

DEVELOPED MARKET EQUITIES FACTOR ASSESMENT FRAMEWORK - MONTHLY UPDATE

April 2024



FACTOR SPOTLIGHT

Monthly Performances (through April 2024)

Europe	World	USA
Value +0.9%	High Div.Yld -2.9%	Min Vol -3.7%
High Div.Yld +0.1%	Min Vol -3.6%	High Div.Yld -3.9%
Min Vol -0.5%	MSCI World -3.7%	MSCI USA -4.2%
Small Caps -0.8%	Quality -3.9%	Quality -4.4%
MSCI Europe -0.9%	Value -3.9%	Momentum -4.9%
Momentum -1.2%	Momentum -4.1%	Small Caps -6.6%
Quality -1.8%	Small Caps -5.2%	Value -6.9%

In April, in World and US markets, High Dividend Yield and Minimum Volatility factor declined the least. In European region, Value and High Dividend Yield were the only factors which gave positive performance.

Valuations

Minimum Vol. The relative valuations of minimum volatility factor increased for World and US markets and was flat for European markets.

Momentum The relative valuations for the momentum factor declined across all regions.

Value For a long time, valuation of the Value factor has been trading at a deep discount with respect to the market.

Quality The relative valuations for the Quality factor decreased across all regions.

Small Caps The relative valuations of Small Cap factor declined for US and World markets and increased for European markets.

High Div. Yield Similar to Value factor, valuations have been trading at a deep discount to the benchmark for a long time.

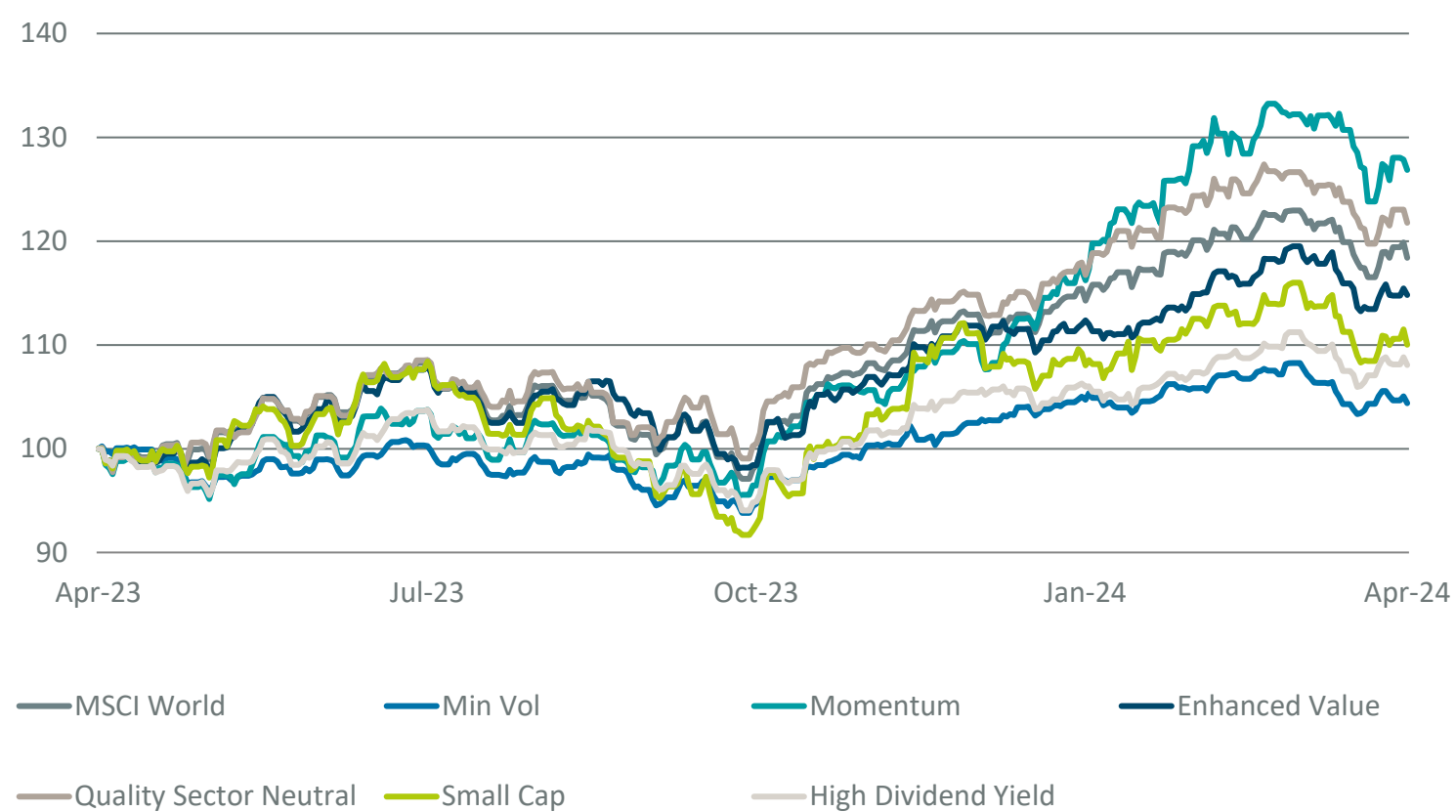
Factor Assessment Framework - MSCI World factor indices

Introduction

The MSCI World factor indices are based on the MSCI World their parent index, which includes large and mid cap stocks across all Developed Markets (DM) countries. This "Factor Assessment Framework" aims to provide detailed information on a wide range of inputs which are deemed to impact equity factors' performance. The information is split into multiple categories: macro-economic indicators, flows, valuations and momentum indicators.

Summary

Factor Performance - last 12 months

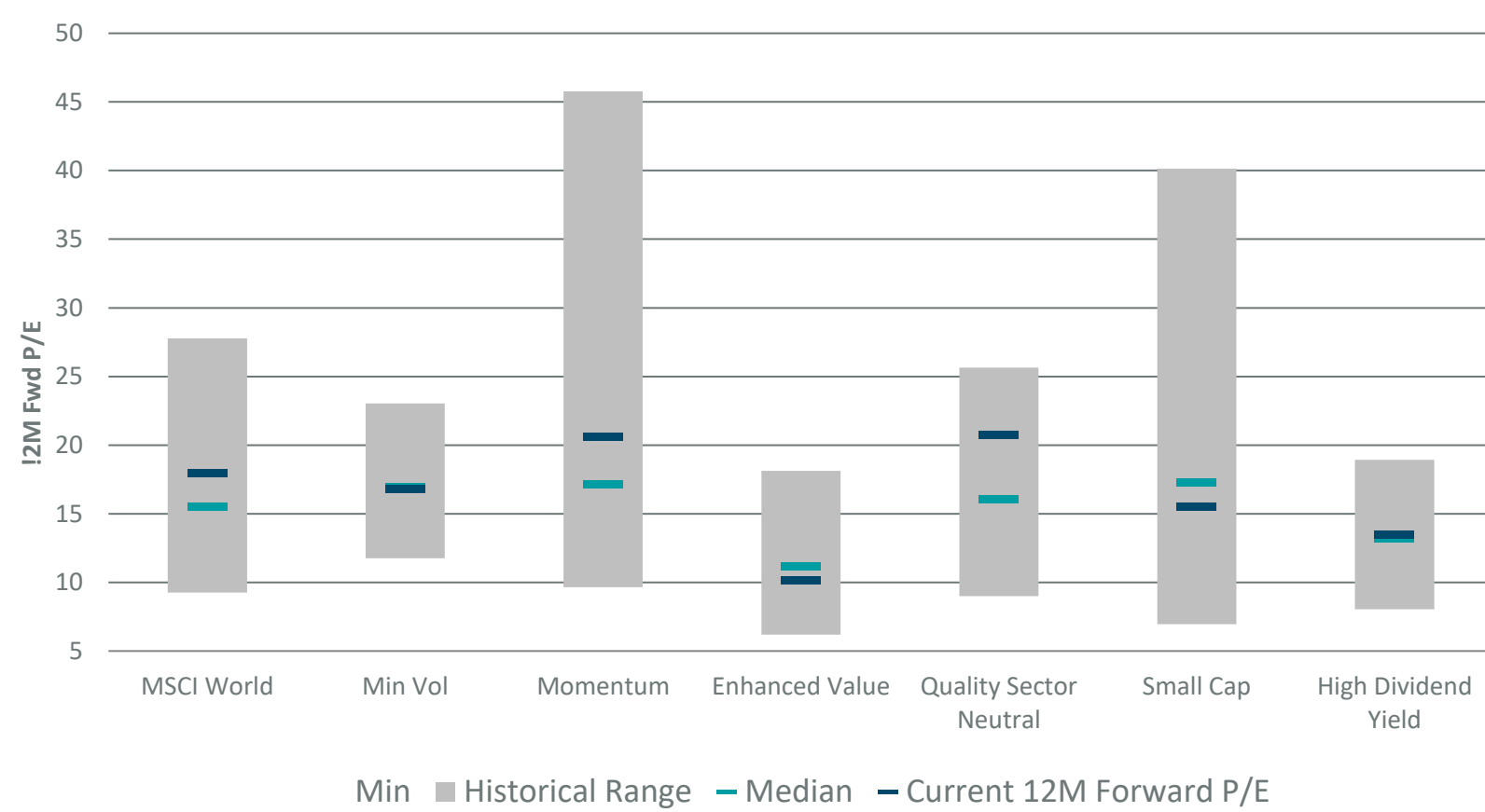


Returns (in USD)

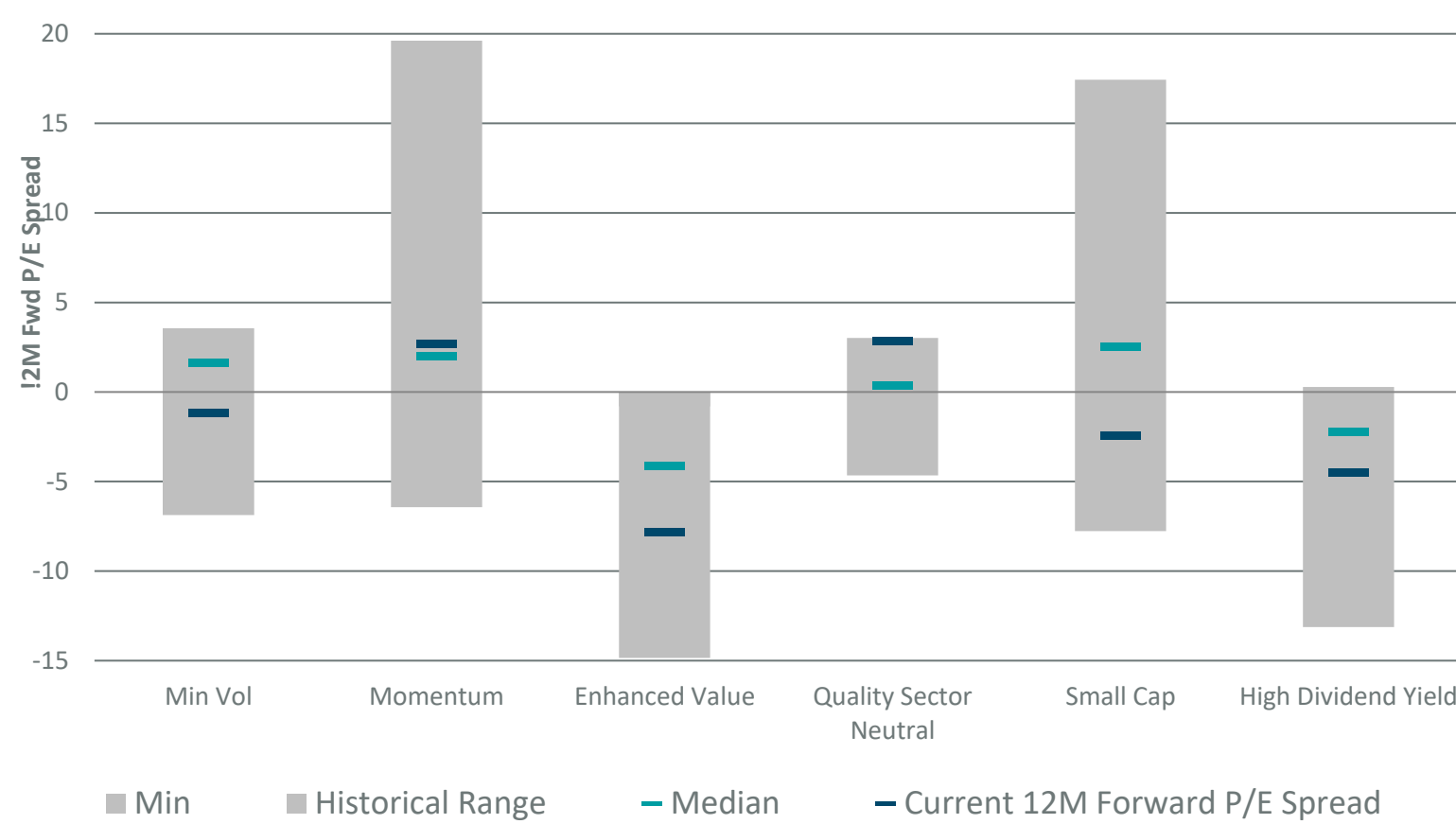
	1M	6M	1Y	5Y	Risk ¹			
					5Y Volatility	6M Sharpe Ratio	Max. DD	Beta
Min Vol	-3.6%	10.2%	4.4%	5.0%	13.7%	3.0	-29.3%	67%
Momentum	-4.1%	31.5%	26.8%	11.2%	19.8%	5.8	-31.5%	98%
Enhanced Value	-3.9%	16.6%	14.8%	6.4%	16.9%	3.7	-36.5%	81%
Quality Sector Neutral	-3.9%	21.1%	21.8%	11.1%	18.4%	4.7	-32.7%	99%
Small Cap	-5.2%	18.6%	10.0%	6.1%	20.4%	2.8	-40.9%	104%
High Dividend Yield	-2.9%	13.8%	8.1%	6.3%	15.3%	3.5	-33.6%	76%
MSCI World	-3.7%	20.3%	18.4%	10.5%	18.3%	4.8	-34.0%	-

