MORNINGSTAR®

Morningstar Target Value and Momentum Indexes
Bold factor tilts and quality portfolio construction make these indexes effective tools for value and momentum investors.

Contents

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Executive Summary

The Morningstar Canada Target Value and Morningstar Canada Target Momentum Indexes have recently hit their 10-year launch anniversary. Over the past decade, these indexes, and many of the others in the family, have established a strong record. These equity indexes were built to deliver potent exposure to their targeted factors, and they have lived up to expectations. They were also crafted for investability, taking steps to diversify firm- and sector-specific risk and screen for quality. While their bold factor tilts give them ample room to run when those factors are in favor, that positioning can also cut the other way. Pairing the Morningstar Target Value and Morningstar Target Momentum Indexes in a portfolio can help reduce risk while allowing investors to participate in the upside.

Key Takeaways

► Value and momentum are well-documented factors that have historically been associated with market-beating returns. However, there are often significant differences among indexes that target the same factors. Portfolio construction choices matter.

► The Morningstar Target Value and Morningstar Target Momentum Indexes offer potent exposure to their targeted factors, while considering investability and quality.

► These indexes have established strong long-term records and have effectively captured their targeted factors.

► Equal weighting and constraints on sector weightings help diversify risk, though these indexes' bold factor tilts mean they deviate significantly from the market.

► Pairing the Morningstar Target Value and Morningstar Target Momentum Indexes together in a portfolio can help reduce the risk of underperformance.

Strong Underpinnings

Value and momentum are among the most well-documented return-enhancing factors in the financial literature.[1,2,3,4] Researchers have known about these bedrock factors since the early 1990s, and they have paid off out-of-sample (not just in the original studies) and in practice, which breeds confidence they are likely to persist and are not just the product of data mining.

Value investing is about buying stocks trading at low valuations, which have often fallen out of favor. This buy-low, sell-high strategy has intuitive appeal. More importantly, it 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.

Momentum is driven by short-term performance persistence. As such, momentum strategies aggressively chase hot areas of the market with strong recent performance. However, there's substance to this strategy. Prices may adjust more slowly than they should to new information, as investors may initially underreact. This alone can cause performance to persist. Once a trend is established, more investors may jump on the bandwagon, further fueling price momentum.

On the surface, value and momentum may seem like contradictory strategies. But these concepts do not conflict at all; they might even be two sides of the same coin. Value is a long-term effect, while momentum is short term. Herding behavior associated with momentum can cause prices to overshoot fair value. This may lead to the long-term performance reversals associated with the value effect.

Portfolio Construction

The value and momentum factors defined in the academic literature are not directly investable, as they ignore transaction costs and often favor illiquid stocks. There are many strategies that attempt to harness these factors, but differences in portfolio construction can lead to very different portfolios and performance. Morningstar Target Value and Morningstar Target Momentum Indexes are designed to provide strong exposure to their respective factors, while ensuring investability and considering stock quality. Morningstar offers indexes in both these families covering Canada, U.S., Developed Markets ex-North America, and Emerging Markets.[5]

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1 https://pages.stern.nyu.edu/~lpederse/papers/ValMomEverywhere.pdf
2 https://onlinelibrary.wiley.com/doi/full/10.1111/j.1540-6261.1997.tb03808.x
3 https://faculty.fuqua.duke.edu/~charvey/Teaching/BA453_2006/FF_Common_risk.pdf
4 https://www.jstor.org/stable/2328882
5 Morningstar also offers a Brazil Target Momentum Index.

Morningstar Target Value Indexes

The Morningstar Target Value Indexes target a fixed count of stocks with strong value characteristics. Each eligible stock is assigned a Weighted Average Fundamental Factor Rank, or WAFFR, based on five metrics:

▶ Price/earnings (TTM)
▶ Price/cash flow
▶ Price/book
▶ Price/sales
▶ Three-month EPS estimate revision

Together, these metrics paint a more complete picture of each stock, mitigating the biases any single metric might introduce. For example, price/book is one of the most widely used valuation metrics in the academic literature, but it does not account for profits or intangible assets. Price/earnings addresses profitability but could be influenced by accounting choices, which is less of an issue for price/cash flow and sales. The earnings-per-share revision metric favors stocks with earnings likely to improve, reducing the risk of picking up stocks with deteriorating fundamentals, or so-called value traps.

Stocks are screened for liquidity and ranked on their WAFFR each quarter. The Morningstar Target Value Indexes select the top-ranking stocks until they reach the fixed counts shown in Exhibit 1. To improve diversification, these indexes limit their exposure to each sector and equally weight their constituents. This approach tends to yield deeper value portfolios, and often less sector concentration, than traditional market-cap-weighted value benchmarks. It also leads to more differentiated exposure relative to the market.

Exhibit 1 Target Stock Count

	Target Value	Target Momentum
Canada	30	30
Developed Markets ex-North America	200	200
Emerging Markets	150	150
US	50	50

Source: Morningstar Indexes. Data as of 31 March 2022.

Morningstar Target Momentum Indexes

The Morningstar Target Momentum Indexes are also designed to deliver potent exposure to their targeted factor, following a similar fixed-count approach to portfolio construction. These indexes do not look at recent performance in isolation, but do consider profitability to better target stocks with momentum backed by solid and improving fundamentals.

Each eligible stock is assigned a WAFFR based on six metrics, which capture both price momentum and profitability:

► Percentage change in price from 12-month high
► Price change from month-end nine months ago
► Price change from month-end three months ago
► Three-month fiscal EPS estimate revision
► Latest fiscal period earnings surprise
► Trailing return on equity

Similar to the WAFFR the Morningstar Target Value Indexes use, this composite approach reveals a more complete picture of each stock than any single metric in isolation. The inclusion of three price metrics favor stocks with more consistent momentum, which may be more likely to persist. The earnings per share, or EPS, revision and earnings surprise metrics favor stocks with improving profitability, while return on equity emphasizes strong past profitability. The inclusion of these fundamental factors reduces the risk of loading up on stocks that are climbing on nothing but speculation.

Each quarter, liquidity-screened stocks are ranked on their WAFFR and the highest-ranking securities are selected until the indexes reach the fixed count targets shown in Exhibit 1. Like the Morningstar Target Value Indexes, the Morningstar Target Momentum Indexes are equally weighted and constrain their sector exposure to limit concentration.

