself Over Time

US	1 Qr	1 Yr	5 Yr
Morningstar US Market Extended	6.51	13.87	25.26
Morningstar US Market Broad Growth Extended	17.89	31.33	46.44
Morningstar US Market Broad Value Extended	14.84	22.35	35.21
Morningstar US Large Cap	7.53	15.62	25.23
Morningstar US Large Broad Growth	18.88	33.57	46.91
Morningstar US Large Broad Value	15.78	25.65	36.62
Morningstar US Mid Cap	13.44	27.86	47.23
Morningstar US Mid Cap Broad Growth	23.90	40.87	58.55
Morningstar US Mid Cap Broad Value	21.45	32.12	55.40
Morningstar US Small Cap Extended	14.35	28.68	52.40
Morningstar US Small Broad Growth Extended	25.58	43.09	66.97
Morningstar US Small Broad Value Extended	22.29	32.70	58.99
<b>Global</b>			
Morningstar Global Target Market Exposure	6.14	13.25	27.41
Morningstar Global Growth	15.42	30.27	45.55
Morningstar Global Value	13.10	23.37	34.23

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 5** Top Five New Constituents Added to Each Index in December 2021

Morningstar US Market Extended	Atlassian Corp, Coupang Inc, Roblox Corp, Robinhood Markets Inc, Endeavor Group Holdings Inc
Morningstar US Market Broad Growth Extended	Merck & Co Inc, Chevron Corp, General Electric Co, NextEra Energy Inc, Elevance Health Inc
Morningstar US Market Broad Value Extended	Amazon.com Inc, Nike Inc, PerkinElmer Inc, Coupang Inc, Yum Brands Inc
Morningstar US Large Cap	Phillips 66, AutoZone Inc, Agilent Technologies Inc, Motorola Solutions Inc, Aflac Inc
Morningstar US Large Broad Growth	Merck & Co Inc, Chevron Corp, General Electric Co, NextEra Energy Inc, Elevance Health Inc
Morningstar US Large Broad Value	Amazon.com Inc, Phillips 66, Nike Inc, Aflac Inc, Kinder Morgan Inc
Morningstar US Mid Cap	Simon Property Group Inc, Newmont Corp, Dow Inc, Nucor Corp, Block Inc
Morningstar US Mid Cap Broad Growth	Block Inc, Workday Inc, Marvell Technology Inc, CrowdStrike Holdings Inc, Atlassian Corp
Morningstar US Mid Cap Broad Value	Simon Property Group Inc, Newmont Corp, Dow Inc, Cognizant Technology Solutions Corp, Microchip Technology Inc
Morningstar US Small Cap Extended	Lattice Semiconductor Corp, Exact Sciences Corp, Berry Global Group Inc, Royal Gold Inc, Capri Holdings Ltd
Morningstar US Small Broad Growth Extended	Lattice Semiconductor Corp, Royal Gold Inc, Tradeweb Markets Inc, Five9 Inc, UiPath Inc
Morningstar US Small Broad Value Extended	Berry Global Group Inc, Capri Holdings Ltd, United States Steel Corp, Lithia Motors Inc, Macy's Inc
Morningstar Global Target Market Exposure	HDFC Bank Ltd, Haleon PLC, Atlassian Corp, LPL Financial Holdings Inc, Coupang Inc
Morningstar Global Growth	Merck & Co Inc, Chevron Corp, General Electric Co, HDFC Bank Ltd, NextEra Energy Inc
Morningstar Global Value	Amazon.com Inc, Taiwan Semiconductor Manufacturing Co Ltd, Nike Inc, American Express Co, Freeport-McMoRan Inc

Source: Morningstar Direct. Data as of Dec. 31, 2022.

The Morningstar US Market Extended Index, which spans all styles, didn't change materially during the December reconstitution. Price fluctuations can explain most of the changes to that index over the past quarter. That said, there were some notable recent IPOs that were added to this index in December, including Westrock Coffee and Prime Medicine. The Global TME Index's story was not much different, with price fluctuations accounting for most changes during the quarter. Additions to the index were HDFC Bank HDB (which was removed from the Reserve Bank of India's restriction list), Haleon HLN (new company), and Atlassian TEAM. Twitter, Warner Bros. WBD, and Citrix were among the top names removed from Global TME in this quarter due to recent acquisitions in the fourth quarter.

The Morningstar US Large Cap Index also had low turnover. Many of its new constituents were former mid-cap stocks that migrated to large-cap territory. Notable additions to the December reconstitution were AutoZone AZN; Devon Energy DVN; Phillips 66; and Cheniere Energy LNG, which migrated from mid-cap to large-cap this quarter.

Stocks' movement across the value-growth spectrum accounted for many of the changes to the U.S. large value and growth indexes. For example, the Morningstar US Large Growth Index picked up Chevron CVX and General Electric GE, as they moved from value into the core section of the Morningstar Style Box. Conversely, Phillips, Nike, and Amazon.com were added to the Morningstar US Large Value Index.

In the U.S., turnover was higher among the small- and mid-cap indexes than it was for the large-cap indexes because their largest constituents change more frequently, as they migrate across market-cap

breakpoints. For instance, Phillips and AutoZone were among the Morningstar US Mid Cap Index's largest holdings at the end of September, then migrated to the large-cap index during the reconstitution. When stocks drop from large- to mid-cap, or mid-cap to small-cap, their weightings in the smaller-cap index tend to be greater than the index they leave, creating more turnover in the smaller-cap index. For example, when Simon Property Group [SPG](#) moved from the Morningstar US Large Cap Index to the Morningstar US Mid Cap Index in December, its cumulative weight in the mid-cap index was more than four times what it was as a large-cap constituent.

Similarly to their large-cap counterparts, style migration was responsible for quite a bit of the changes to the mid- and small-cap indexes in the U.S. For example, Constellation Energy [CEG](#) was the largest addition to the Morningstar US Mid Cap Broad Growth Index, as the firm transitioned to the mid-growth section of the Morningstar Style Box (from mid-value). On the small-cap side, Sunrun [RUN](#) exemplified style migration, drifting to the small-value section of the Morningstar Style Box.

The reconstitution did not have a significant impact on most of the sector weightings. Healthcare and financial services increased their representation among all indexes (except small-cap), particularly in the Morningstar US Large Index, which showed a 2.2-percentage-point increase in its healthcare and 1.2% increase in financial services sector allocations since the end of the third quarter. Merck & Co [MRK](#) was added to U.S. Large Growth and Aflac [AFL](#) was added to U.S. Large Value.

## Sectors

The sector weightings for the broad style indexes are shown in Exhibit 6.