Valuations

12M Forward P/E (Consensus)²

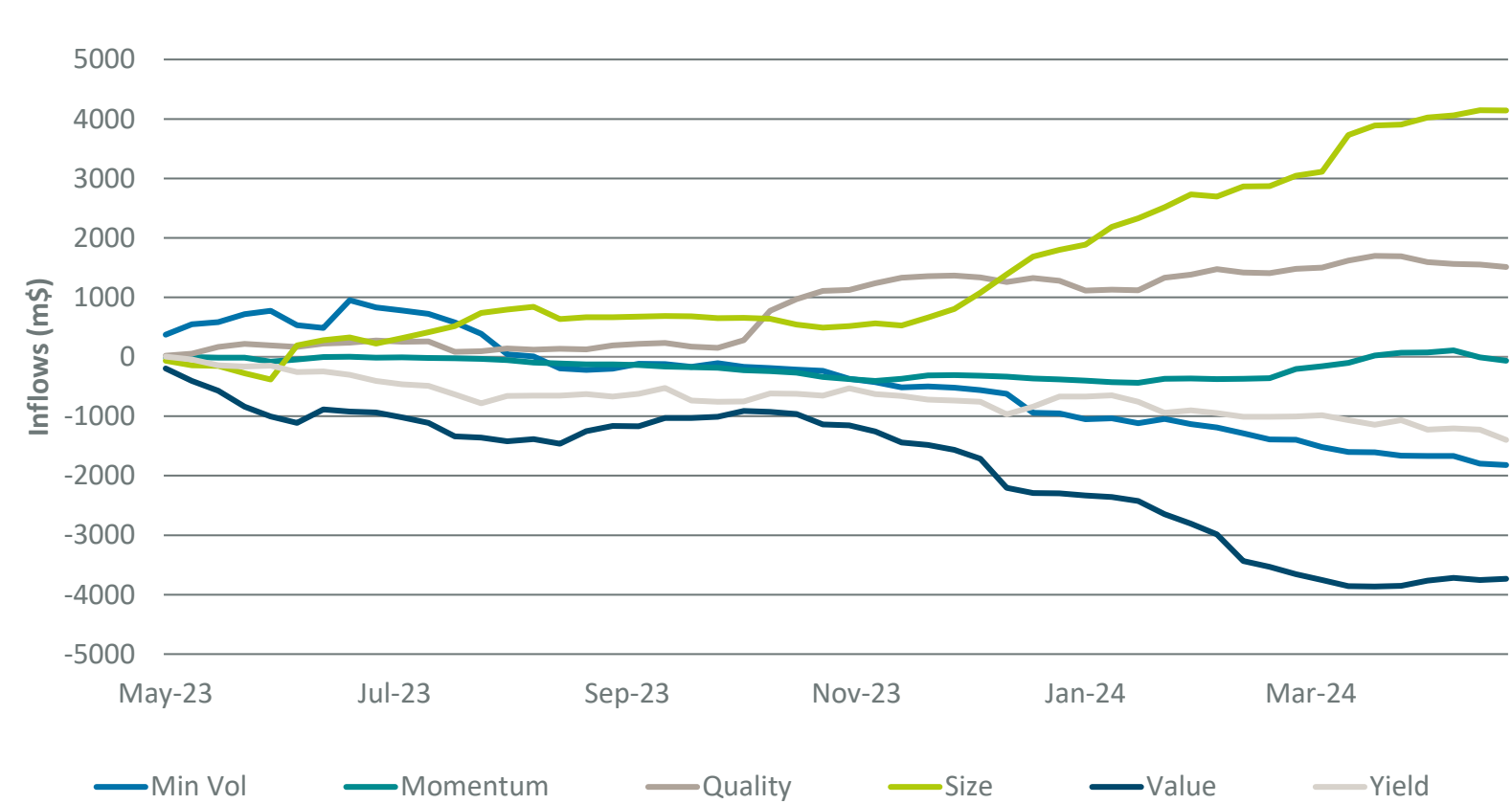


12M Forward P/E (Consensus) relative to MSCI World

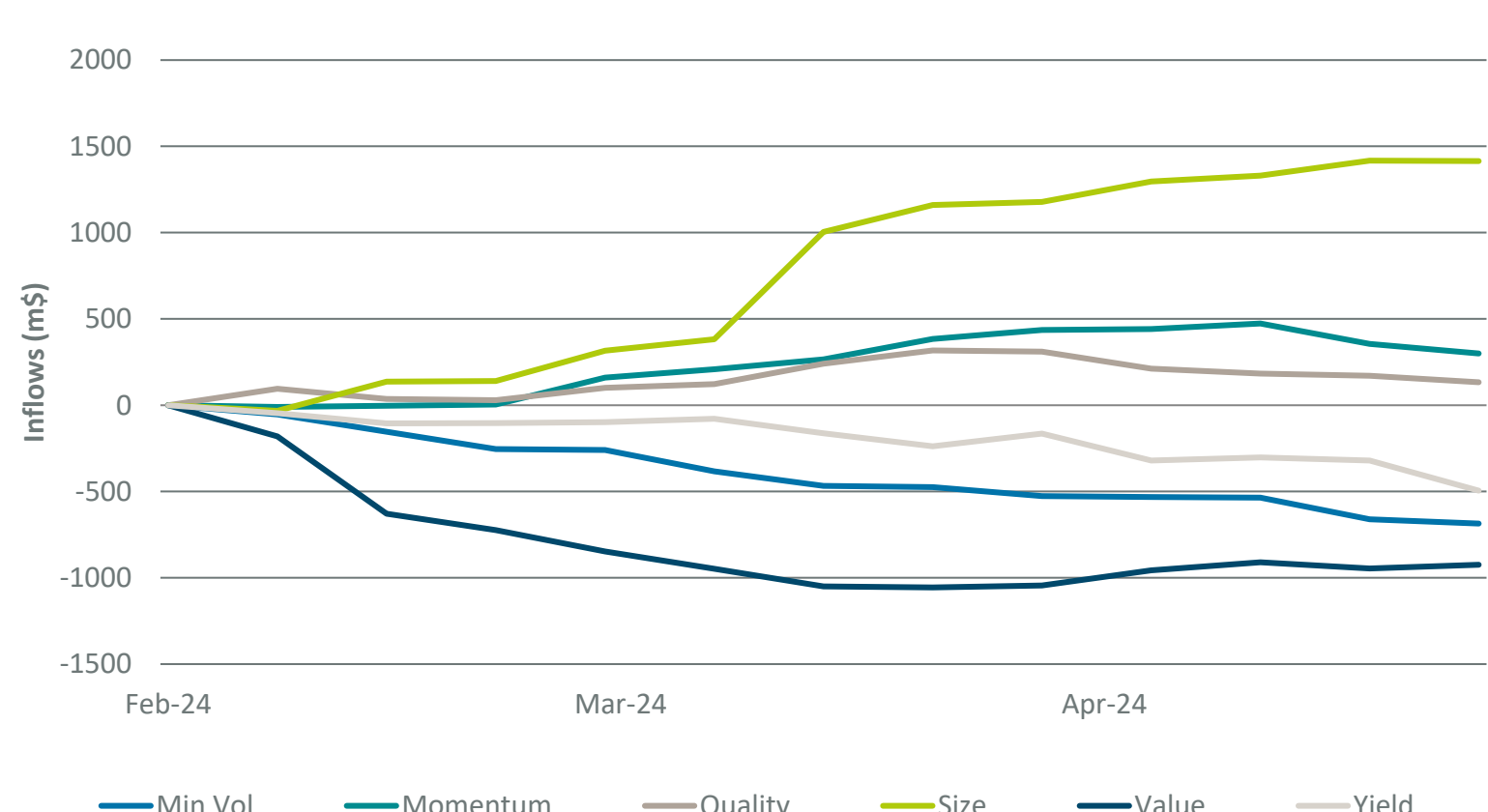


Cumulative Flows³

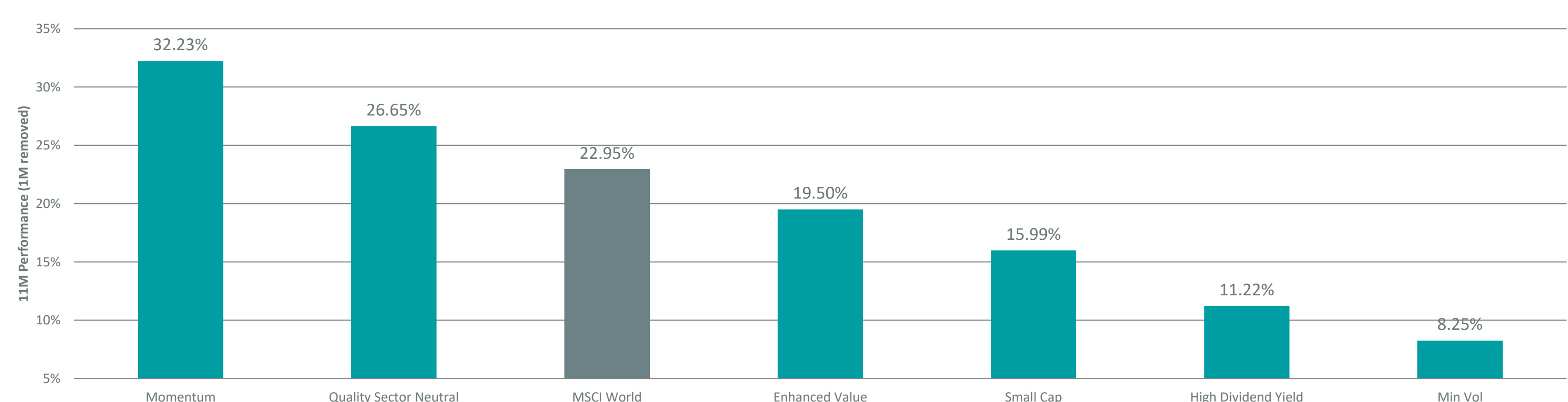
Flows into Single Factor UCITS ETFs - last 12 months



Flows into Single Factor UCITS ETFs - last 3 months



11 Month Momentum⁴



Source Bloomberg LP, MSCI, DWS Calculations. As of 30 Apr 2024. Past performance, actual or simulated, is not a reliable indicator of future results. Forecasts are based on assumptions, estimates, opinions and hypothetical models or analysis which may prove to be incorrect.