Performance

The Morningstar Target Value and Morningstar Target Momentum Indexes have established a strong long-term record. From the longest common back-dated performance start date through March 2022, the Canada, U.S., Developed Markets ex-North America, and Emerging Markets variants of these indexes all outperformed their respective market benchmarks, as shown in Exhibit 2. Most have also outperformed over the most recent one-, three-, and 10-year periods, including the Canada indexes, which were the first in these families, launched in February 2012.

Exhibit 2 Performance Summary

| | | Return | | | | | | Std Dev | Beta | Down Capture | Up Capture |
Name	Live Incept. Date	1 Yr	3 Yr	5 Yr	10 Yr	Since Live Incept.	Since 22/12/2001	Std Dev 10 Yr	Beta 10 Yr	Down Capture Ratio 10 Yr	Up Capture Ratio 10 Yr
Morningstar Canada Tgt Val	6/2/2012	23.90	22.43	12.77	8.13	8.47	14.51	20.80	1.14	110.07	113.83
Morningstar Canada Tgt Mtum	6/2/2012	22.82	18.62	14.04	9.40	12.56	15.05	17.99	0.99	93.29	105.84
Morningstar Canada		20.54	16.61	11.67	6.57	6.34	9.84	16.81	1.00	100.00	100.00
Morningstar DM xNA Tgt Val	3/11/2014	-0.53	3.50	3.64	6.72	4.87	11.76	16.74	1.12	111.51	107.26
Morningstar DM xNA Tgt Mtum	3/11/2014	2.67	14.54	11.65	12.35	10.61	13.99	15.31	0.98	85.63	111.91
Morningstar DM xNA		0.76	8.35	7.27	6.98	6.07	7.09	14.08	1.00	100.00	100.00
Morningstar EM Tgt Val	1/10/2014	-0.91	6.99	5.67	6.30	6.20	17.65	18.01	1.08	102.56	109.98
Morningstar EM Tgt Mtum	1/10/2014	10.27	18.36	12.73	10.90	9.70	17.81	15.39	0.88	78.31	108.12
Morningstar EM		-8.27	6.58	6.97	4.42	5.20	10.41	15.74	1.00	100.00	100.00
Morningstar US Trgt Value	16/9/2013	19.38	9.29	3.68	10.27	7.00	12.44	21.80	1.32	131.60	101.14
Morningstar US Trgt Mtum	16/9/2013	20.00	19.76	14.15	13.37	12.04	12.18	16.70	1.09	108.55	100.79
Morningstar US Market		12.33	18.30	15.52	14.34	13.95	9.42	13.60	1.00	100.00	100.00

Source: Morningstar Direct. Performance based on GR USD variants. Data as of 31 March 2022.

That said, this outperformance was not uniform across all periods or indexes, as shown in the relative wealth charts in Exhibits 3 and 4.[6] The Morningstar Developed Markets ex-North America Target Value and Morningstar U.S. Target Value Indexes notably underperformed for much of the past decade. It is no secret that value stocks were out of favor in both these markets during that time, which hurt these indexes' performance. Such risk comes with the deep value orientation these indexes provide. While that is a strong headwind when value stocks are out of favor, it should allow these indexes to benefit more than most when the wind is at their backs.

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6 Relative wealth charts show the growth of a dollar in one investment relative to a benchmark, providing a gauge of the timing and magnitude of outperformance. When the line is sloping up, the investment is outperforming.

Exhibit 3 Relative Wealth: Morningstar Target Value Indexes vs Market Benchmarks
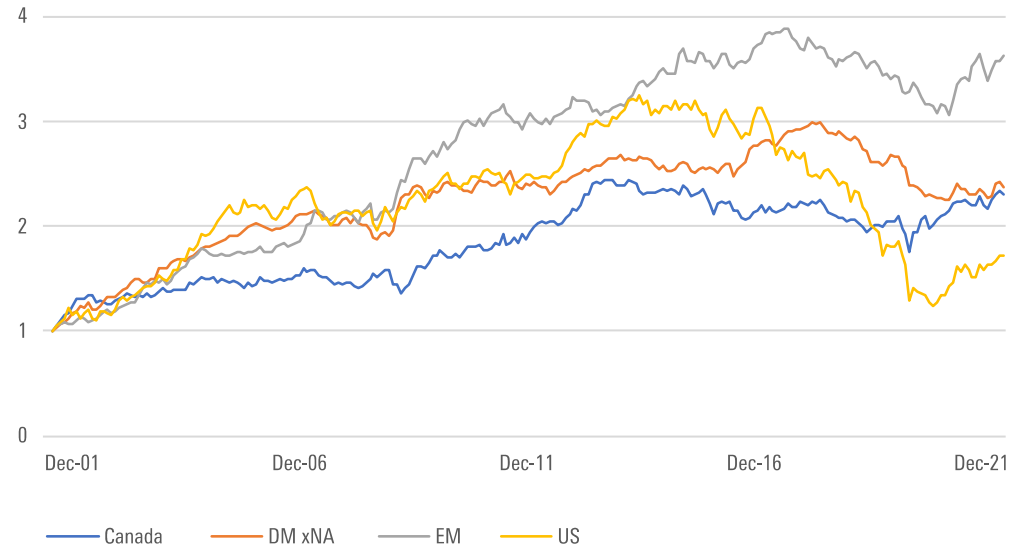
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 4 Relative Wealth: Morningstar Target Momentum Indexes vs Market Benchmarks
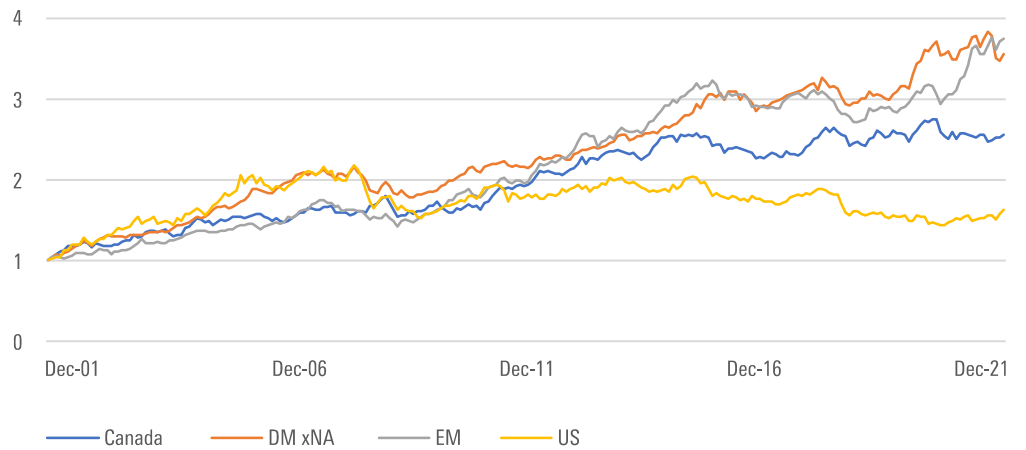
Source: Morningstar Direct. Data as of 31 March 2022.