**Exhibit 6** Sector Composition (%)

US	Basic Materials	Comm Svs	Consumer Cyc	Consumer Def	Energy	Financial Services	Healthcare	Industrials	Real Estate	Technology	Utilities
Morningstar US Market Extended	2.67	6.87	10.55	6.79	5.12	13.95	14.92	9.57	3.46	23.22	2.87
Morningstar US Market Broad Growth Extended	2.49	7.42	15.66	3.52	1.78	8.68	12.11	7.09	3.84	37.02	0.38
Morningstar US Market Broad Value Extended	2.83	6.38	6.22	9.59	7.94	18.45	17.26	11.67	3.15	11.53	5
Morningstar US Large Cap	1.57	8.08	9.51	8.01	5.63	14.05	16.86	7.55	1.36	25.46	1.91
Morningstar US Large Broad Growth	1.86	9.17	17.2	3.7	0.89	8.92	10.01	2.89	2.15	43.22	0
Morningstar US Large Broad Value	1.99	7.77	4.27	11.13	7.92	17.62	20.89	11.1	1.12	12.98	3.21
Morningstar US Mid Cap	5.85	3.21	10.29	4.53	3.82	13.23	11	15.03	9.43	16.25	7.35
Morningstar US Mid Cap Broad Growth	3.87	3.47	12.25	3	4.15	8.7	14.55	17.16	8.27	23.27	1.31
Morningstar US Mid Cap Broad Value	5.41	2.94	10.36	5.84	7.92	19.05	7.82	11.83	8.6	7.84	12.38
Morningstar US Small Cap Extended	4.18	2.64	12.73	3.94	5.86	15.83	14.87	16.19	7.54	13.66	2.55
Morningstar US Small Broad Growth Extended	4.07	2.98	12.09	3.7	3.14	6.59	22.45	15.96	6.48	21.4	1.12
Morningstar US Small Broad Value Extended	4.34	2.05	13.47	4.24	8.28	24.88	6.99	16.52	8.7	6.6	3.93
<b>Global</b>											
Morningstar Global Target Market Exposure	4.76	6.89	10.43	7.83	5.51	16.62	13.01	10.24	2.63	19.05	3.01
Morningstar Global Growth	3.81	7.69	14.49	6.98	2.01	11.11	12.57	9.66	2.52	28.08	1.08
Morningstar Global Value	5.62	6.17	6.73	8.62	8.69	21.65	13.43	10.75	2.7	10.8	4.78
Morningstar Developed Markets ex-US	8.06	4.83	9.86	9.62	6.72	19.93	12.07	15.26	2.55	7.88	3.14
Morningstar Developed Markets ex-US Growth	5.6	4.65	12.05	10.75	2.5	11.08	18.05	18.7	1.97	12.93	1.72
Morningstar Developed Markets ex-US Value	10.5	5	7.72	8.52	10.86	28.62	6.2	11.89	3.04	2.93	4.54
Morningstar Emerging Markets	9.08	9.24	12.93	6.93	5.21	23.48	3.55	6.37	1.84	18.21	3.14
Morningstar Emerging Markets Growth	6.67	11.93	15.02	10.06	3.45	18.72	5.97	6.12	1.29	18.16	2.62
Morningstar Emerging Markets Value	11.52	6.62	10.88	3.86	6.97	28.3	1.16	6.32	2.32	18.29	3.67

Source: Morningstar Direct. Data as of Dec. 31, 2022.

There are persistent differences in growth rates and valuations across sectors, leading to diverging sector weightings across the value and growth indexes, which can affect performance. For example, the Morningstar US Market Broad Growth Extended Index has greater exposure to the consumer cyclical,

technology, and communication-services sectors than its value counterpart, and less exposure to the consumer defensive, financial-services, industrials, utilities, and energy sectors. Most of these sector tilts were also present five years ago.

Interestingly, these sector tilts become more nuanced globally. For example, in developed markets outside the U.S. technology and healthcare are overrepresented in growth as compared to value. Financial services and energy are underrepresented in growth as compared to value. Additionally, the Morningstar Emerging Markets Value TME Index skews more to the technology sector, nearly equal to its growth counterpart, which is the contrary of what we observe in the U.S. While the ex-U.S. indexes only cover the large-cap to mid-cap bands (as opposed to the all-cap coverage of the Morningstar US Market Extended Index), given cap-weighting, we'd expect these style differences across regions to hold even when small-caps are included.

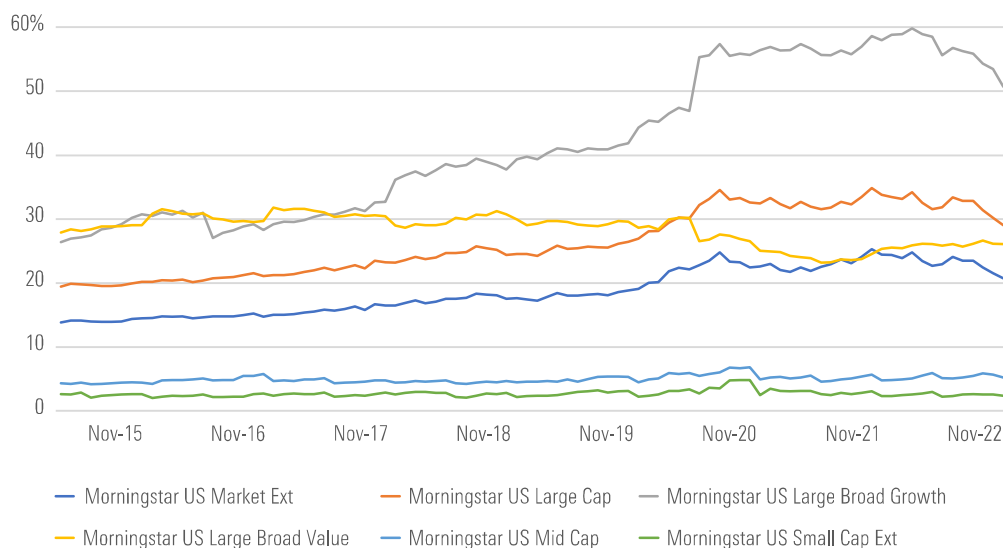
In the U.S., there are also notable sector differences along the market-cap spectrum. The Morningstar US Large Cap Index has greater exposure to communication services, consumer defensive, and technology stocks than the Morningstar US Small Cap Extended Index, and less exposure to the real estate and industrials sectors. These tilts were also present five years ago, but at that time healthcare stocks represented a greater portion of the large-cap index than they did of the small-cap index. Since then, that relationship has flipped; however, we see increased exposure to healthcare in the last quarter with the addition of Agilent Technologies A.

### **Concentration**

The broad style indexes all skew toward the larger names within their respective segments, owing to market-cap weighting. This weighting approach reflects the composition of the opportunity set and allows companies to become a bigger part of the portfolios as they grow within each market-cap segment.