1. Risk measures (Volatility, Drawdown, Beta) are calculated over the last five years period using daily frequency observations.

2. 12 month estimated forward PE. Source MSCI, Bloomberg LLC. Data from December 1998 (from July 2005 for Small Cap).

3. Source: Morningstar, DWS Calculations. Weekly data for the last 12 months.

4. 11M Momentum is defined as the 11M performance of the index calculated as of 1 month ago (often referred in the literature as "1M removed").

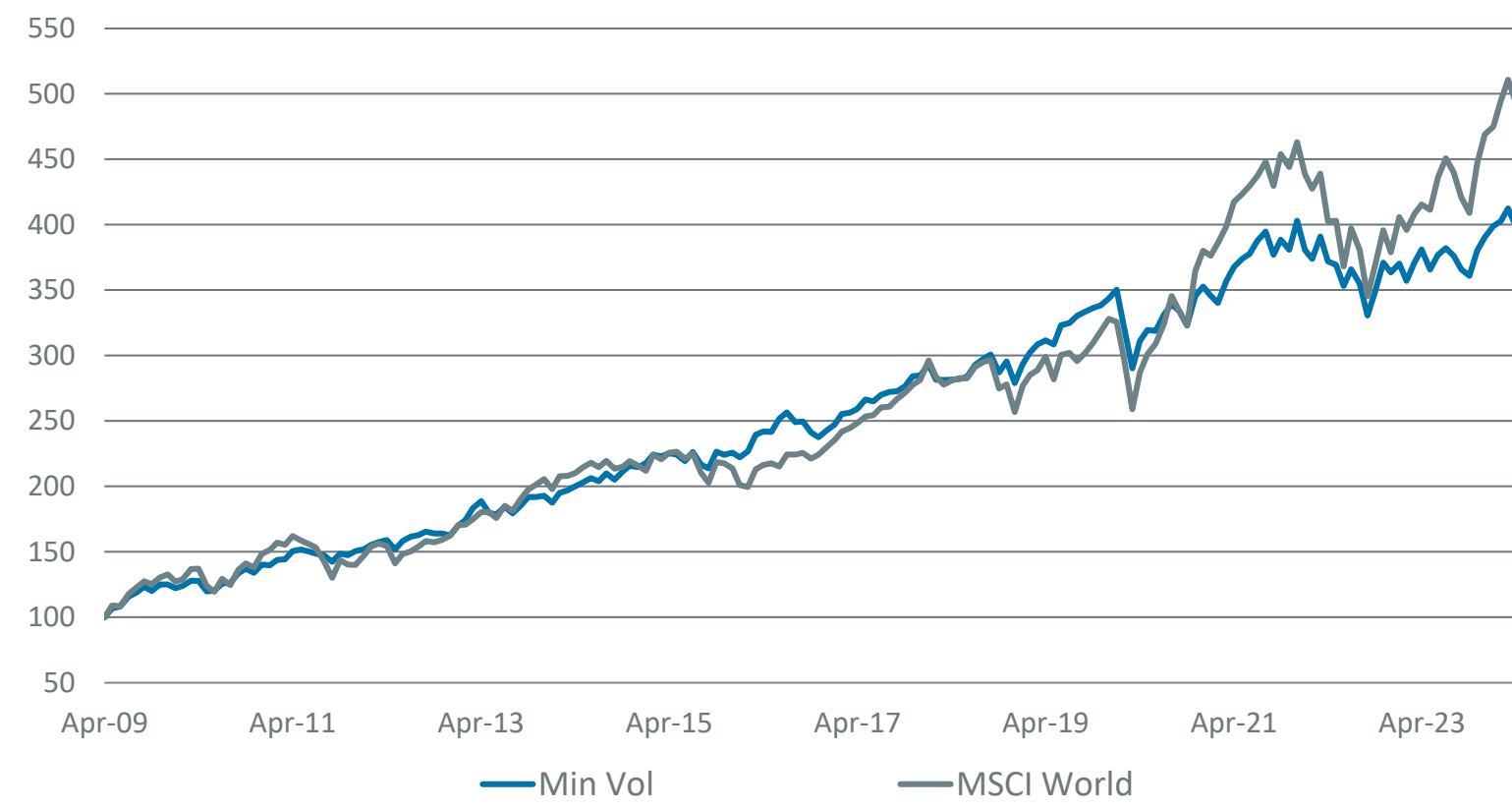
MSCI World Min Vol

Introduction

The MSCI World Minimum Volatility Index aims to reflect the performance characteristics of a minimum variance strategy applied to the large and mid cap equity universe across all Developed Markets (DM) countries. The index is calculated by optimizing the MSCI World Index, its parent index, for the lowest absolute risk (within a given set of constraints).

Summary

Historical Performance



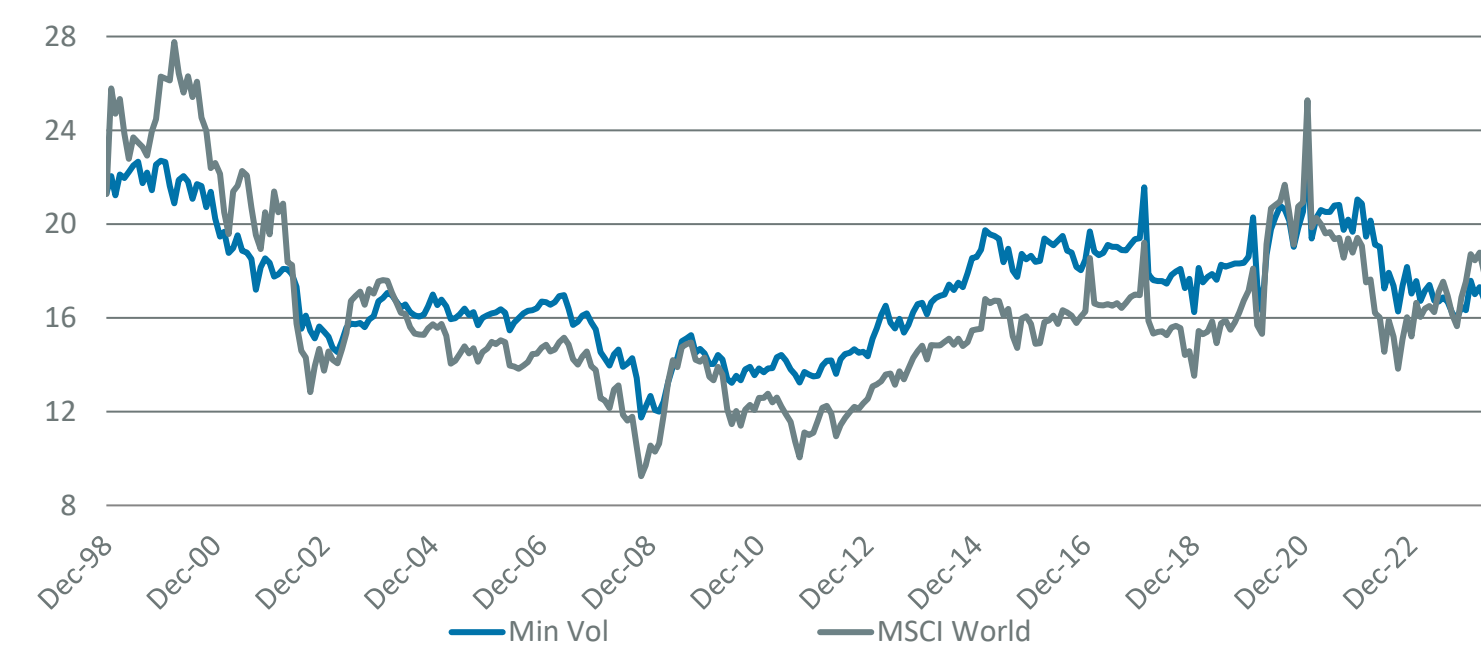
Risk and Return

Return	Min Vol	MSCI World
Last 1M	-3.6%	-3.7%
Last 6M	10.2%	20.3%
Last 1Y	4.4%	18.4%
Last 5Y	5.0%	10.5%

Risk ¹	Min Vol	MSCI World
5Y Vol.	13.7%	18.3%
6M Sharpe Ratio	3.0	4.8
Max DD	-29.3%	-34.0%
Beta	67%	-
Tracking Error	8.4%	-

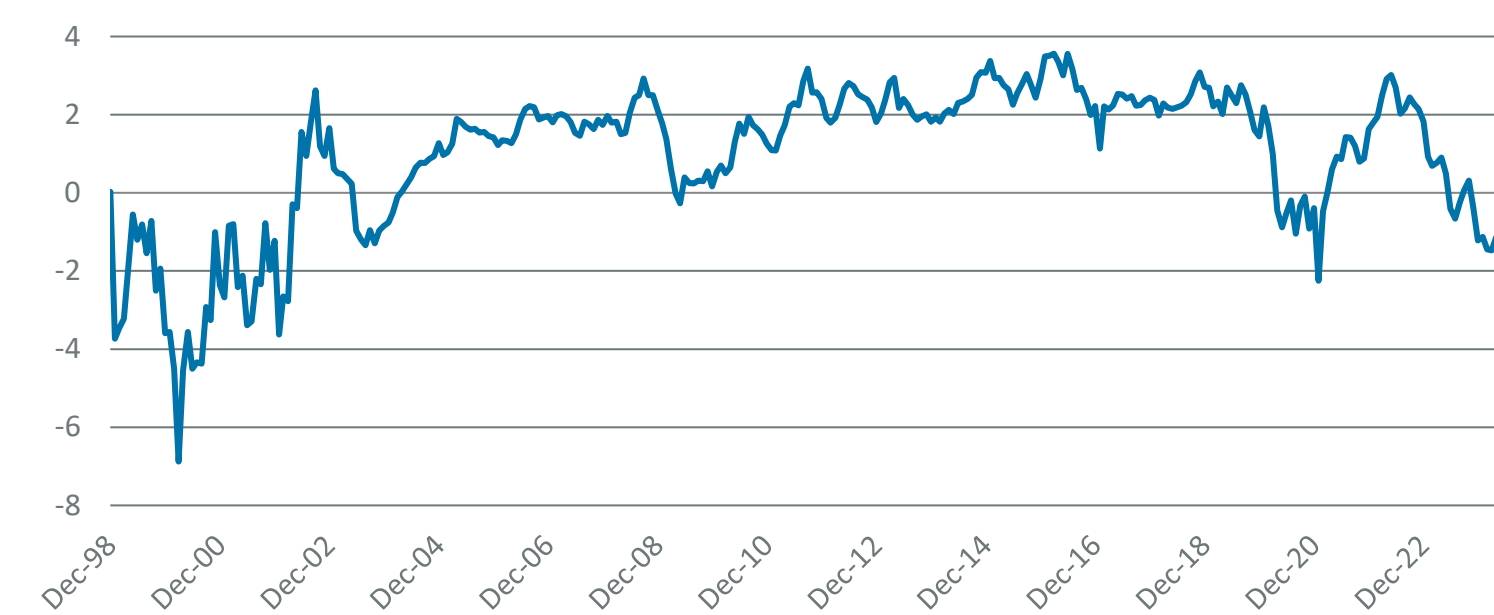
Valuations (relative to historical averages)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	16.8	-0.5	11.7 - 23.0