Each of these indexes effectively captures the standard style factors defined in the academic literature. This is shown by a returns-based regression analysis in Exhibit 5, which reveals how much each index's performance can be explained by the standard style factors.

Exhibit 5 Factor Regression Results

	Target Value				Target Momentum			
	Canada	DM xNA	EM	US	Canada	DM xNA	EM	US
Alpha	0.21	0.12	**0.30**	0.05	0.24	**0.19**	0.15	0.03
Beta	**1.07**	**1.08**	**1.10**	**1.06**	**1.08**	**1.11**	**1.09**	**1.11**
Small Size	**0.48**	**0.57**	**0.29**	**0.66**	**0.37**	**0.34**	**0.33**	**0.55**
Value	**0.52**	**0.54**	**0.46**	**0.43**	**0.28**	**-0.23**	-0.07	-0.03
Momentum	0.07	**-0.19**	**-0.16**	-0.01	**0.30**	**0.29**	**0.44**	**0.31**
Profitability	**0.44**	**0.33**	0.10	**0.36**	0.22	**0.24**	0.01	0.05

Source: Morningstar Indexes. Bolded figures are significant at the 5% level. Data as of 31 March 2022.

Value and momentum did not always pay off, but when they did, the indexes tended to benefit. There were some off-target factor contributors as well. For example, because these are equally weighted indexes that select stocks from an all-cap universe, they have tended to tilt toward smaller-cap stocks. Consequently, their performance is influenced by having a smaller-cap orientation relative to the market.

It is also worth noting the target value indexes have tended to capture the profitability factor. This is likely due to the inclusion of EPS revision as a selection criterion. Firms with significantly deteriorating EPS estimates are not eligible for inclusion, while stocks that score well on this metric tend to receive higher WAFFR, all else equal.

Despite their inclusion of profitability metrics like ROE, EPS estimate revision, and latest quarterly earnings surprise, the target momentum indexes have not tended to significantly capture the traditional profitability factor (with the exception of Morningstar Developed Markets ex-North America Target Momentum Index). That may be because turnover is higher here and stocks with lower profitability may have scored better on the price-return metrics, offsetting the profitability focus.

Sector Attribution
Favorable sector tilts were the main source of outperformance for the Morningstar Canada Target Value and Morningstar Canada Target Momentum Indexes over the past decade, though intra-sector stock selection also helped. The Morningstar Canada Target Value Index benefited from underweighting energy and overweighting consumer stocks, both cyclical and defensive. Stock selection further contributed to the index's strong performance, particularly in the healthcare sector, where the inclusion of names like Nobilis Health Corp and Bausch Health Companies boosted returns.

The Morningstar Canada Target Momentum Index benefited from overweighting technology and underweighting energy stocks. Stock selection also helped, including overweighting Northland Power, TFI International, and Dollarama.

In contrast, most of the market-relative performance of the other indexes in these families over the past decade is attributable to intra-sector stock selection, rather than sector tilts. For example, stock selection helped in most sectors for the Morningstar Developed Markets ex-North America Target Momentum and Morningstar Emerging Markets Target Momentum Indexes, as well as the Morningstar Emerging Markets Target Value Index.

Poor intra-sector stock selection was the main culprit behind the underperformance of the Morningstar US Target Value and Morningstar US Target Momentum Indexes. The Morningstar US Target Value Index was especially hurt by stock selection in the consumer cyclical and healthcare sectors. This was not just about the stocks it held, like Mallinckrodt and Macy's, which both struggled, but it was also about the names it omitted, including expensive but strong-performing stocks such as Amazon and Tesla.

The Morningstar US Target Momentum Index was hurt by stock selection in the volatile basic materials sector, as well as the consumer cyclical and consumer defensive sectors. Like its value counterpart, this index underweighted key industry leaders with strong performances such as Amazon, Tesla, Microsoft, and Apple, which detracted from its own performance.

While performance was not strong across all time periods, as it rarely is for any investment strategy, these indexes have performed as expected and have tended to pay off over the long term.

Portfolio Highlights
The Morningstar Target Value and Morningstar Target Momentum Indexes effectively diversify firm-specific risk with equal weighting, but they do carry bold factor tilts.

These indexes tend to have a smaller market-cap orientation than most broad market benchmarks. While that is partially due to equal weighting, which gives small stocks the same weight as larger stocks, smaller-cap stocks have tended to exhibit stronger value and momentum characteristics than their larger counterparts. On the value side, low prices tend to depress both market capitalization and valuations. Smaller stocks are also more likely to be overlooked, which could also give them stronger value or momentum characteristics.

As expected, the target value indexes have consistently plotted firmly within the value side of the Morningstar Style Box, as shown in Exhibits 6 and 7. In contrast, the target momentum indexes have tended to exhibit more of a growth tilt, though they have also moved around the Style Box, as momentum shifts.