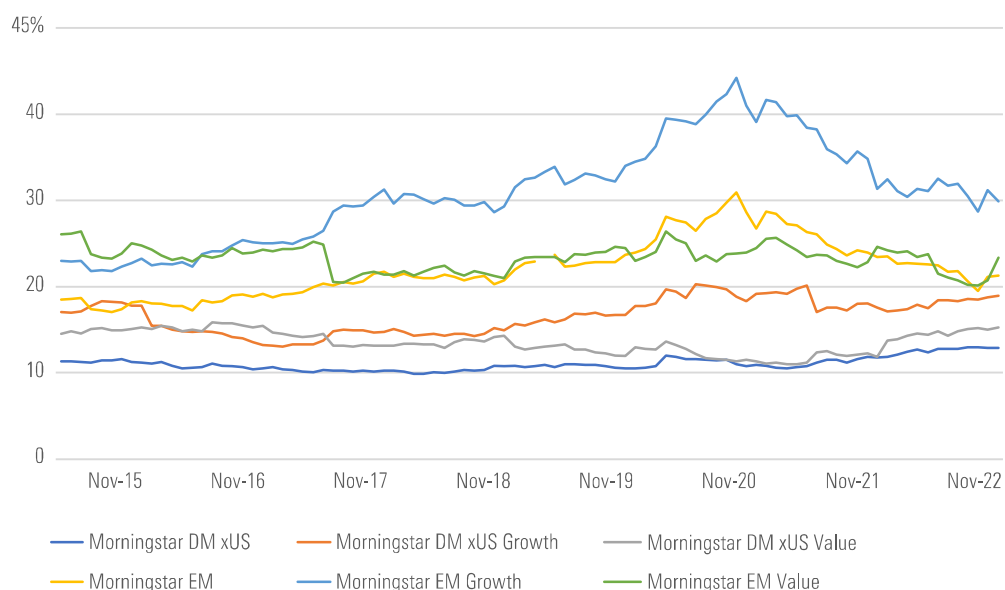
Concentration is most pronounced in the large-cap indexes (as shown in Exhibit 7), particularly in the Morningstar US Large Broad Growth Index, where the percentage of assets in the top 10 constituents has grown from 36% at the end of December 2017 to 50% five years later. The market has become more concentrated as the largest growth stocks have outperformed. This not only increased their market-cap weightings, but also reduced the number of large growth stocks required to reach 50% coverage of the large-cap market, reducing the number of stocks in the portfolio. Today, the Morningstar US Large Broad Growth Index holds 125 stocks, down from 161 five years ago. Moreover, the largest constituent in the index today (Apple) comprises over 15% of the portfolio, whereas five years ago, the equivalent weight for the largest holding (Alphabet) was less than half today's number, just over 6%.

The small- and mid-cap indexes have far less concentration in their top 10 constituents, as there is a natural cap on how large constituents can grow before they advance to the next market-cap segment.

**Exhibit 7** Percentage of Portfolio in Top 10 Holdings—U.S.

Source: Morningstar Direct. Data as of Dec. 31, 2022.

Exhibit 8 shows concentration trends for the style indexes across emerging markets and ex-U.S. developed markets, along with the corresponding parent indexes. Concentration has been perennially higher in emerging markets, which implies that there are factors endemic to these markets that facilitate greater concentration of capital. Additionally, while the portfolios largely seem to be getting more concentrated over time, the recent trend in the Morningstar Emerging Markets Growth TME Index is interesting, with concentration falling precipitously since October 2020. This is partially owing to the underperformance of Chinese mega-caps like Alibaba [BABA](#) and Tencent [TCEHY](#), including in the first half of 2022, as they have been beleaguered by regulatory crackdowns on gaming, digital commerce, and the like.

**Exhibit 8** Percentage of Portfolio in Top 10 Holdings—Global

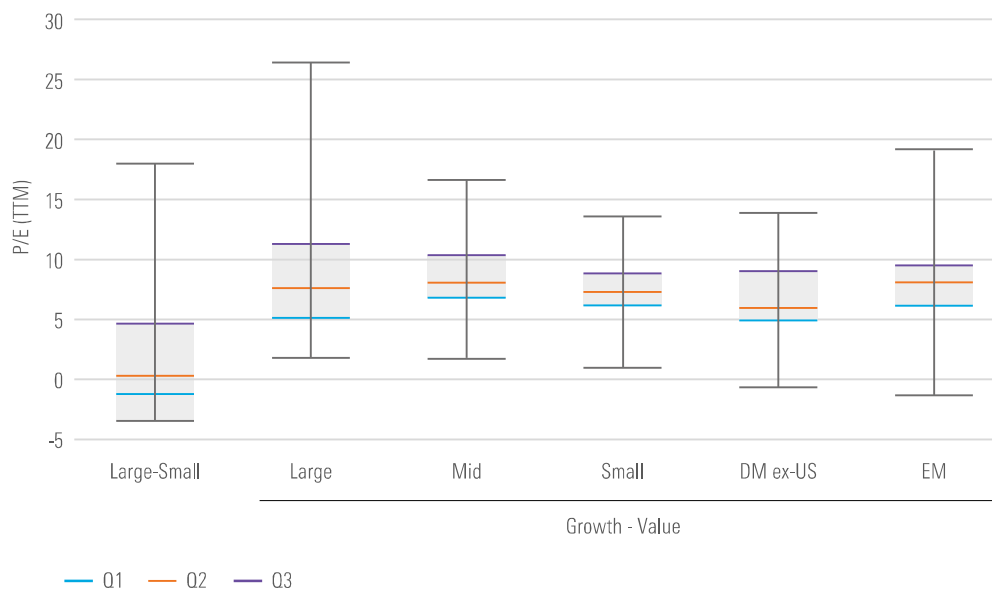
Source: Morningstar Direct. Data as of Dec. 31, 2022.

### Valuations

By definition, growth stocks trade at higher valuations than value stocks. After years of stronger performance, growth stocks have become more expensive relative to value. This trend holds true both in the U.S. and globally, as illustrated in Exhibits 9 and 10. These figures show the spread between the trailing 12-month P/E ratios of the growth and value indexes in the Morningstar Broad Style family for each of the three market-cap segments, as well as for the ex-U.S. developed markets and emerging markets regions of the Global Style family. It also includes this spread data for the Morningstar US Large Cap and Morningstar US Small Cap Extended indexes, along with historical distributions for all the spreads.

After a harrowing first half of 2022, followed by a brief relative recovery during the third quarter, relative valuations for growth stocks have come down quite a bit compared to the end of 2021. In December, the growth-value P/E spread was in the top decile of historical distributions for all size bands and regions, with some of them in the 90th percentile, approaching unprecedented levels. However, for US Small-Large and Mid the spreads have been less pronounced than former indexes mentioned in this quarter. Still, despite the compression, spreads remain elevated by historical standards, particularly in the U.S. mid-cap and emerging markets.



**Exhibit 9.1** P/E (TTM) Valuation Spread

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 9.2** Current Valuation Spreads are at High Levels in the U.S.; Also Elevated Internationally

	Growth - Value					
	Large-Small	Large	Mid	Small	DM ex-US	EM
Current P/E Valuation Spread	9.41	10.34	9.89	7.45	10.99	11.10
Percent Rank (%)	92.9	69.3	71.8	52	88.5	89

Source: Morningstar Direct. Data as of Dec. 31, 2022.