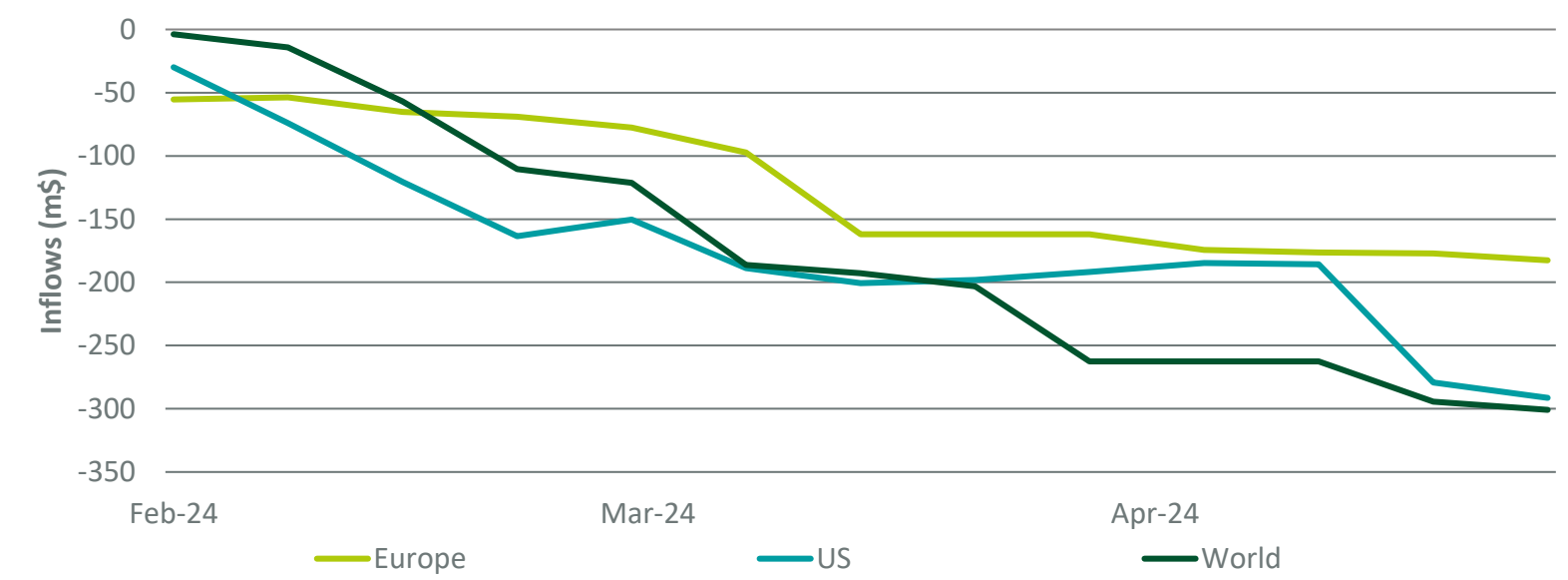
Valuations (relative to MSCI World)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	-1.1	0.3	-6.9 - 3.6



Cumulative Flows (UCITS ETFs)³

Factor	1M Flows	3M Flows	6M Flows	1Y Flows
Min Vol Europe	-21	-183	-397	-356
Min Vol US	-100	-291	-534	-562
Min Vol World	-38	-301	-637	-853
Total	-158	-775	-1586	-1820

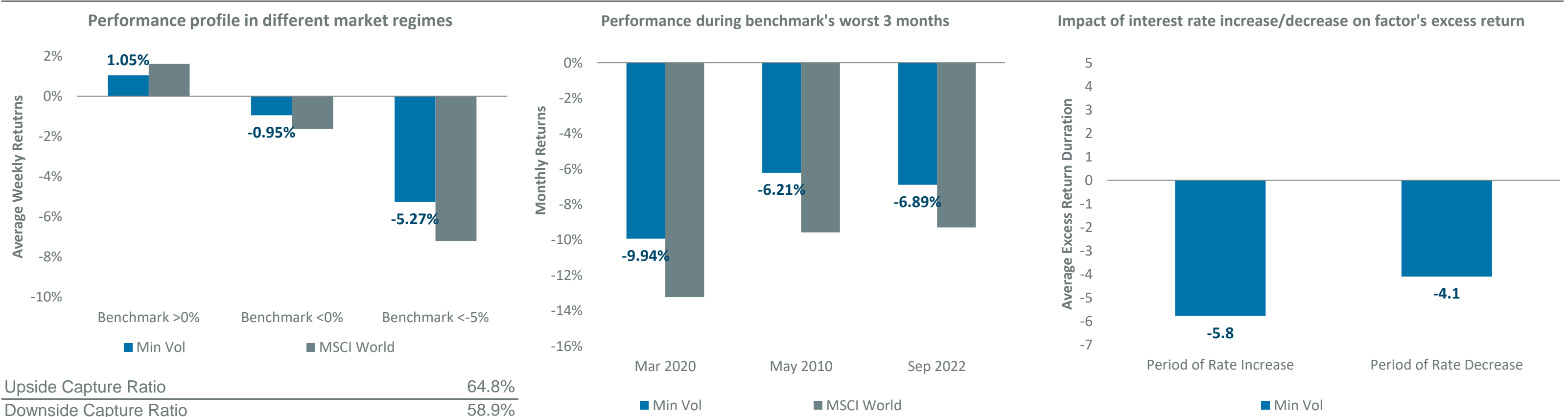


11 Month Momentum⁴

11 Month Performance (1M Removed)

Min Vol	8.3%
MSCI World	23.0%

Risk Profile Analysis⁵



Upside Capture Ratio	64.8%
Downside Capture Ratio	58.9%

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- Source: Morningstar, DWS Calculations. Weekly data for the last 12 months.
- 11M Momentum is defined as the 11M performance of the index calculated as of 1 month ago (often referred in the literature as "1M removed").
- All calculations are done over the last 15 years.

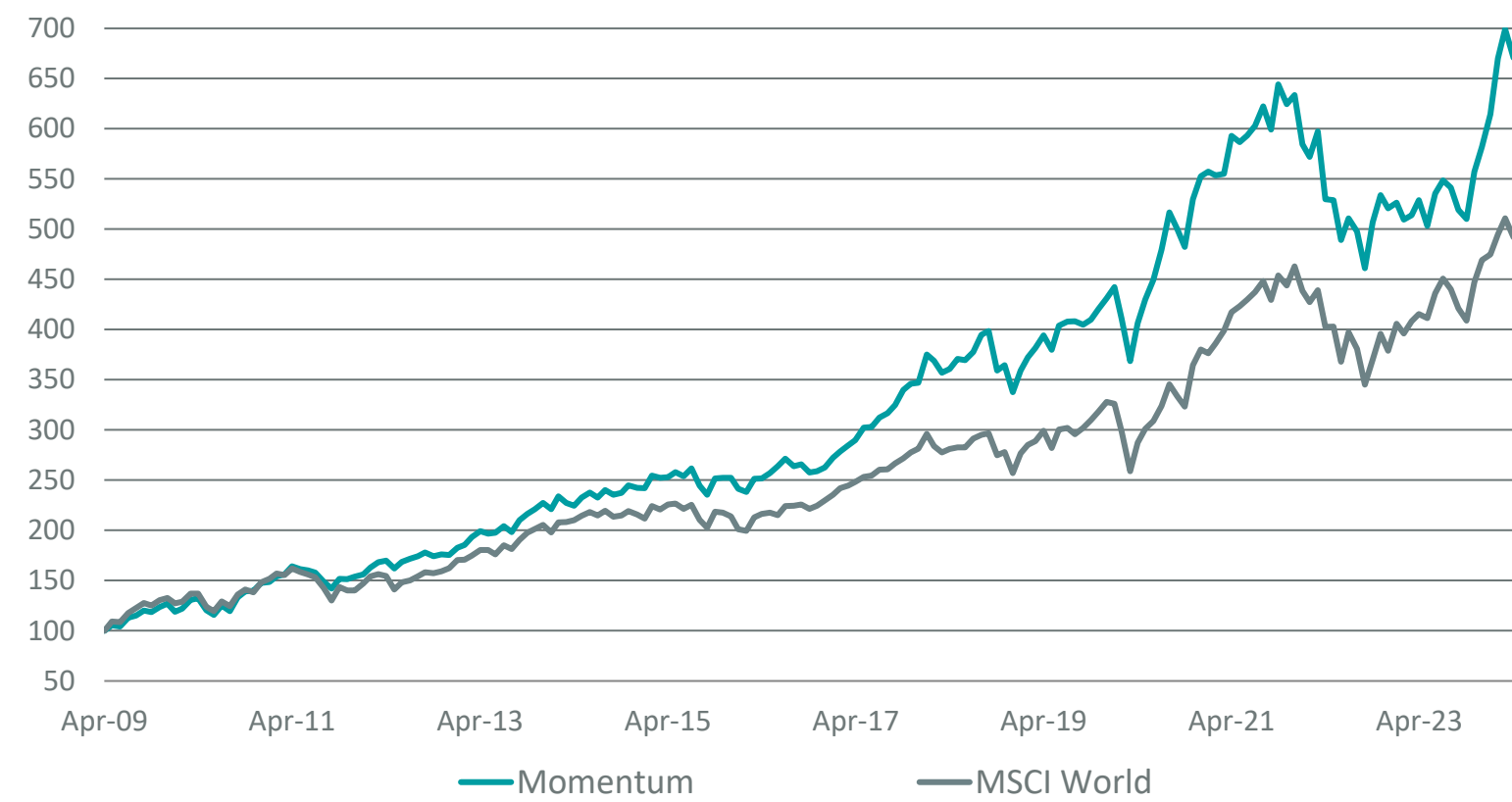
MSCI World Momentum

Introduction

The MSCI World Momentum Index is based on MSCI World its parent index, which includes large and mid cap stocks across all Developed Markets (DM) countries. It is designed to reflect the performance of an equity momentum strategy by emphasizing stocks with high price momentum, while maintaining reasonably high trading liquidity, investment capacity and moderate index turnover.

Summary

Historical Performance



Risk and Return

Return	Momentum	MSCI World
Last 1M	-4.1%	-3.7%
Last 6M	31.5%	20.3%
Last 1Y	26.8%	18.4%
Last 5Y	11.2%	10.5%

Risk ¹	Momentum	MSCI World
5Y Vol.	19.8%	18.3%
6M Sharpe Ratio	5.8	4.8
Max DD	-31.5%	-34.0%
Beta	98%	-
Tracking Error	8.6%	-

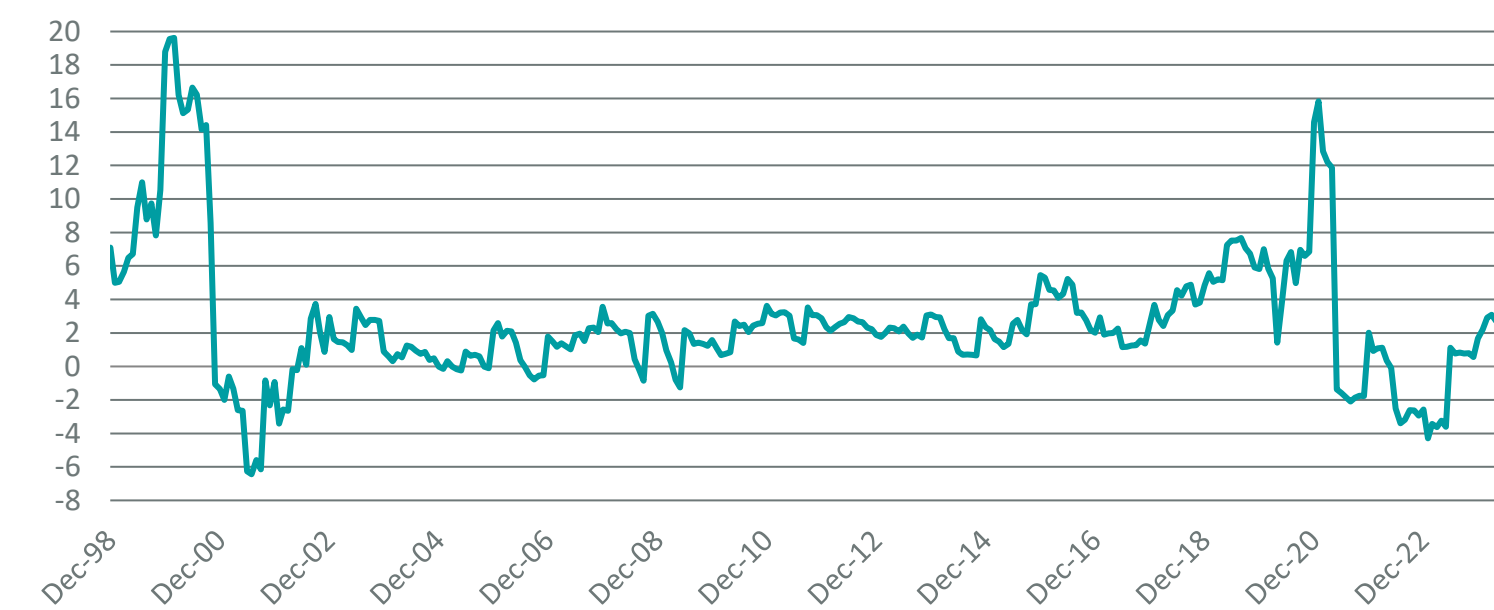
Valuations (relative to historical averages)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	20.7	-1.2	9.7 - 45.8