Exhibit 6.1 Style Orientation: Canada

Holdings-Based Style Map

- Morningstar Canada Tgt Val TR USD
- Morningstar Canada Tgt Mtum TR USD
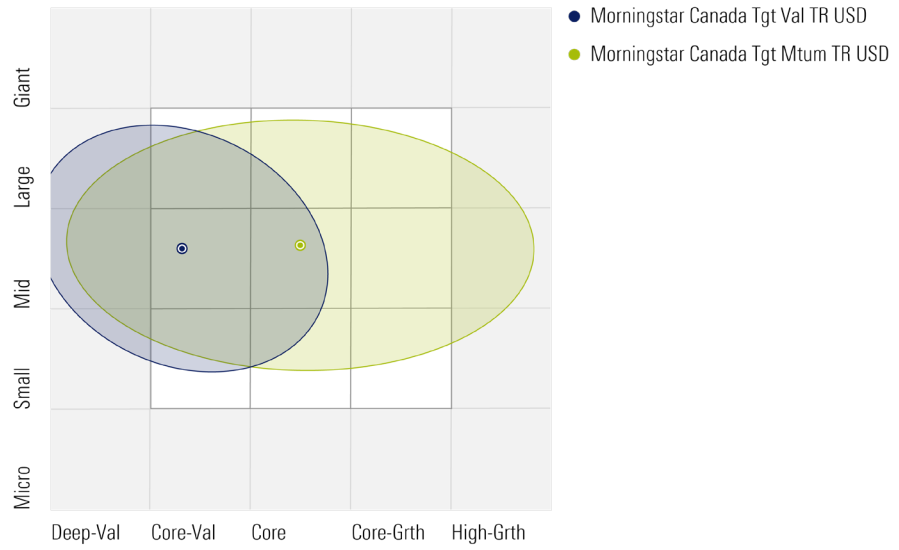
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 6.2 Style Orientation: Developed Markets ex-North America

Holdings-Based Style Map

- Morningstar DM xNA Tgt Val TR USD
- Morningstar DM xNA Tgt Mtum TR USD
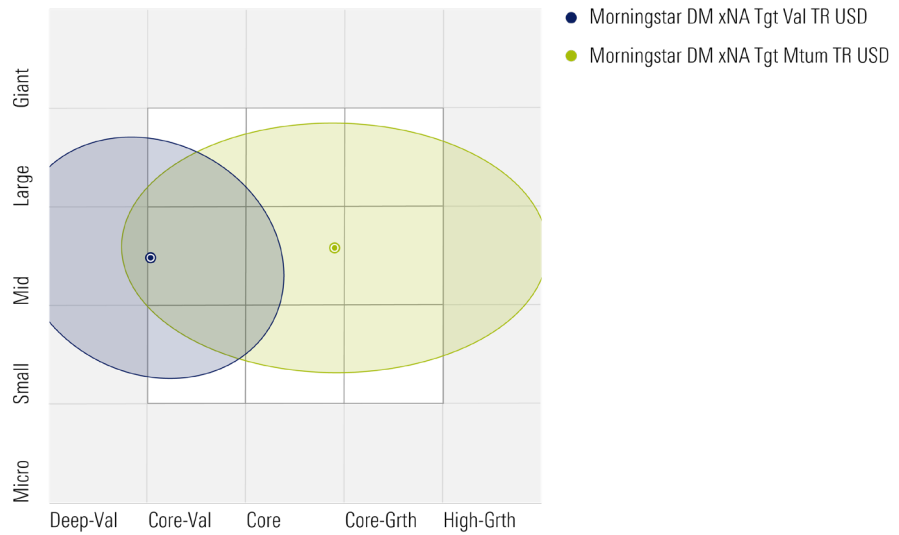
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 6.3 Style Orientation: Emerging Markets

Holdings-Based Style Map

● Morningstar EM Tgt Val GR USD
● Morningstar EM Tgt Mtum GR USD
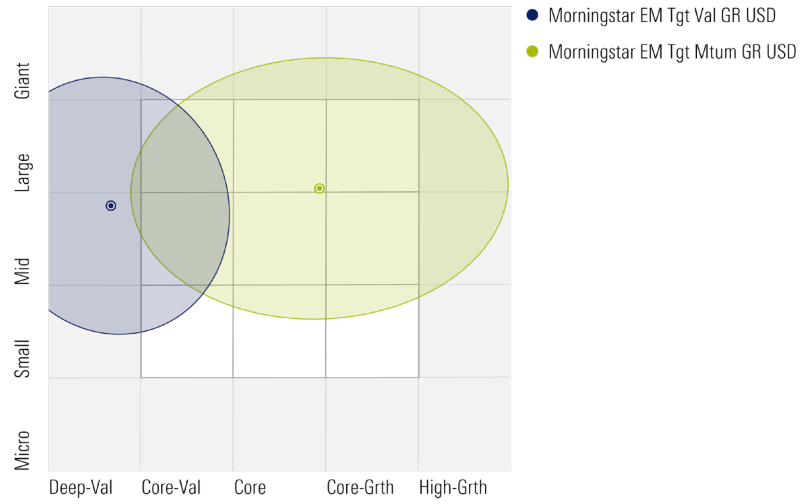
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 6.4 Style Orientation: U.S.

Holdings-Based Style Map

● Morningstar US Trgt Value TR USD
● Morningstar US Trgt Momentum TR USD
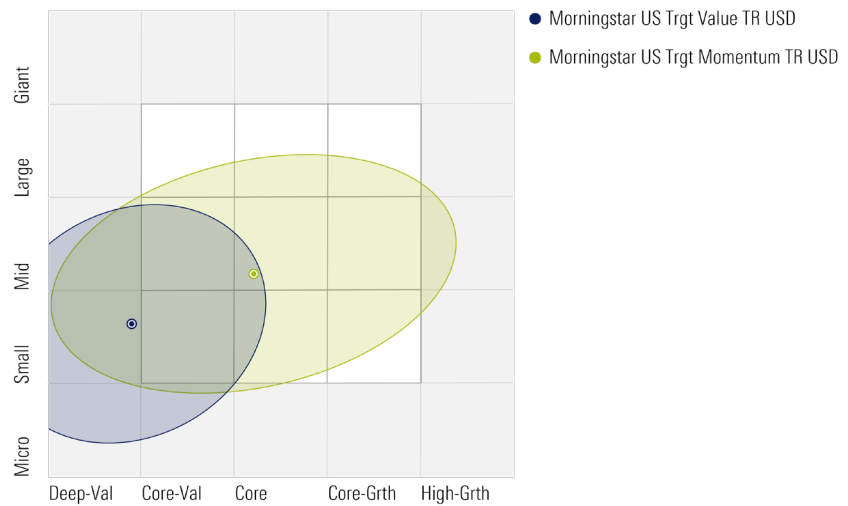
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 7.1 Style Movement (Trailing Five Years Through March 2022): Canada