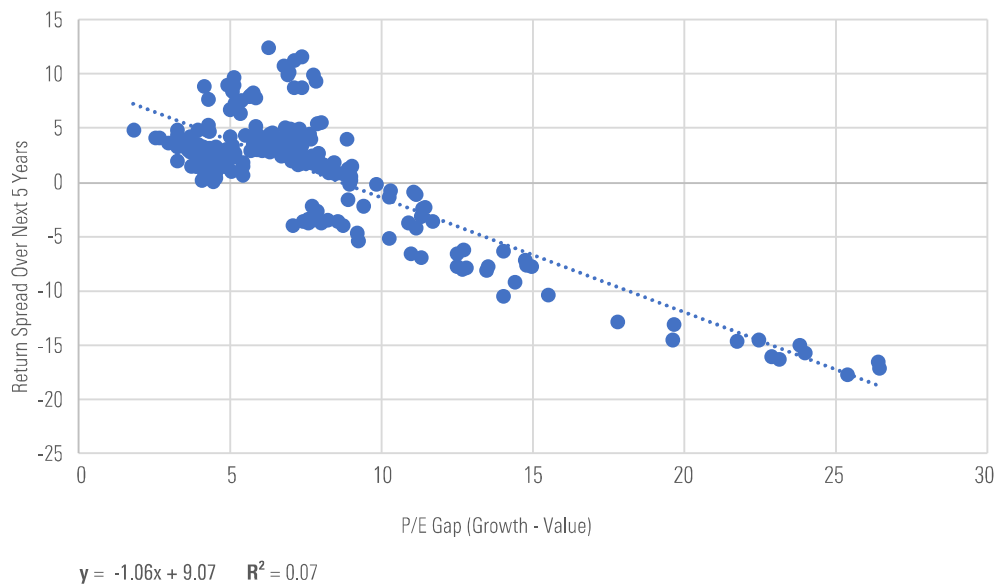
Unusually wide valuation spreads may portend lower expected returns for the pricier index. Historically, in the U.S., wider valuation spreads have been associated with lower returns over the subsequent five years for the large- and mid-cap growth indexes relative to their value counterparts, as Exhibits 7 and 8 show. The same is true of the large-cap index relative to the small-cap extended index.

There wasn't a strong relationship between valuation spreads and future returns for the U.S. small-cap growth and value indexes. The same is true of the large-mid universe in emerging markets, displayed in Exhibit 15.

A startling and counterintuitive phenomenon can be observed in developed markets outside the U.S. (Exhibit 14), where there seems to have been a significantly positive relationship between valuation spreads and subsequent five-year returns. We view this as an anomaly, likely attributable to exogenous

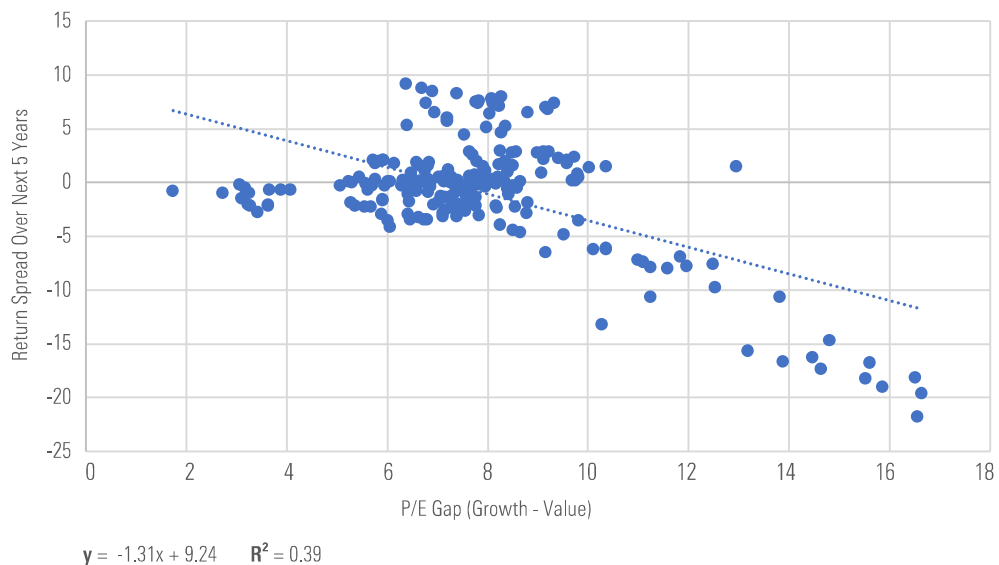
economic factors that have disproportionately benefited growth stocks over this period. It's also worth noting that the historical distribution of valuation spreads has been tightest in these ex-U.S. developed markets.

**Exhibit 10** Relationship Between Valuations and Future Returns: Nov. 1999-Dec. 2022 (Morningstar US Large Broad Growth Index-Morningstar US Large Broad Value Index)



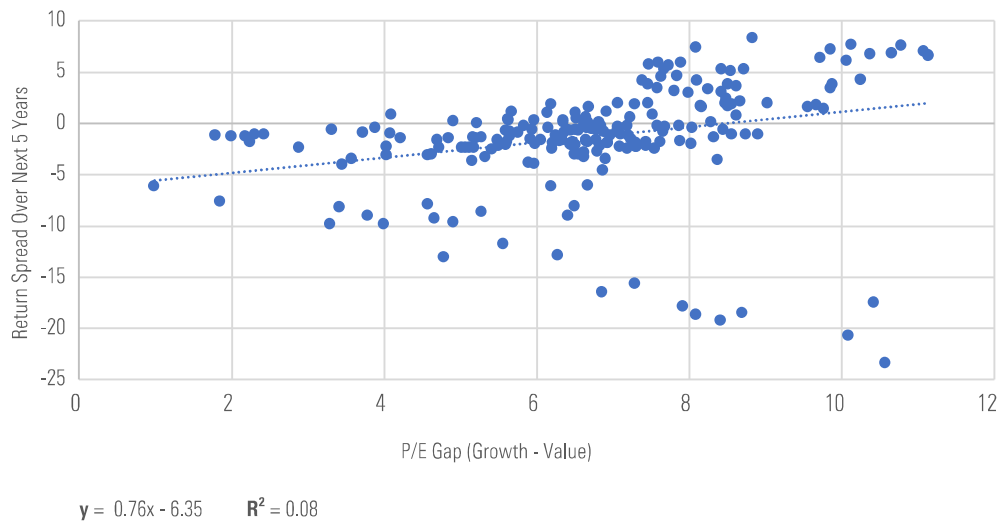
Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 11** Relationship Between Valuations and Future Returns: Nov. 1999-Dec. 2022 (Morningstar US Mid Broad Growth Index-Morningstar US Mid Broad Value Index)