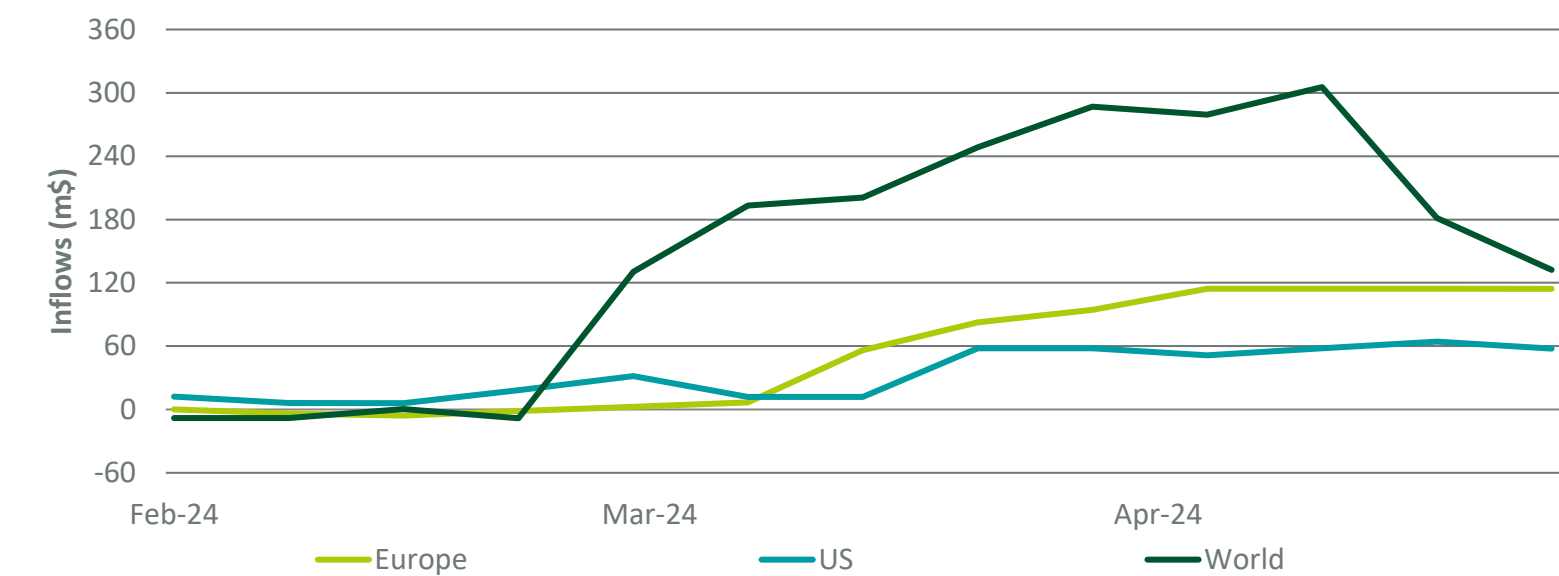
Valuations (relative to MSCI World)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	2.7	-0.4	-6.4 - 19.6



Cumulative Flows (UCITS ETFs)³

Factor	1M Flows	3M Flows	6M Flows	1Y Flows
Momentum Europe	20	114	13	-134
Momentum US	0	58	-8	33
Momentum World	-155	132	267	35
Total	-135	304	271	-66

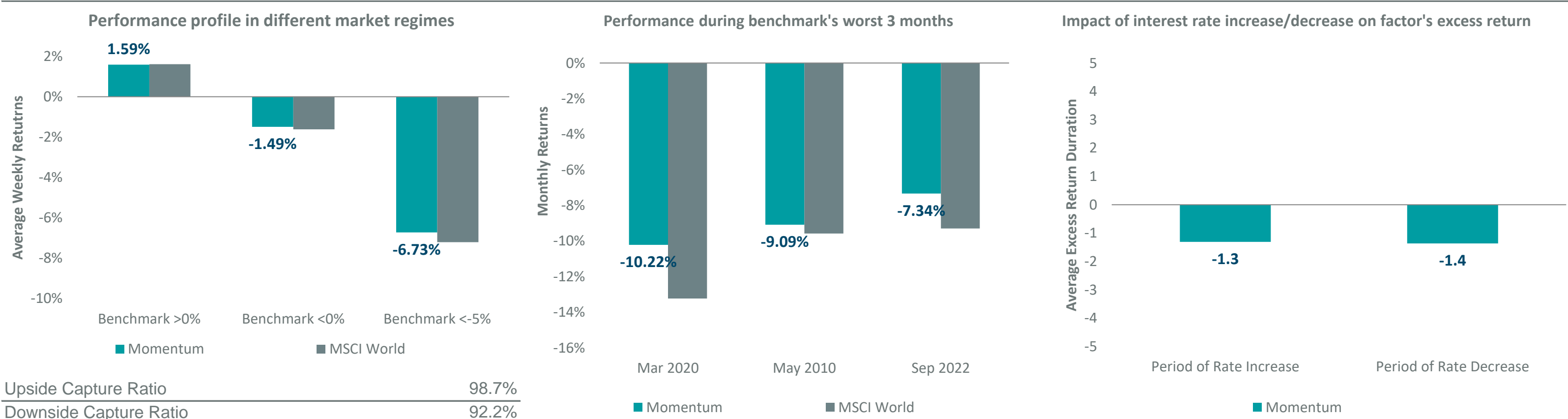


11 Month Momentum⁴

11 Month Performance (1M Removed)

Momentum	32.2%
MSCI World	23.0%

Risk Profile Analysis⁵



Source Bloomberg LP, MSCI, DWS Calculations. As of 30 Apr 2024. Past performance, actual or simulated, is not a reliable indicator of future results. Forecasts are based on assumptions, estimates, opinions and hypothetical models or analysis which may prove to be incorrect.

- Risk measures (Volatility, Drawdown, Beta) are calculated over the last five years period using daily frequency observations.
- 12 month estimated forward PE. Source MSCI, Bloomberg LLC. Data from December 1998 (from July 2005 for Small Cap).
- Source: Morningstar, DWS Calculations. Weekly data for the last 12 months.
- 11M Momentum is defined as the 11M performance of the index calculated as of 1 month ago (often referred in the literature as "1M removed").
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MSCI World Enhanced Value

Introduction

The MSCI World Enhanced Value Index captures large and mid-cap representation across all Developed Markets (DM) countries exhibiting overall value style characteristics. The index is designed to represent the performance of securities that exhibit higher value characteristics relative to their peers within the corresponding GICS® sector. The value investment style characteristics for index construction are defined using three variables: Price-to-Book Value, Price-to-Forward Earnings and Enterprise Value-to-Cash flow from Operations.

Summary

Historical Performance



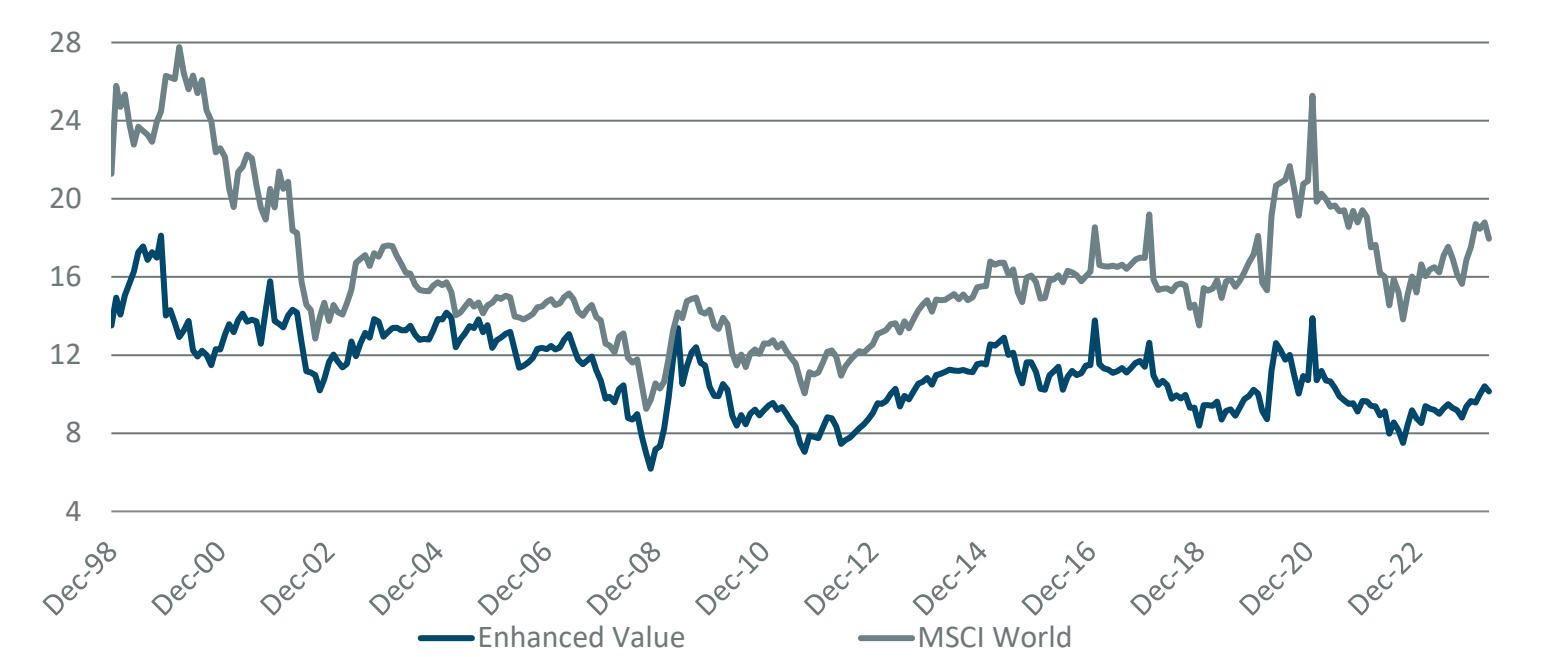
Risk and Return

Return	Enhanced Value	MSCI World
Last 1M	-3.9%	-3.7%
Last 6M	16.6%	20.3%
Last 1Y	14.8%	18.4%
Last 5Y	6.4%	10.5%

Risk ¹	Enhanced Value	MSCI World
5Y Vol.	16.9%	18.3%
6M Sharpe Ratio	3.7	4.8
Max DD	-36.5%	-34.0%
Beta	81%	-
Tracking Error	8.9%	-