Holdings-Based Style Trail

Time Period: 4/30/2017 to 3/31/2022

● Morningstar Canada Tgt Val TR USD

■ Morningstar Canada Tgt Mtum TR USD
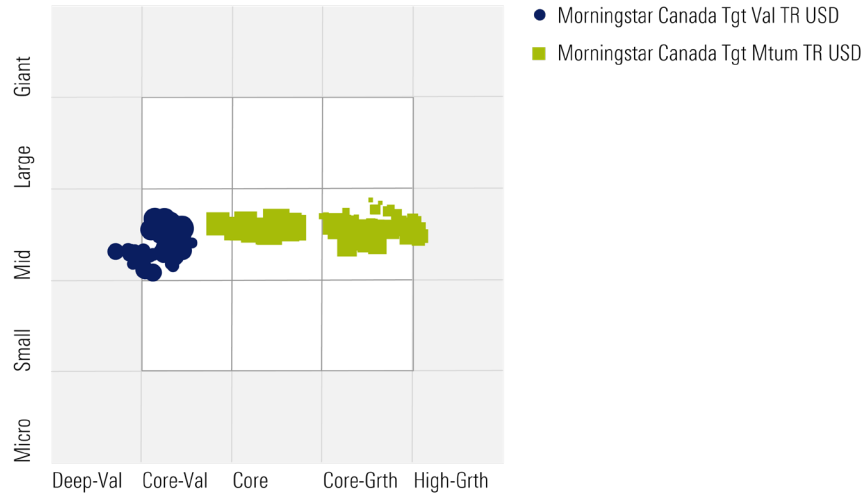
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 7.2 Style Movement (Trailing Five Years Through March 2022): Developed Markets ex-North America

Holdings-Based Style Trail

Time Period: 4/30/2017 to 3/31/2022

● Morningstar DM xNA Tgt Val TR USD

◄ Morningstar DM xNA Tgt Mtum TR USD
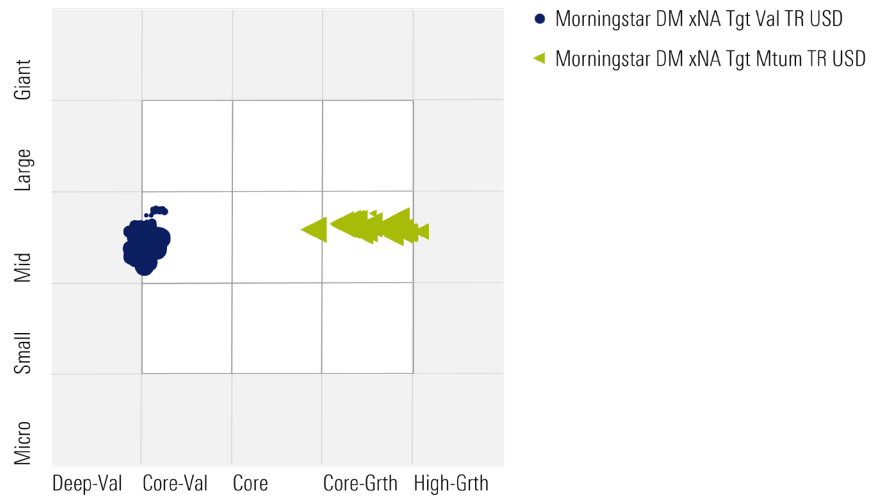
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 7.3 Style Movement (Trailing Five Years Through March 2022): Emerging Markets

Holdings-Based Style Trail

Time Period: 4/30/2017 to 3/31/2022

■ Morningstar EM Tgt Val GR USD

▶ Morningstar EM Tgt Mtum GR USD
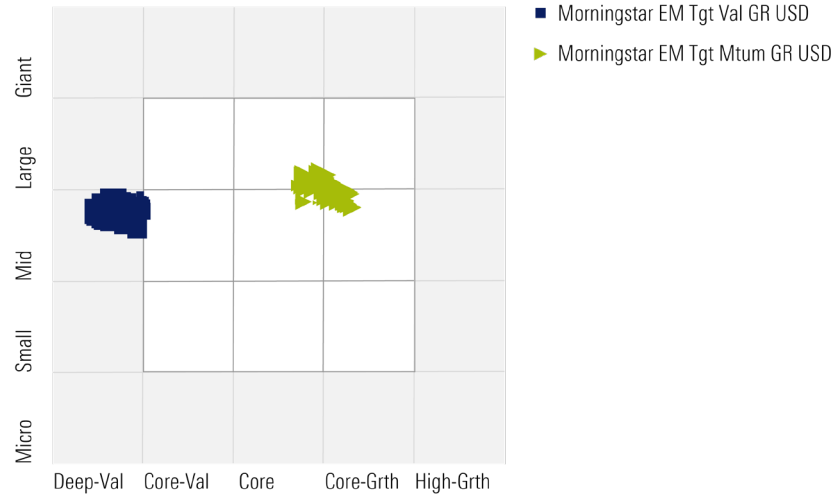
Source: Morningstar Direct. Data as of 31 March 2022.

Exhibit 7.4 Style Movement (Trailing Five Years Through March 2022): U.S.

Holdings-Based Style Trail

Time Period: 4/30/2017 to 3/31/2022

▲ Morningstar US Trgt Value TR USD

◆ Morningstar US Trgt Momentum TR USD
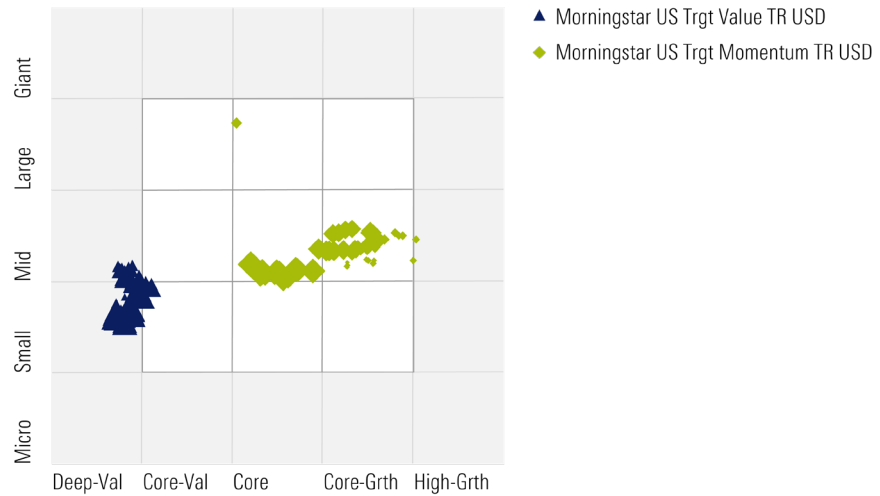
Source: Morningstar Direct. Data as of 31 March 2022.