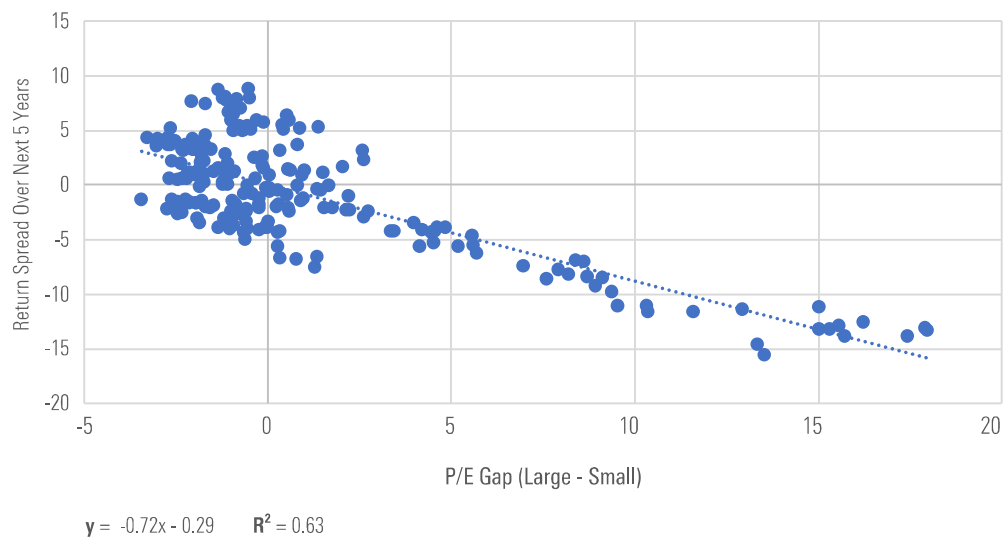
Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 12** Relationship Between Valuations and Future Returns: Nov. 1999-Dec. 2022 (Morningstar US Small Cap Broad Growth Extended Index-Morningstar US Small Cap Broad Value Extended Index)



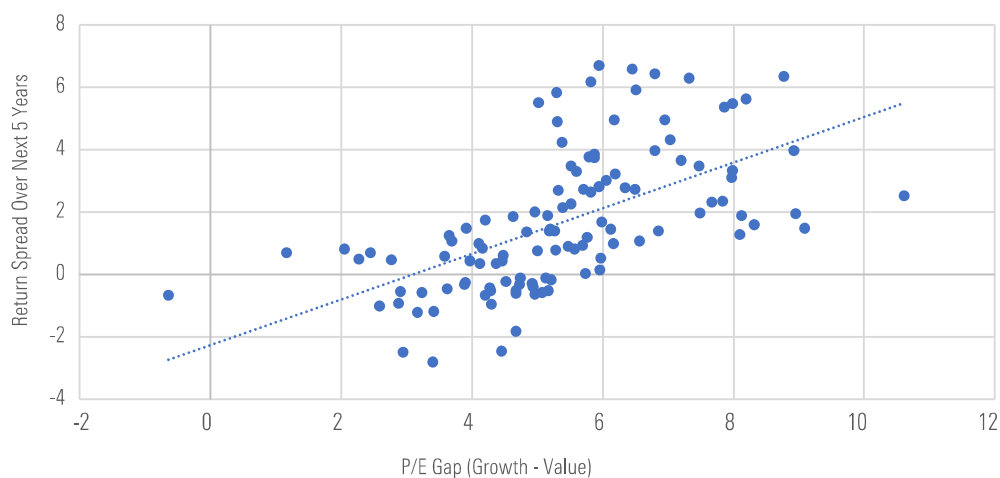
Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 13** Relationship Between Valuations and Future Returns: Nov. 1999-Dec. 2022 (Morningstar US Large Index-Morningstar US Small Cap Extended Index)



Source: Morningstar Direct. Data as of Dec. 31, 2022.

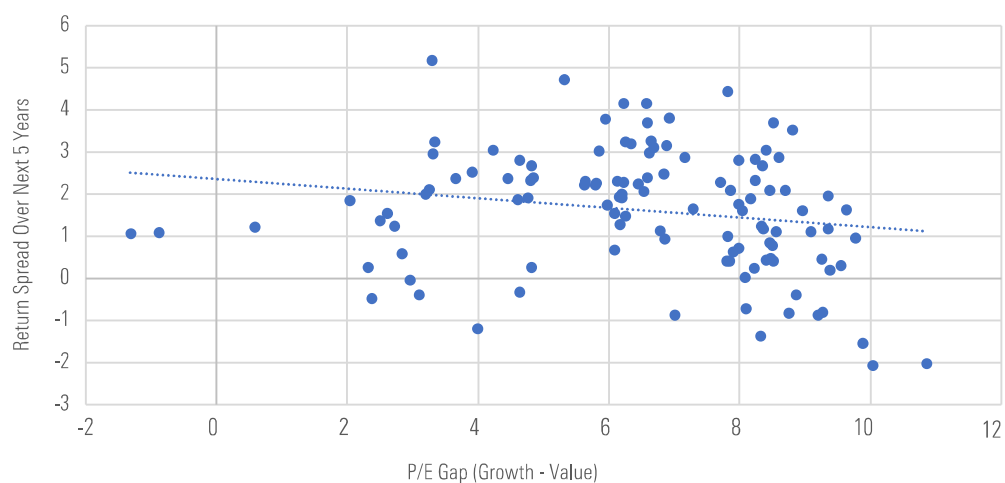
**Exhibit 14** Relationship Between Valuations and Future Returns: June 2008-Dec. 2021 (Morningstar DM ex-US Growth TME Index-Morningstar DM ex-US Value TME Index)



$$y = 0.80x - 2.53 \quad R^2 = 0.37$$

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 15** Relationship Between Valuations and Future Returns: June 2008-Dec. 2021 (Morningstar EM Growth TME Index-Morningstar EM Value TME Index)



$$y = -0.02x - 1.93 \quad R^2 = 0.002$$

Source: Morningstar Direct. Data as of Dec. 31, 2022.

### Forever in Style

Regardless of market conditions, the Morningstar Broad Style and Global Style index families provide a robust toolkit for style investors. The indexes accurately represent the opportunity set available to style investors across different regions and can facilitate precise performance benchmarking and efficient

asset allocation aligned with the Morningstar Style Box. For more information, visit <https://www.morningstar.com/products/indexes-style>. 

## Appendix

### Appendix 1: Style Investing

Style investing focuses on two of the most important drivers of stock returns: size and valuations. Nobel laureate Eugene Fama and Kenneth French demonstrated that differences in these two variables can explain much of the variation of stock returns in the seminal paper “The Cross-Section of Expected Stock Returns” in 1992. That was the same year the Morningstar Style Box launched. This tool divides the equity market into nine sections along two dimensions: size and value/growth orientation, which has become a widely adopted frame of reference for classifying managed portfolios and assessing performance.

This style framework is also useful for framing asset-allocation decisions. The large value segment of the market is a fertile hunting ground for mature dividend payers, while the large-growth segment is home to many highly profitable companies with strong prospects. Small-growth stocks tend to have the greatest potential for capital appreciation, but they also carry considerable risk. Finally, the small-value segment may be where the best bargains are. Historically, this market segment has had the highest returns, though it has experienced long stretches of underperformance.