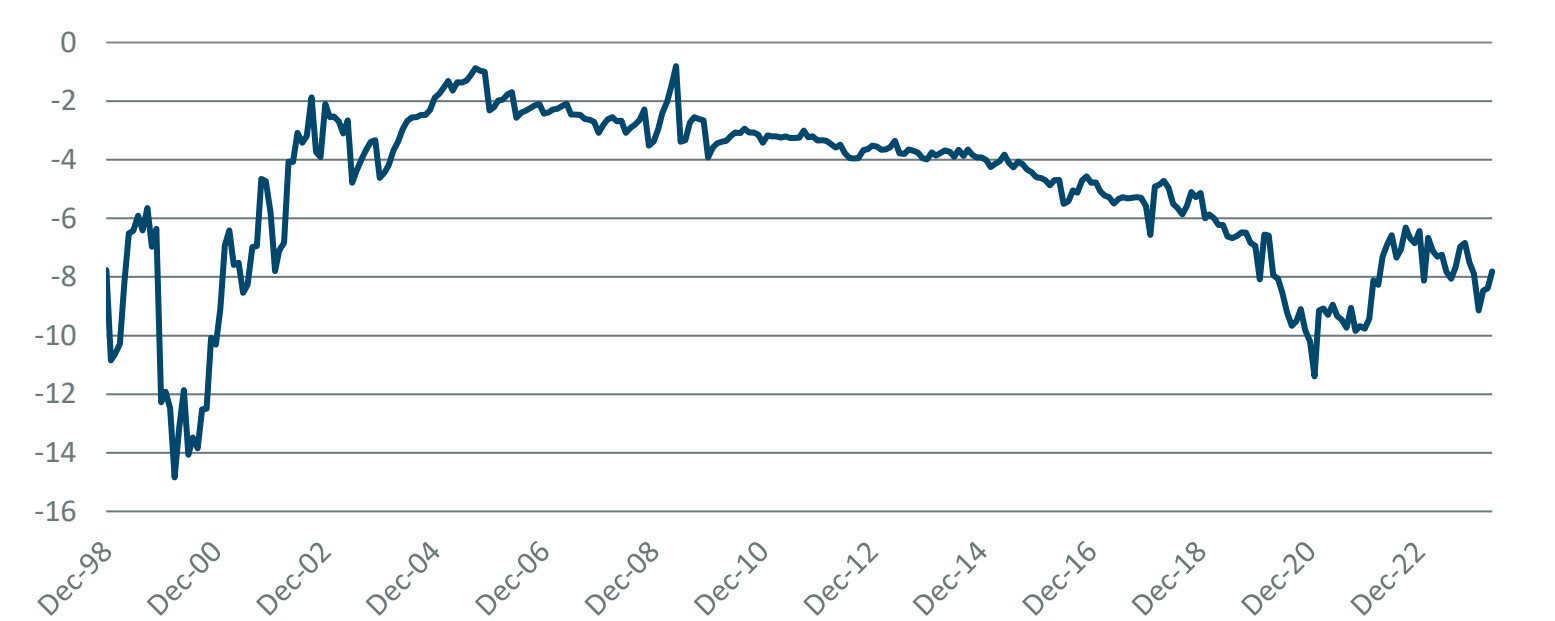
Valuations (relative to historical averages)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	10.1	-0.3	6.2 - 18.1



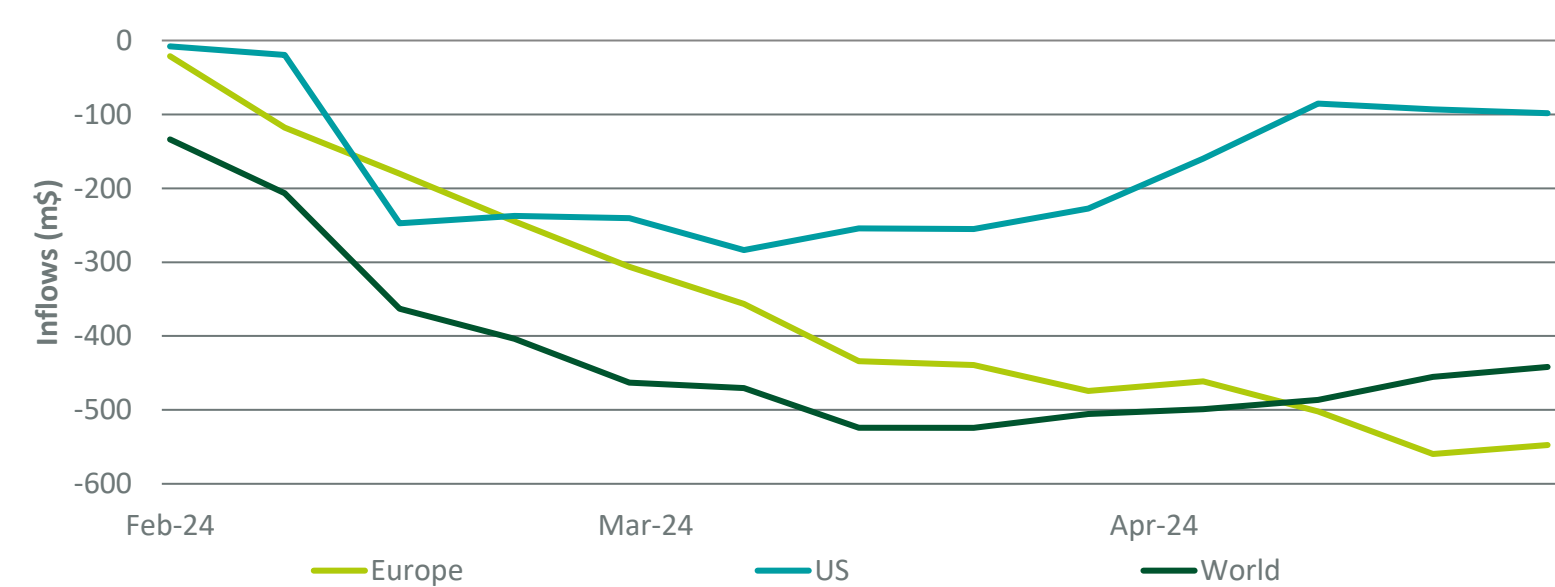
Valuations (relative to MSCI World)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	-7.8	0.6	-14.8 - 0.0



Cumulative Flows (UCITS ETFs)³

Factor	1M Flows	3M Flows	6M Flows	1Y Flows
Value Europe	-73	-547	-1175	-2017
Value US	129	-98	-731	-973
Value World	64	-442	-707	-759
Total	120	-1087	-2593	-3733

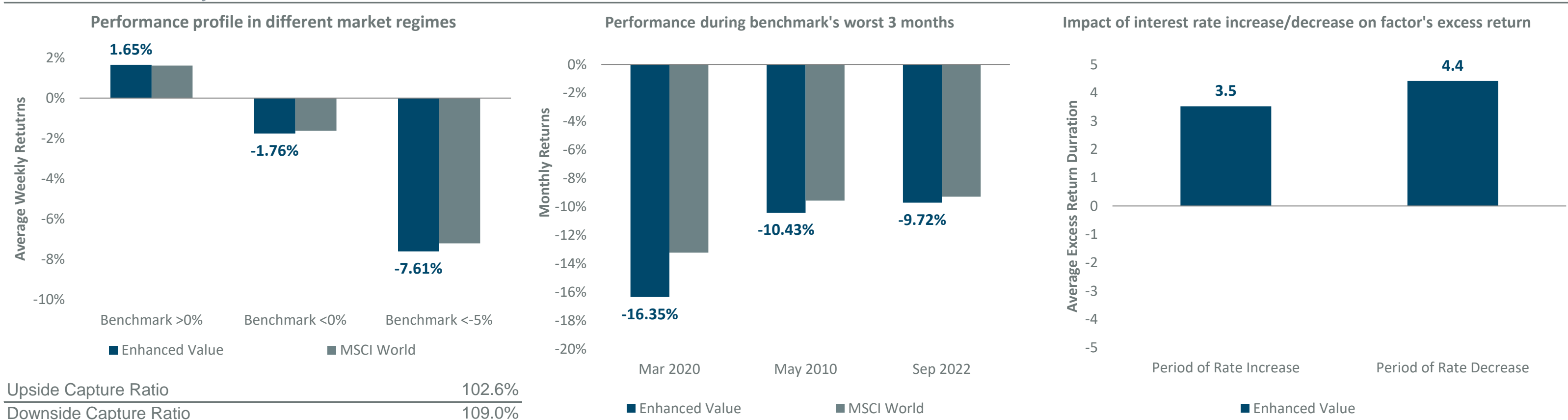


11 Month Momentum⁴

11 Month Performance (1M Removed)

Enhanced Value	19.5%
MSCI World	23.0%

Risk Profile Analysis⁵



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- Risk measures (Volatility, Drawdown, Beta) are calculated over the last five years period using daily frequency observations.
- 12 month estimated forward PE. Source MSCI, Bloomberg LLC. Data from December 1998 (from July 2005 for Small Cap).
- Source: Morningstar, DWS Calculations. Weekly data for the last 12 months.
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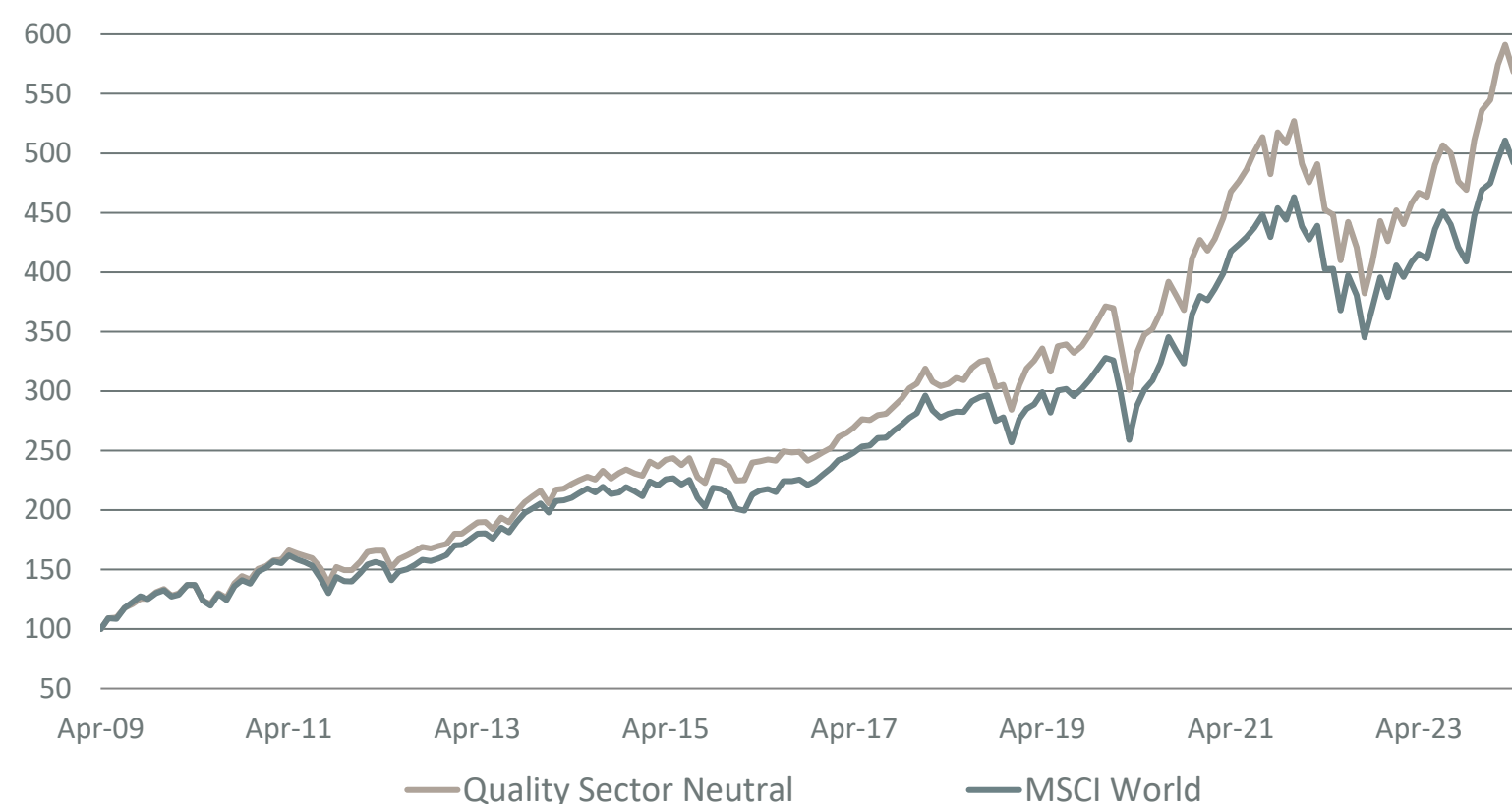
MSCI World Quality Sector Neutral

Introduction

The MSCI World Sector Neutral Quality Index captures large and mid-cap representation across all Developed Markets (DM) countries. The index aims to capture the performance of securities that exhibit stronger quality characteristics relative to their peers within the same GICS® sector by identifying stocks with high quality scores based on three main fundamental variables: high Return-on-Equity (ROE), low leverage and low earnings variability.