While these indexes limit their sector weightings to improve diversification, some of those weightings deviate from their respective market benchmarks, as Exhibit 8 shows. For example, all four target value indexes underweight the technology sector, while other sector tilts differ across regions. The tables in Appendix 1 show the distribution of these sector tilts over time.

Exhibit 8 Sector Tilts (%) Relative to Market Benchmark

	Canada		US		DM xNA		EM	
	Value	Momentum	Value	Momentum	Value	Momentum	Value	Momentum
Basic Materials	1.57	-1.47	5.32	5.23	4.49	7.23	7.85	4.21
Communication Services	3.79	0.45	-6.72	-6.63	1.75	-0.41	-7.82	-6.91
Consumer Cyclical	6.27	13.30	6.70	-1.29	4.43	4.66	-5.82	-2.48
Consumer Defensive	6.75	6.75	4.49	1.50	-3.39	-3.31	1.10	-0.22
Energy	0.02	-0.23	5.64	13.88	0.62	0.59	5.20	3.40
Financial Services	-16.23	-23.45	0.90	-1.93	11.68	-5.73	4.56	-9.23
Healthcare	-0.48	-0.48	-0.17	-1.62	-10.43	-6.80	-3.06	1.86
Industrials	-8.90	5.00	3.85	9.16	-0.55	-2.00	7.59	4.63
Real Estate	1.43	4.64	-1.99	-1.40	-2.81	2.67	3.47	-1.86
Technology	-7.06	-3.68	-21.71	-16.20	-6.01	4.47	-13.88	7.47
Utilities	12.85	-0.84	-0.52	-2.66	0.35	-1.21	0.89	-0.79

Source: Morningstar Direct. Data as of 31 March 2022.

These are fluid portfolios with high turnover, as Exhibit 9 illustrates. Exhibit 10 shows the active share of each index portfolio against itself over time. Even over a one-year holding period, the composition of each index changed considerably, and these changes tend to be more pronounced over longer periods. While turnover was higher among the momentum indexes, the value indexes also tended to have high turnover. This flexibility to follow the factor signals as they shift strengthens style purity. However, to mitigate unnecessary turnover, current constituents are given preference in the stock selection process, as long as their factor characteristics remain close to the targeted selection threshold.

Exhibit 9 Turnover (%)

	Canada		DM xNA		EM		US	
	Value	Momentum	Value	Momentum	Value	Momentum	Value	Momentum
2017	64.5	100.3	51.2	122.0	68.2	132.3	65.2	95.6
2018	78.5	83.0	57.5	133.0	78.3	174.4	51.5	92.0
2019	95.6	64.7	82.5	101.9	92.5	103.4	91.9	82.7
2020	156.9	113.6	128.8	104.4	110.3	116.8	128.5	75.2
2021	53.9	86.9	50.0	118.3	58.5	124.6	51.3	111.4

Source: Morningstar Direct. Data as of 31 December 2021.

Exhibit 10 Active Share Relative to Self Over Time (%)

	1 Qr	1 Yr	3 Yr	5 Yr	10 Yr
Canada Target Value	9.7	27.9	48.0	60.3	73.5
Canada Target Momentum	15.2	54.0	77.1	80.9	83.8
US Target Value	22.5	36.8	86.2	83.8	96.0
US Target Momentum	24.4	65.4	79.4	80.1	90.4
DM xNA Target Value	8.5	26.8	70.1	72.4	84.7
DM xNA Target Momentum	36.1	72.0	86.4	87.4	95.6
EM Target Value	22.6	40.4	71.0	76.1	83.0
EM Target Momentum	28.3	73.6	90.5	94.0	94.1

Source: Morningstar Direct. Data as of 31 March 2022.

Since these are compact portfolios with strong factor tilts, they do carry high active risk relative to the market, as shown in Exhibit 11. While this risk may not always pay off, it gives these indexes more room to run when their targeted factors are in favor.

Exhibit 11 Tracking Error (%) Against Market Benchmark (Rolling Three Years)
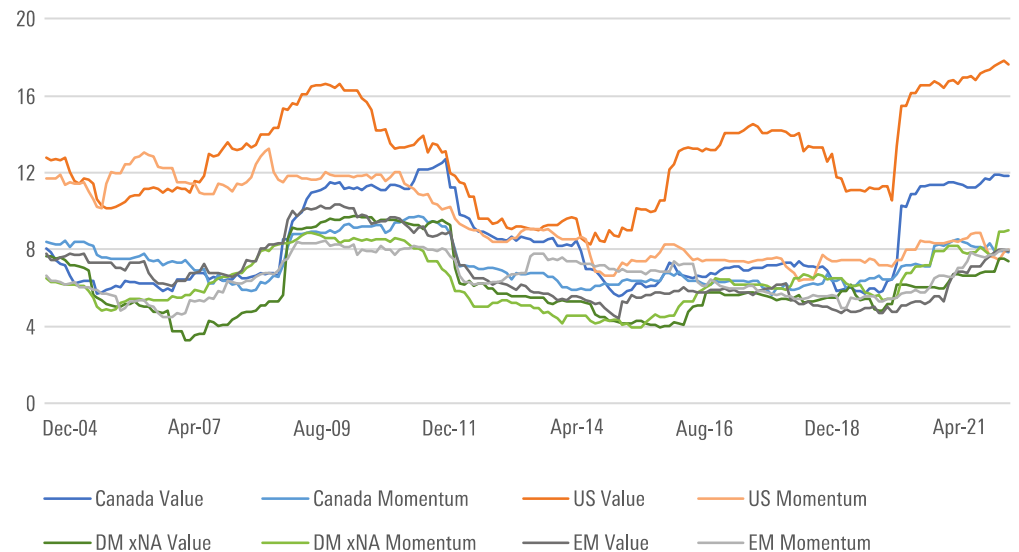
Source: Morningstar Direct. Data as of 31 March 2022.