The Morningstar Broad Style and Global Style indexes provide an effective toolkit to gauge style trends, both in the U.S. and globally. These indexes cast a wider net than the nine segments of the Morningstar Style Box, carving the value-growth spectrum into halves rather than thirds. This better reflects the opportunity set available to style investors, as managers often color outside their designated section in the Morningstar Style Box. Stocks in the blend segment of the market are partially allocated to both the value and growth indexes, as they often appear in both value and growth managers’ portfolios.

### Appendix 2: Company Characteristics by Style

Morningstar’s broad style and global style indexes each focus on a different type of stock, reflecting how many active managers define their opportunity set.

Large-growth stocks are often among the market’s most enviable businesses. These firms not only tend to enjoy robust growth prospects, but they also typically benefit from dominant market positions and deploy extremely profitable business models. Within the Morningstar Broad Style Index family, the Morningstar US Large Broad Growth Index has the greatest exposure to stocks with wide Morningstar Economic Moat Ratings, reflecting durable competitive advantages that Morningstar equity analysts expect to last for at least 20 years, as Exhibit 11 illustrates. The constituents of this index also tend to generate a larger share of their revenue outside the U.S. than any of the other broad style indexes, as shown in Exhibit 12.

Similar to the U.S., global growth indexes have the greatest bent towards wide moat ratings, reflecting the structurally more-favorable business models of these constituents. These durable competitive advantages are also more prevalent in developed markets relative to emerging markets. Companies listed in emerging markets are more likely to have to navigate headwinds like tenuous regulatory

landscapes (which invite competition) and more acute economic cyclicality (which detracts from our equity analysts' confidence in the sustainability of their profits).

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**Exhibit 16** Economic Moat Exposure (%)

<b>US</b>	<b>Wide Moat</b>	<b>Narrow Moat</b>	<b>None</b>
Morningstar US Market Extended	43.81	36.01	7.19
Morningstar US Market Broad Growth Extended	43.04	38.54	5.02
Morningstar US Market Broad Value Extended	44.64	33.72	9.23
Morningstar US Large Cap	57.51	38.46	3.52
Morningstar US Large Broad Growth	56.07	41.94	1.99
Morningstar US Large Broad Value	58.83	35.26	4.92
Morningstar US Mid Cap	13.08	39.63	20.40
Morningstar US Mid Cap Broad Growth	15.76	40.79	15.28
Morningstar US Mid Cap Broad Value	10.51	39.45	25.12
Morningstar US Small Cap Extended	1.26	6.72	7.64
Morningstar US Small Broad Growth Extended	1.11	6.37	5.83
Morningstar US Small Broad Value Extended	1.43	7.21	9.60
<b>Global</b>			
Morningstar Global Target Market Exposure	38.36	32.55	12.84
Morningstar Global Growth	43.44	33.39	6.89
Morningstar Global Value	33.69	31.84	18.41
Morningstar Developed Markets ex-US	26.25	24.72	24.65
Morningstar Developed Markets ex-US Growth	38.16	26.25	10.00
Morningstar Developed Markets ex-US Value	14.83	23.32	38.73
Morningstar Emerging Markets	14.29	17.09	13.04
Morningstar Emerging Markets Growth	19.56	14.19	11.50
Morningstar Emerging Markets Value	9.30	20.08	14.68

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 17** Revenue Generated in the U.S.

<b>US</b>	<b>% of Revenue from the U.S.</b>
Morningstar US Market Extended	63.32
Morningstar US Market Broad Growth Extended	59.30
Morningstar US Market Broad Value Extended	67.11
Morningstar US Large Cap	59.00
Morningstar US Large Broad Growth	53.86
Morningstar US Large Broad Value	63.72
Morningstar US Mid Cap	72.65
Morningstar US Mid Cap Broad Growth	71.48
Morningstar US Mid Cap Broad Value	73.72
Morningstar US Small Cap Extended	77.59
Morningstar US Small Broad Growth Extended	75.06
Morningstar US Small Broad Value Extended	80.95
<b>Global</b>	
Morningstar Global Target Market Exposure	43.75
Morningstar Global Growth	40.95
Morningstar Global Value	46.41
Morningstar Developed Markets ex-US	21.19
Morningstar Developed Markets ex-US Growth	24.16
Morningstar Developed Markets ex-US Value	18.40
Morningstar Emerging Markets	9.73
Morningstar Emerging Markets Growth	8.83
Morningstar Emerging Markets Value	10.66

Source: Morningstar Direct. Data as of Dec. 31, 2022.

Large-value stocks tend to be more mature. These include slow-growth giants like Oracle [ORCL](#) and Procter & Gamble [PG](#) in the U.S., and Nestle [NSRGF](#) outside of the U.S. Because they often have strong cash flows and limited need of it to fund growth, these stocks tend to make larger cash distributions to shareholders than their faster-growing and smaller counterparts.

Stocks in the middle of the value-growth spectrum, like Apple, are found in both the Morningstar US Large Broad Value and Growth indexes. That reflects that they are also found in both value and growth managers' portfolios, as they don't have a strong bias toward one style over the other.

Moving down the market-cap ladder tends to increase both risk and upside potential. Mid-cap growth stocks have a bit more growth runway than their larger counterparts. These companies are often at an earlier stage in their lifecycle yet have been successful, like Roku [ROKU](#), or could be relatively mature firms transforming their businesses to align with secular growth trends across their markets, like computer-aided design firm Ansys [ANSS](#). Both companies were among the top holdings of the Morningstar US Mid Cap Broad Growth Index at the end of December 2021.



Small-growth stocks are riskier still. These firms tend to be less profitable and face greater uncertainty than better-established growth stocks, yet with this broader distribution of potential outcomes comes the juiciest growth potential. Silicon Laboratories **SLAB**, a top holding in the Morningstar US Small Cap Broad Growth Extended Index, exemplifies this promise and risk. Semiconductor applications are increasing exponentially across a slew of end markets from automotive to the "Internet of Things," providing a secular tailwind to chip suppliers. However, competition is fierce and the industry tends to be quite cyclical, with demand troughs that can be just as deep and acute as the booms.

Mid- and small-cap value stocks also carry greater risk and upside potential than their larger counterparts. This includes a mix of stocks that have simply matured before reaching the large-cap ranks, as well as names that have fallen out of favor, often for good reason. Custodian bank State Street **STT** is a good example of the former, while legacy brewer Molson Coors **TAP** embodies the latter.

Smaller stocks tend to generate more of their revenue in the U.S., particularly on the value side. The constituents of the Morningstar US Small Cap Broad Value Extended Index generated a larger share of their revenue in the U.S. than any of the other broad style indexes, as shown in Exhibit 12.

Exhibits 18-32 show the top 10 constituents in the large-, mid-, and small-cap extended indexes, the value and growth indexes in those segments, as well as the value and growth indexes for ex-U.S. developed markets and emerging markets.