Summary

Historical Performance



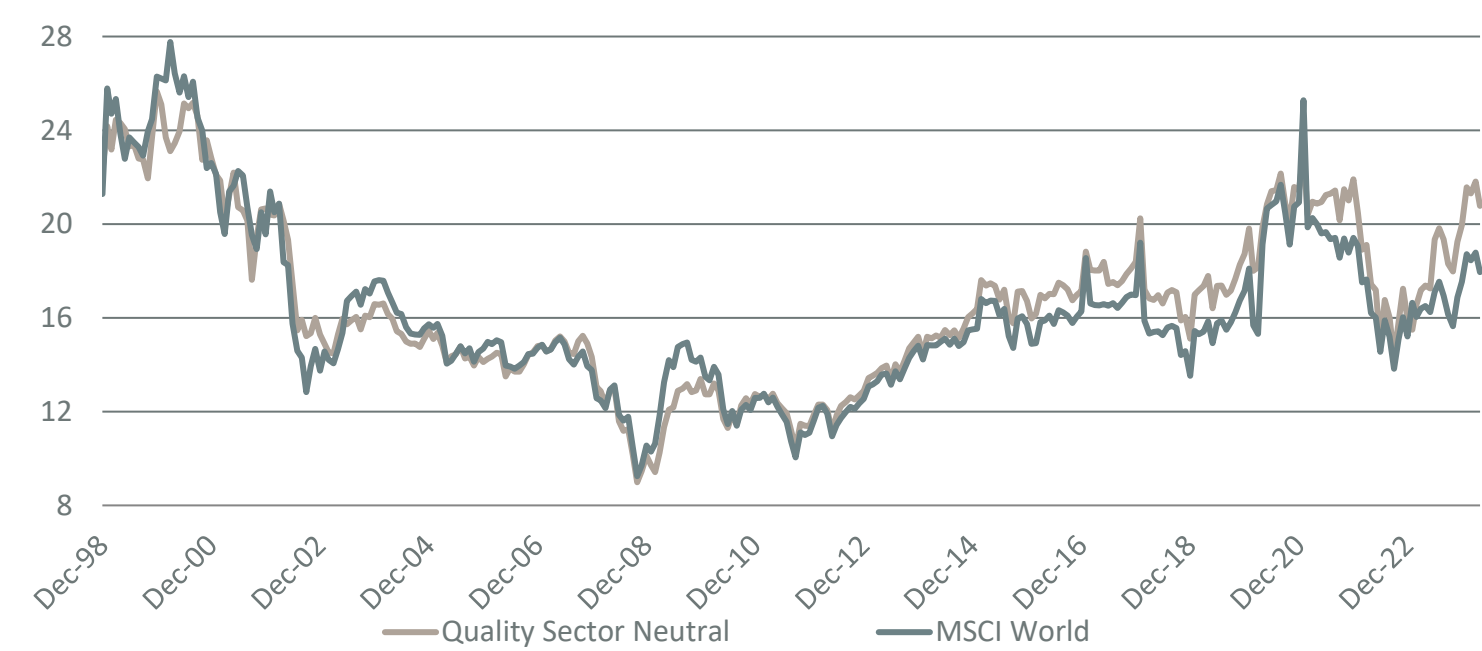
Risk and Return

Return	Quality Sector Neutral	MSCI World
Last 1M	-3.9%	-3.7%
Last 6M	21.1%	20.3%
Last 1Y	21.8%	18.4%
Last 5Y	11.1%	10.5%

Risk ¹	Quality Sector Neutral	MSCI World
5Y Vol.	18.4%	18.3%
6M Sharpe Ratio	4.7	4.8
Max DD	-32.7%	-34.0%
Beta	99%	-
Tracking Error	2.6%	-

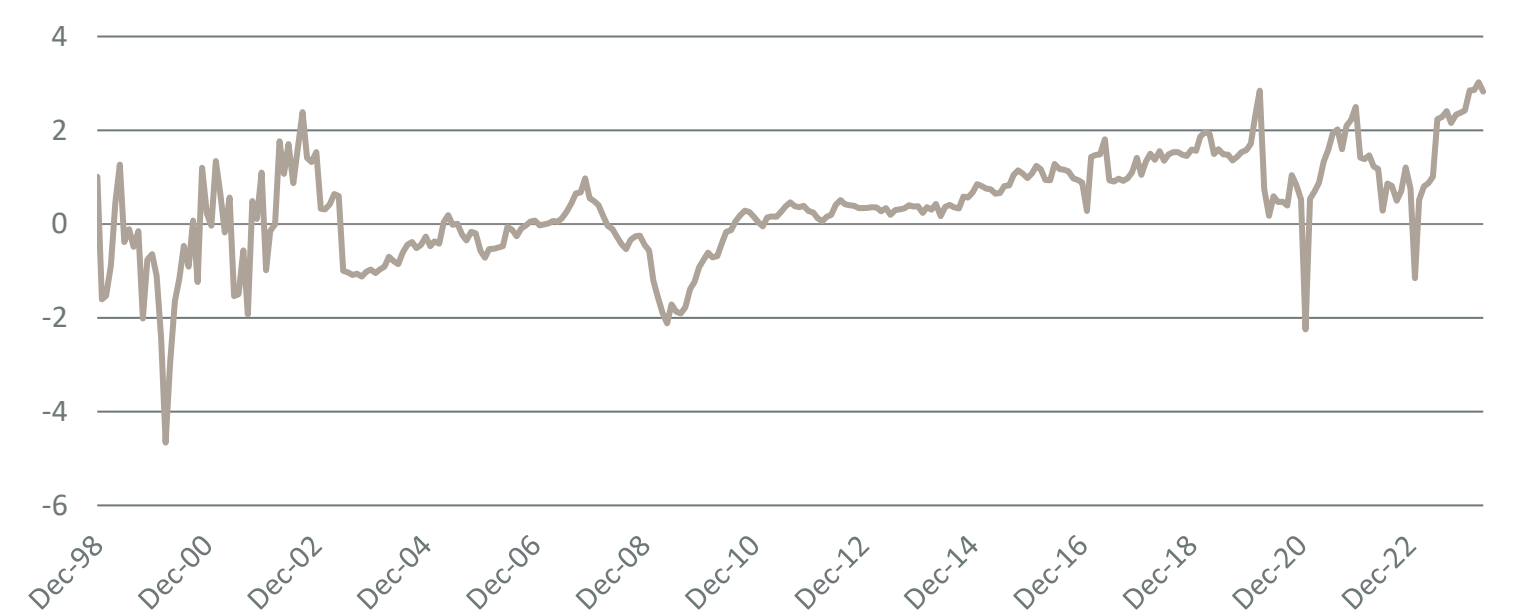
Valuations (relative to historical averages)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	20.8	-1.0	9.0 - 25.7



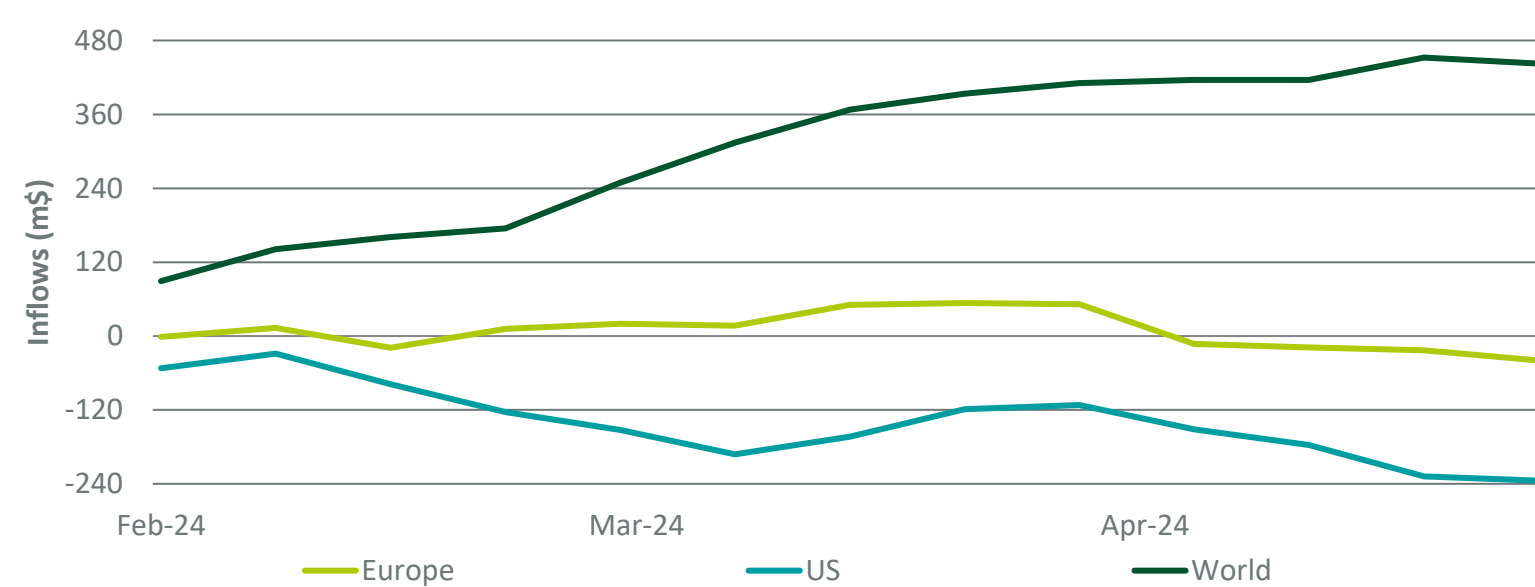
Valuations (relative to MSCI World)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	2.8	-0.2	-4.7 - 3.0



Cumulative Flows (UCITS ETFs)³

Factor	1M Flows	3M Flows	6M Flows	1Y Flows
Quality Europe	-91	-40	94	94
Quality US	-123	-235	-491	445
Quality World	32	443	706	807
Total	-178	184	402	1512

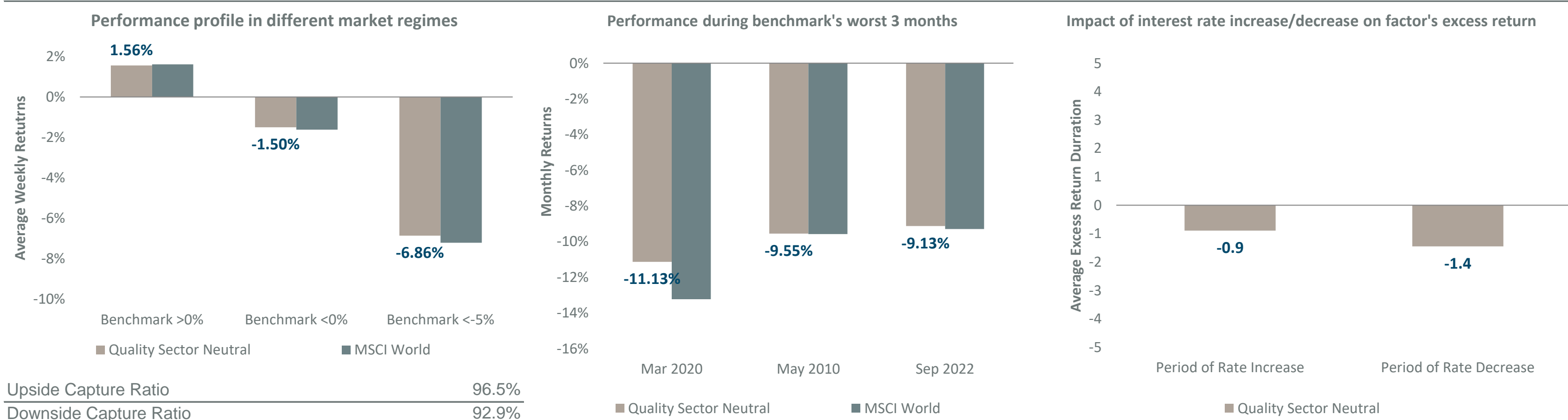


11 Month Momentum⁴

11 Month Performance (1M Removed)

Quality Sector Neutral	26.6%
MSCI World	23.0%

Risk Profile Analysis⁵



Source Bloomberg LP, MSCI, DWS Calculations. As of 30 Apr 2024. Past performance, actual or simulated, is not a reliable indicator of future results. Forecasts are based on assumptions, estimates, opinions and hypothetical models or analysis which may prove to be incorrect.