Better Together

Combining the Morningstar Target Value and Morningstar Target Momentum Indexes in a portfolio can improve diversification, reducing the risk of underperformance. Individually, these indexes have strong long-term records, though each go through stretches of underperformance. That said, the market-relative performance of the target value and target momentum indexes has been lowly correlated. Consequently, they tend to complement each other well in a portfolio.

Consider four portfolios focused on Canada, the U.S., Developed Markets ex-North America, and Emerging Markets, each with a 50/50 allocation (rebalanced annually) to the target value and target momentum indexes for their respective regions. Each of these outperformed their respective market benchmarks more consistently over rolling three-year horizons than the target value indexes, as shown in Exhibit 12. They also fared better than the target momentum indexes in the U.S. and Emerging Markets, and nearly as well in Canada and Developed Markets ex-North America, despite only a 50% allocation to momentum.

Exhibit 12 Percentage of Rolling Three-Year Periods Strategy Outperformed (January 2002-March 2022)

	Canada	DM xNA	EM	US
Value	64.90	79.33	83.17	62.02
Momentum	86.06	87.02	88.94	46.15
Portfolio	83.65	86.06	94.71	81.25

Source: Morningstar Direct. Data as of 31 March 2022.

A 50/50 allocation to the target value and momentum index is still bolder than investors may be comfortable with. However, investors can pair these indexes with a core allocation to a market benchmark to moderate active risk.

Exhibit 13 shows the performance of portfolios for each region with a 50% allocation to the market benchmark, with the remaining 50% split evenly between the target value and target momentum indexes. These diversified portfolios had lower active risk (measured by tracking error) than the target value and momentum indexes, and in all regions but the U.S., they had better performance than the market. They also tended to have lower volatility than individual factor indexes. This demonstrates the benefits of using these factor indexes as satellite allocations in a broadly diversified portfolio.

Exhibit 13 Diversification Moderates Risk (Performance Over Trailing 10 Years Through March 2022)

Region	Strategy	Return	Std Dev	Sharpe	Beta	Tracking Error
Canada	Value	8.13	20.80	0.45	1.14	8.41
	Momentum	9.40	17.99	0.56	0.99	6.87
	Benchmark	6.57	16.81	0.43	1.00	-
	Portfolio (25/25/50)	7.73	17.58	0.48	1.03	3.12
DM xNA	Value	6.72	16.74	0.44	1.12	5.87
	Momentum	12.35	15.31	0.80	0.98	6.79
	Benchmark	6.98	14.08	0.51	1.00	-
	Portfolio (25/25/50)	8.38	14.5	0.59	1.02	1.94
EM	Value	6.30	18.01	0.39	1.08	6.14
	Momentum	10.90	15.39	0.71	0.88	7.02
	Benchmark	4.42	15.74	0.31	1.00	-
	Portfolio (25/25/50)	6.62	15.72	0.45	0.99	2.26
US	Value	10.27	21.80	0.53	1.32	13.17
	Momentum	13.37	16.70	0.80	1.09	7.70
	Benchmark	14.34	13.60	1.01	1.00	-
	Portfolio (25/25/50)	13.35	15.39	0.85	1.09	4.22

Source: Morningstar Direct. Data as of 31 March 2022.

The Morningstar Target Value and Morningstar Target Momentum Indexes deliver potent factor exposure, providing effective tools for investors to express their views on these factors. While these factors have historically rewarded investors over the long term, it can be difficult to predict when they will pay off. Diversification is always a good idea. Pairing these indexes with each other and traditional core equity allocations should help reduce portfolio volatility and smooth the investor's ride. Ⅿ

Appendixes

Exhibit 14.1 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar Canada Target Value

	Min	Q1	Median	Q3	Max	Current
Basic Materials	-13.58	-2.71	0.92	4.69	10.90	1.57
Communication Services	-0.76	0.23	2.82	3.71	9.46	3.79
Consumer Cyclical	-5.44	3.84	5.07	8.06	13.46	6.27
Consumer Defensive	0.02	4.01	6.84	9.96	12.32	6.75
Energy	-20.90	-13.85	-8.82	-2.81	9.13	0.02
Financial Services	-30.32	-18.34	-17.11	-15.74	-11.02	-16.23
Healthcare	-6.48	-2.94	-0.57	1.86	3.47	-0.48
Industrials	-8.90	-3.48	1.44	6.49	9.38	-8.90
Real Estate	-2.24	-1.80	0.77	1.35	6.45	1.43
Technology	-12.60	-5.62	-0.25	4.18	5.71	-7.06
Utilities	4.01	8.11	9.79	12.54	18.19	12.85

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Exhibit 14.2 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar DM xNA Target Value

	Min	Q1	Median	Q3	Max	Current
Basic Materials	-2.73	0.68	3.48	5.90	9.52	4.49
Communication Services	-6.42	-4.44	-3.89	-1.43	2.62	1.75
Consumer Cyclical	-0.48	3.72	5.65	8.27	12.81	4.43
Consumer Defensive	-8.22	-7.00	-5.89	-3.49	-0.90	-3.39
Energy	-3.61	-1.70	-0.48	0.26	4.47	0.62
Financial Services	-3.57	1.16	4.54	7.35	13.65	11.68
Healthcare	-13.17	-10.47	-9.73	-9.02	-5.60	-10.43
Industrials	-0.55	1.95	4.64	7.53	9.70	-0.55
Real Estate	-3.69	-1.87	-1.03	-0.44	4.79	-2.81
Technology	-7.69	-5.32	-3.19	-1.78	1.58	-6.01
Utilities	-0.36	3.14	4.49	5.86	7.16	0.35

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Exhibit 14.3 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar EM Target Value

	Min	Q1	Median	Q3	Max	Current
Basic Materials	-1.06	2.53	3.79	5.04	8.62	7.85
Communication Services	-10.47	-9.03	-8.16	-7.23	-4.44	-7.82
Consumer Cyclical	-12.96	-4.13	-0.64	1.04	4.22	-5.82
Consumer Defensive	-7.38	-5.59	-4.87	-3.60	1.10	1.10
Energy	-3.98	-1.39	1.06	4.65	7.28	5.20
Financial Services	-11.16	-3.91	0.37	3.41	11.42	4.56
Healthcare	-4.64	-3.88	-3.44	-2.14	0.31	-3.06
Industrials	2.32	6.25	7.98	9.58	12.38	7.59
Real Estate	-1.99	-0.32	3.12	5.00	9.41	3.47
Technology	-15.32	-6.72	-4.99	-3.18	1.44	-13.88
Utilities	0.89	6.35	7.13	8.00	10.61	0.89