**Exhibit 18** Top Holdings: Morningstar U.S. Large Cap Index

Constituent	Ticker	Sector	Weighting (%)
Apple Inc	AAPL	Technology	7.21
Microsoft Corp	MSFT	Technology	6.63
Amazon.com Inc	AMZN	Consumer Cyclical	2.77
Berkshire Hathaway Inc Class B	BRK.B	Financial Services	2.06
Alphabet Inc Class A	GOOGL	Communication Services	1.95
UnitedHealth Group Inc	UNH	Healthcare	1.84
Alphabet Inc Class C	GOOG	Communication Services	1.74
Johnson & Johnson	JNJ	Healthcare	1.71
Exxon Mobil Corp	XOM	Energy	1.69
JPMorgan Chase & Co	JPM	Financial Services	1.46

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 19** Top Holdings: Morningstar U.S. Large Broad Growth Index

Constituent	Ticker	Sector	Weighting (%)
Apple Inc	AAPL	Technology	15.06
Microsoft Corp	MSFT	Technology	13.86
UnitedHealth Group Inc	UNH	Healthcare	3.84
Amazon.com Inc	AMZN	Consumer Cyclical	2.93
NVIDIA Corp	NVDA	Technology	2.82
Visa Inc Class A	V	Financial Services	2.63
Tesla Inc	TSLA	Consumer Cyclical	2.56
Alphabet Inc Class A	GOOGL	Communication Services	2.46
Mastercard Inc Class A	MA	Financial Services	2.29
Eli Lilly and Co	LLY	Healthcare	2.24

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 20** Top Holdings: Morningstar U.S. Broad Value Index

Constituent	Ticker	Sector	Weighting (%)
Berkshire Hathaway Inc Class B	BRK.B	Financial Services	3.96
Johnson & Johnson	JNJ	Healthcare	3.29
Exxon Mobil Corp	XOM	Energy	3.23
JPMorgan Chase & Co	JPM	Financial Services	2.80
Amazon.com Inc	AMZN	Consumer Cyclical	2.61
Procter & Gamble Co	PG	Consumer Defensive	2.56
Pfizer Inc	PFE	Healthcare	2.05
AbbVie Inc	ABBV	Healthcare	2.03
Meta Platforms Inc Class A	META	Communication Services	1.93
Bank of America Corp	BAC	Financial Services	1.64

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 21** Top Holdings: Morningstar U.S. Mid Cap Index

Constituent	Ticker	Sector	Weighting (%)
Ross Stores Inc	ROST	Consumer Cyclical	0.54
Biogen Inc	BIIB	Healthcare	0.53
Realty Income Corp	O	Real Estate	0.53
Arthur J. Gallagher & Co	AJG	Financial Services	0.53
Trane Technologies PLC Class A	TT	Industrials	0.52
Microchip Technology Inc	MCHP	Technology	0.52
Simon Property Group Inc	SPG	Real Estate	0.51
Xcel Energy Inc	XEL	Utilities	0.51
Newmont Corp	NEM	Basic Materials	0.50
Parker Hannifin Corp	PH	Industrials	0.50

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 22** Top Holdings: Morningstar U.S. Mid Cap Broad Growth Index

Constituent	Ticker	Sector	Weighting (%)
Ross Stores Inc	ROST	Consumer Cyclical	1.10
Arthur J. Gallagher & Co	AJG	Financial Services	1.08
MSCI Inc	MSCI	Financial Services	1.01
The Hershey Co	HSY	Consumer Defensive	0.93
IDEXX Laboratories Inc	IDXX	Healthcare	0.92
Block Inc Class A	SQ	Technology	0.92
Workday Inc Class A	WDAY	Technology	0.92
Mettler-Toledo International Inc	MTD	Healthcare	0.88
AMETEK Inc	AME	Industrials	0.87
Marvell Technology Inc	MRVL	Technology	0.86

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 23** Top Holdings: Morningstar U.S. Mid Cap Broad Value Index

Constituent	Ticker	Sector	Weighting (%)
Biogen Inc	BIIB	Healthcare	1.05
Simon Property Group Inc	SPG	Real Estate	1.02
Xcel Energy Inc	XEL	Utilities	1.01
Newmont Corp	NEM	Basic Materials	0.99
Allstate Corp	ALL	Financial Services	0.95
Dow Inc	DOW	Basic Materials	0.94
Cummins Inc	CMI	Industrials	0.90
DuPont de Nemours Inc	DD	Basic Materials	0.90
Consolidated Edison Inc	ED	Utilities	0.89
Bank of New York Mellon Corp	BK	Financial Services	0.89

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 24** Top Holdings: Morningstar U.S. Small Cap Extended Index

Constituent	Ticker	Sector	Weighting (%)
Lattice Semiconductor Corp	LSCC	Technology	0.27
Exact Sciences Corp	EXAS	Healthcare	0.27
Penumbra Inc	PEN	Healthcare	0.26
RenaissanceRe Holdings Ltd	RNR	Financial Services	0.25
Halozyme Therapeutics Inc	HALO	Healthcare	0.23
Berry Global Group Inc	BERY	Consumer Cyclical	0.23
Royal Gold Inc	RGLD	Basic Materials	0.23
Capri Holdings Ltd	CPRI	Consumer Cyclical	0.22
Inspire Medical Systems Inc	INSP	Healthcare	0.22
KBR Inc	KBR	Industrials	0.22

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 25** Top Holdings: Morningstar U.S. Small Broad Growth Extended Index

Constituent	Ticker	Sector	Weighting (%)
Lattice Semiconductor Corp	LSCC	Technology	0.55
Penumbra Inc	PEN	Healthcare	0.52
RenaissanceRe Holdings Ltd	RNR	Financial Services	0.50
Halozyme Therapeutics Inc	HALO	Healthcare	0.47
Royal Gold Inc	RGLD	Basic Materials	0.46
Inspire Medical Systems Inc	INSP	Healthcare	0.45
Tradeweb Markets Inc	TW	Financial Services	0.45
EMCOR Group Inc	EME	Industrials	0.44
Valmont Industries Inc	VMI	Industrials	0.44
Graphic Packaging Holding Co	GPK	Consumer Cyclical	0.42

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 26** Top Holdings: Morningstar U.S. Small Value Extended Index

Constituent	Ticker	Sector	Weighting (%)
Berry Global Group Inc	BERY	Consumer Cyclical	0.46
Capri Holdings Ltd	CPRI	Consumer Cyclical	0.45
Dick's Sporting Goods Inc	DKS	Consumer Cyclical	0.41
Prosperity Bancshares Inc	PB	Financial Services	0.41
Nexstar Media Group Inc	NXST	Communication Services	0.41
Stifel Financial Corp	SF	Financial Services	0.38
MDU Resources Group Inc	MDU	Industrials	0.38
Science Applications International Corp	SAIC	Technology	0.38
Encompass Health Corp	EHC	Healthcare	0.37
Affiliated Managers Group Inc	AMG	Financial Services	0.37

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 27** Top Holdings: Morningstar Developed Markets ex-U.S. TME Index