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Exhibit 14.4 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar US Target Value

	Min	Q1	Median	Q3	Max	Current
Basic Materials	-3.41	-2.61	-0.91	0.15	5.89	5.32
Communication Services	-7.53	-5.81	-3.96	-1.73	3.39	-6.72
Consumer Cyclical	-7.84	-2.65	3.54	5.40	11.44	6.70
Consumer Defensive	-3.74	1.27	3.12	4.77	14.39	4.49
Energy	-3.98	1.70	4.21	7.26	10.35	5.64
Financial Services	-3.20	-0.51	0.96	1.85	4.92	0.90
Healthcare	-11.70	-8.54	-6.20	-1.36	4.12	-0.17
Industrials	-1.61	0.94	3.84	5.25	8.08	3.85
Real Estate	-4.67	-4.17	-3.70	-2.69	1.47	-1.99
Technology	-23.77	-8.98	-5.11	-0.71	3.19	-21.71
Utilities	-0.52	4.33	5.35	7.84	12.02	-0.52

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Exhibit 14.5 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar Canada Target Momentum

		Min	Q1	Median	Q3	Max	Current
	Basic Materials	-16.26	-3.95	-0.39	1.77	6.36	-1.47
	Communication Services	0.17	3.28	6.27	8.62	10.17	0.45
	Consumer Cyclical	-1.99	3.53	7.52	10.01	13.30	13.30
	Consumer Defensive	-0.32	3.46	4.19	6.75	11.61	6.75
	Energy	-19.24	-14.48	-11.14	-5.48	7.74	-0.23
	Financial Services	-32.88	-28.24	-23.40	-17.72	-14.75	-23.45
	Healthcare	-3.26	-1.02	1.60	3.74	7.52	-0.48
	Industrials	-6.96	0.85	3.02	5.44	9.88	5.00
	Real Estate	-2.19	1.58	4.64	8.05	16.46	4.64
	Technology	-8.75	2.52	7.73	9.61	17.72	-3.68
	Utilities	-4.28	-0.58	2.84	4.55	8.49	-0.84

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Exhibit 14.6 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar DM xNA Target Momentum

		Min	Q1	Median	Q3	Max	Current
	Basic Materials	-3.87	-2.49	-1.29	0.82	7.23	7.23
	Communication Services	-3.22	-0.49	0.37	1.65	3.31	-0.41
	Consumer Cyclical	-3.66	2.61	4.80	7.86	11.44	4.66
	Consumer Defensive	-6.76	-3.72	-2.86	-1.75	1.58	-3.31
	Energy	-6.48	-4.76	-3.37	-2.56	0.59	0.59
	Financial Services	-13.88	-9.18	-7.48	-5.23	-0.24	-5.73
	Healthcare	-6.80	-3.41	-1.07	-0.10	3.57	-6.80
	Industrials	-2.37	1.88	4.16	6.81	10.54	-2.00
	Real Estate	-0.73	1.09	2.88	5.07	10.58	2.67
	Technology	-0.21	2.69	4.20	6.49	8.61	4.47
	Utilities	-3.13	-1.98	-1.31	-0.49	1.37	-1.21

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Exhibit 14.7 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar EM Target Momentum

	Min	Q1	Median	Q3	Max	Current
Basic Materials	-8.26	-3.15	2.13	4.57	9.08	4.21
Communication Services	-11.10	-8.06	-6.76	-4.92	-0.43	-6.91
Consumer Cyclical	-8.15	-1.72	4.37	6.64	10.67	-2.48
Consumer Defensive	-2.14	1.10	2.63	4.24	8.82	-0.22
Energy	-9.09	-5.78	-3.55	-0.06	4.54	3.40
Financial Services	-16.24	-13.36	-11.14	-8.83	-5.27	-9.23
Healthcare	-1.70	1.55	4.59	6.65	12.14	1.86
Industrials	-0.63	1.85	3.53	5.75	8.24	4.63
Real Estate	-2.61	-0.65	1.90	3.26	8.53	-1.86
Technology	-3.39	0.74	2.79	5.68	13.26	7.47
Utilities	-1.41	-0.91	0.55	1.84	3.80	-0.79

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Exhibit 14.8 Distribution of Sector Tilts (%) Relative to Market Benchmark: Morningstar US Target Momentum

	Min	Q1	Median	Q3	Max	Current
Basic Materials	-0.72	1.24	3.16	5.64	10.46	5.23
Communication Services	-8.45	-5.69	-4.36	-2.09	1.76	-6.63
Consumer Cyclical	-1.29	3.55	6.13	8.88	21.79	-1.29
Consumer Defensive	-6.87	-1.44	0.65	2.76	7.24	1.50
Energy	-7.91	-4.91	-3.14	0.51	13.88	13.88
Financial Services	-15.87	-6.35	-4.13	-2.14	3.81	-1.93
Healthcare	-15.40	-1.72	0.09	1.93	8.34	-1.62
Industrials	2.07	6.78	8.99	10.04	13.27	9.16
Real Estate	-4.67	-3.43	-1.56	-0.01	2.46	-1.40
Technology	-18.19	-7.88	-3.57	-0.44	24.16	-16.20
Utilities	-3.70	-3.20	-2.98	-2.34	-0.96	-2.66

Source: Morningstar Direct. Distribution from 01 January 2001-31 March 2022. Data as of 31 March 2022.

Appendix 2

Exhibit 15 Morningstar Brazil Target Momentum Index Performance Summary

| Name | Live Incept. Date | Return | | | | | | Std Dev 10 Yr | Beta 10 Yr | Down Capture Ratio 10 Yr | Up Capture Ratio 10 Yr |
		1 Yr	3 Yr	5 Yr	10 Yr	Since Live Incept.	Since 16/06/2007				
Morningstar Brazil Target Momentum	22/12/2014	30.37	11.29	13.09	4.04	10.20	7.18	30.30	0.87	82.77	92.81
Morningstar Brazil		22.16	2.24	5.48	-1.06	4.84	1.24	33.64	1.00	100.00	100.00

Source: Morningstar Direct. Data as of 31 March 2022.

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