Constituent	Ticker	Sector	Weighting (%)
Nestle SA	NESN	Consumer Defensive	1.93
Roche Holding AG	ROG	Healthcare	1.33
Novo Nordisk A/S Class B	NOVO B	Healthcare	1.33
ASML Holding NV	ASML	Technology	1.32
Novartis AG	NOVN	Healthcare	1.31
AstraZeneca PLC	AZN	Healthcare	1.27
Shell PLC	SHEL	Energy	1.20
LVMH Moet Hennessy Louis Vuitton SE	MC	Consumer Cyclical	1.15
Toyota Motor Corp	7203	Consumer Cyclical	1.04
BHP Group Ltd	BHP	Basic Materials	0.95

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 28** Top Holdings: Morningstar Developed Markets ex-U.S. Growth TME Index

Constituent	Ticker	Sector	Weighting (%)
Novo Nordisk A/S Class B	NOVO B	Healthcare	2.73
ASML Holding NV	ASML	Technology	2.71
AstraZeneca PLC	AZN	Healthcare	2.59
Nestle SA	NESN	Consumer Defensive	2.43
LVMH Moet Hennessy Louis Vuitton SE	MC	Consumer Cyclical	2.35
Novartis AG	NOVN	Healthcare	1.35
Diageo PLC	DGE	Consumer Defensive	1.27
Roche Holding AG	ROG	Healthcare	1.24
CSL Ltd	CSL	Healthcare	1.17
L'Oreal SA	OR	Consumer Defensive	1.11

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 29** Top Holdings: Morningstar Developed Markets ex-U.S. Value TME Index

Constituent	Ticker	Sector	Weighting (%)
Shell PLC	SHEL	Energy	2.36
BHP Group Ltd	BHP	Basic Materials	1.86
TotalEnergies SE	TTE	Energy	1.83
HSBC Holdings PLC	HSBA	Financial Services	1.47
Nestle SA	NESN	Consumer Defensive	1.45
Roche Holding AG	ROG	Healthcare	1.43
Novartis AG	NOVN	Healthcare	1.28
Toyota Motor Corp	7203	Consumer Cyclical	1.26
BP PLC	BP	Energy	1.24
British American Tobacco PLC	BATS	Consumer Defensive	1.05

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 30** Top Holdings: Morningstar Emerging Markets TME Index

Constituent	Ticker	Sector	Weighting (%)
Taiwan Semiconductor Manufacturing Co Ltd	2330	Technology	4.17
Tencent Holdings Ltd	00700	Communication Services	3.90
Samsung Electronics Co Ltd	005930	Technology	3.39
Alibaba Group Holding Ltd Ordinary Shares	09988	Consumer Cyclical	2.64
Reliance Industries Ltd	RELIANCE	Energy	1.60
Meituan Class B	03690	Consumer Cyclical	1.38
HDFC Bank Ltd	HDFCBANK	Financial Services	1.23
Infosys Ltd	INFY	Technology	1.01
JD.com Inc Ordinary Shares - Class A	09618	Consumer Cyclical	1.00
Vale SA	VALE3	Basic Materials	0.98

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 31** Top Holdings: Morningstar Emerging Markets Growth TME Index

Constituent	Ticker	Sector	Weighting (%)
Tencent Holdings Ltd	00700	Communication Services	7.94
Taiwan Semiconductor Manufacturing Co Ltd	2330	Technology	4.60
Reliance Industries Ltd	RELIANCE	Energy	3.27
Meituan Class B	03690	Consumer Cyclical	2.81
HDFC Bank Ltd	HDFCBANK	Financial Services	2.50
JD.com Inc Ordinary Shares - Class A	09618	Consumer Cyclical	2.05
Housing Development Finance Corp Ltd	HDFC	Financial Services	1.78
ICICI Bank Ltd	ICICIBANK	Financial Services	1.71
Alibaba Group Holding Ltd Ordinary Shares	09988	Consumer Cyclical	1.66
International Holdings Co PJSC	IHC	Consumer Defensive	1.63

Source: Morningstar Direct. Data as of Dec. 31, 2022.

**Exhibit 32** Top Holdings: Morningstar Emerging Markets Value TME Index

Constituent	Ticker	Sector	Weighting (%)
Samsung Electronics Co Ltd	005930	Technology	6.73
Taiwan Semiconductor Manufacturing Co Ltd	2330	Technology	3.79
Alibaba Group Holding Ltd Ordinary Shares	09988	Consumer Cyclical	3.62
Vale SA	VALE3	Basic Materials	1.95
China Construction Bank Corp Class H	00939	Financial Services	1.85
Ping An Insurance (Group) Co. of China Ltd	02318	Financial Services	1.23
Hon Hai Precision Industry Co Ltd	2317	Technology	1.17
Industrial And Commercial Bank Of China Ltd	01398	Financial Services	1.10
Samsung Electronics Co Ltd Participating	005935	Technology	0.98
Infosys Ltd	INFY	Technology	0.93

Source: Morningstar Direct. Data as of Dec. 31, 2022.

### Appendix 3: Funds that Track Morningstar Broad Style Indexes

#### Exhibit 33 Funds That Track Morningstar Broad Style Indexes

Name	SecId	Ticker	Domicile	Primary Prospectus Benchmark
BNY Mellon US Large Cap Core Equity ETF	F0000149CO	BKLC	United States	Morningstar US Large Cap TR USD
iShares Morningstar Growth ETF	FEUSA04ACO	ILCG	United States	Morningstar US Large Mid Brd Grt TR USD
iShares Morningstar Value ETF	FEUSA04ACP	ILCV	United States	Morningstar US Large Mid Brd Val TR USD
Lyxor Core Morningstar US (DR) ETF-Dist	F0000109UX	LCUD	Luxembourg	Morningstar US Large-Mid NR USD
iShares Morningstar U.S. Equity ETF	FEUSA04ACN	ILCB	United States	Morningstar US Large-Mid TR USD
NBI U.S. Equity Index O	F000013VX6		Canada	Morningstar US Large-Mid TR USD
NBI U.S. Equity Index INV-2	F000016TJI		Canada	Morningstar US Large-Mid TR USD
iShares Morningstar Mid-Cap Growth ETF	FEUSA04ACR	IMCG	United States	Morningstar US Mid Cap Brd Grt TR USD
iShares Morningstar Mid-Cap Value ETF	FEUSA04ACS	IMCV	United States	Morningstar US Mid Cap Brd Val TR USD
BNY Mellon US Mid Cap Core Equity ETF	F0000149CP	BKMC	United States	Morningstar US Mid Cap TR USD
iShares Morningstar Mid-Cap ETF	FEUSA04ACQ	IMCB	United States	Morningstar US Mid Cap TR USD
iShares Morningstar Small-Cap Growth ETF	FEUSA04ACU	ISCG	United States	Morningstar US Small Brd Grt Ext TR USD
iShares Morningstar Small-Cap Value ETF	FEUSA04ACV	ISCV	United States	Morningstar US Small Brd Val Ext TR USD
iShares Morningstar Small-Cap ETF	FEUSA04ACT	ISCB	United States	Morningstar US Small Cap Ext TR USD

Source: Morningstar Direct. Data as of Dec. 31, 2022.

### About Morningstar Indexes

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