- Risk measures (Volatility, Drawdown, Beta) are calculated over the last five years period using daily frequency observations.
- 12 month estimated forward PE. Source MSCI, Bloomberg LLC. Data from December 1998 (from July 2005 for Small Cap).
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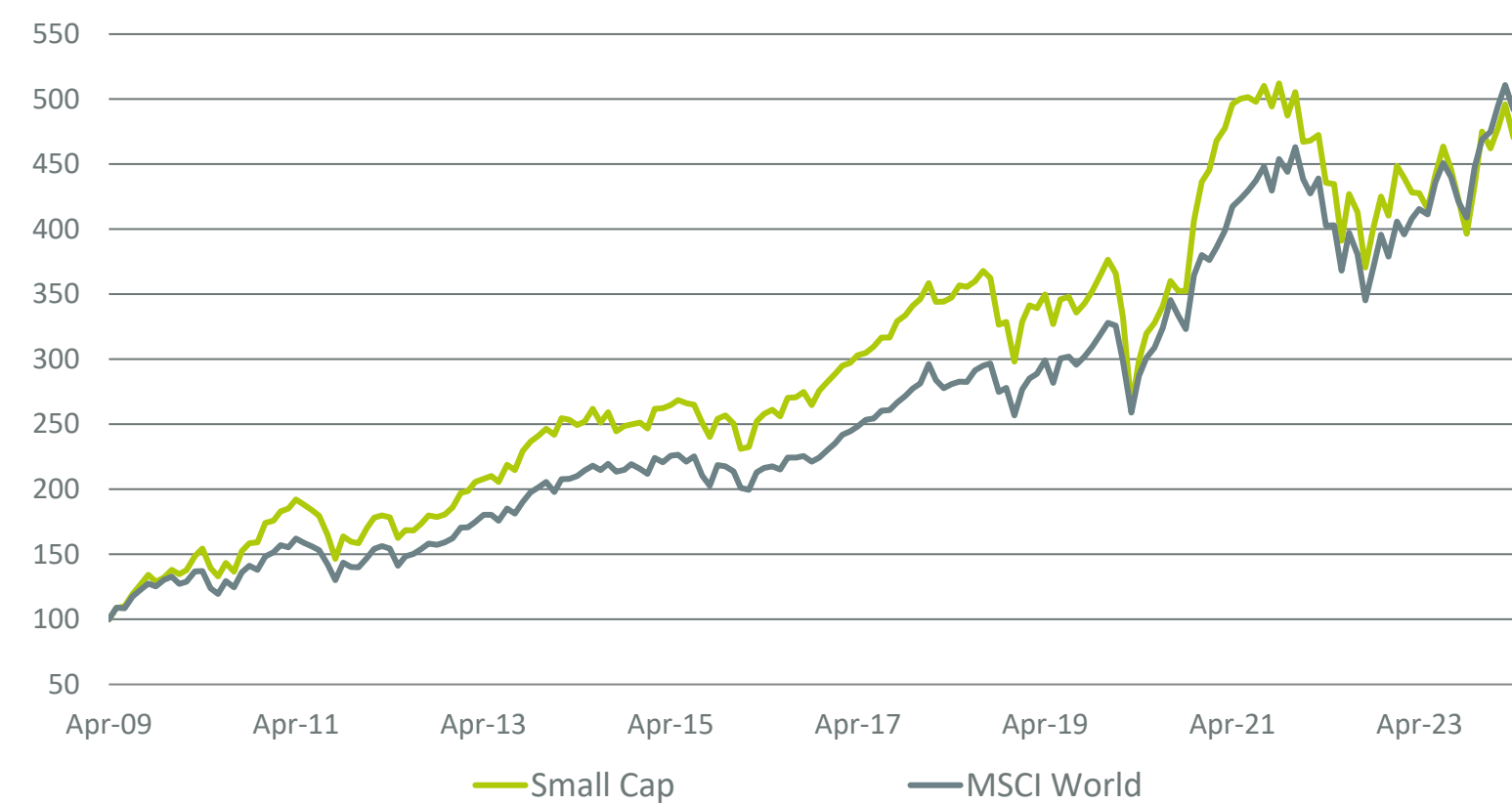
MSCI World Small Cap

Introduction

The MSCI World Small Cap Index captures small cap representation across all Developed Markets (DM) countries.

Summary

Historical Performance



Risk and Return

Return	Small Cap	MSCI World
Last 1M	-5.2%	-3.7%
Last 6M	18.6%	20.3%
Last 1Y	10.0%	18.4%
Last 5Y	6.1%	10.5%

Risk ¹	Small Cap	MSCI World
5Y Vol.	20.4%	18.3%
6M Sharpe Ratio	2.8	4.8
Max DD	-40.9%	-34.0%
Beta	104%	-
Tracking Error	7.6%	-

Valuations (relative to historical averages)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	15.5	-0.9	7.0 - 40.1



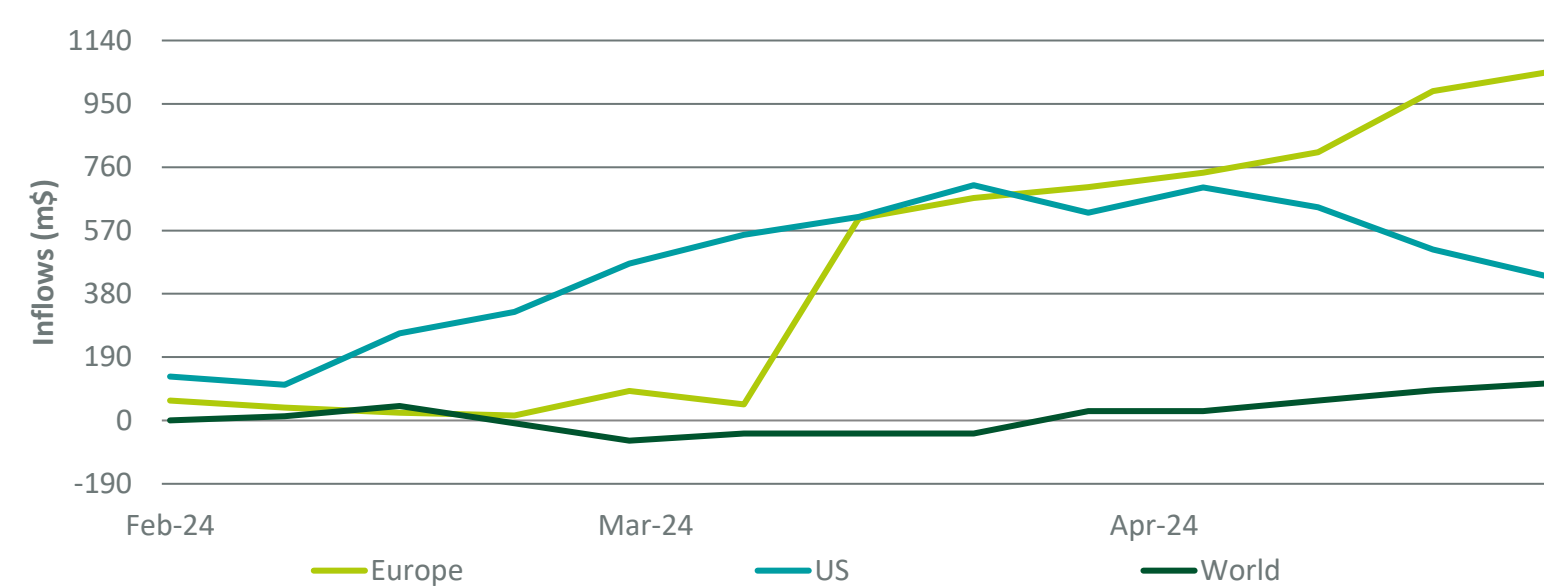
Valuations (relative to MSCI World)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	-2.4	-0.1	-7.8 - 17.4



Cumulative Flows (UCITS ETFs)³

Factor	1M Flows	3M Flows	6M Flows	1Y Flows
Size Europe	345	1045	1847	1683
Size US	-191	432	1347	1939
Size World	83	111	314	388
Total	237	1627	3653	4143

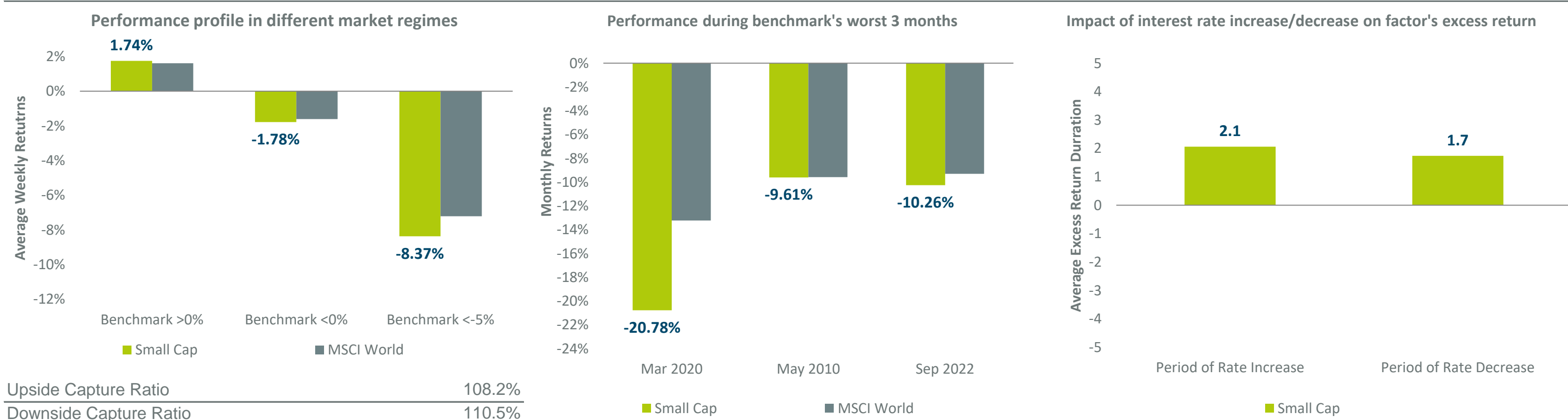


11 Month Momentum⁴

11 Month Performance (1M Removed)

Small Cap	16.0%
MSCI World	23.0%

Risk Profile Analysis⁵



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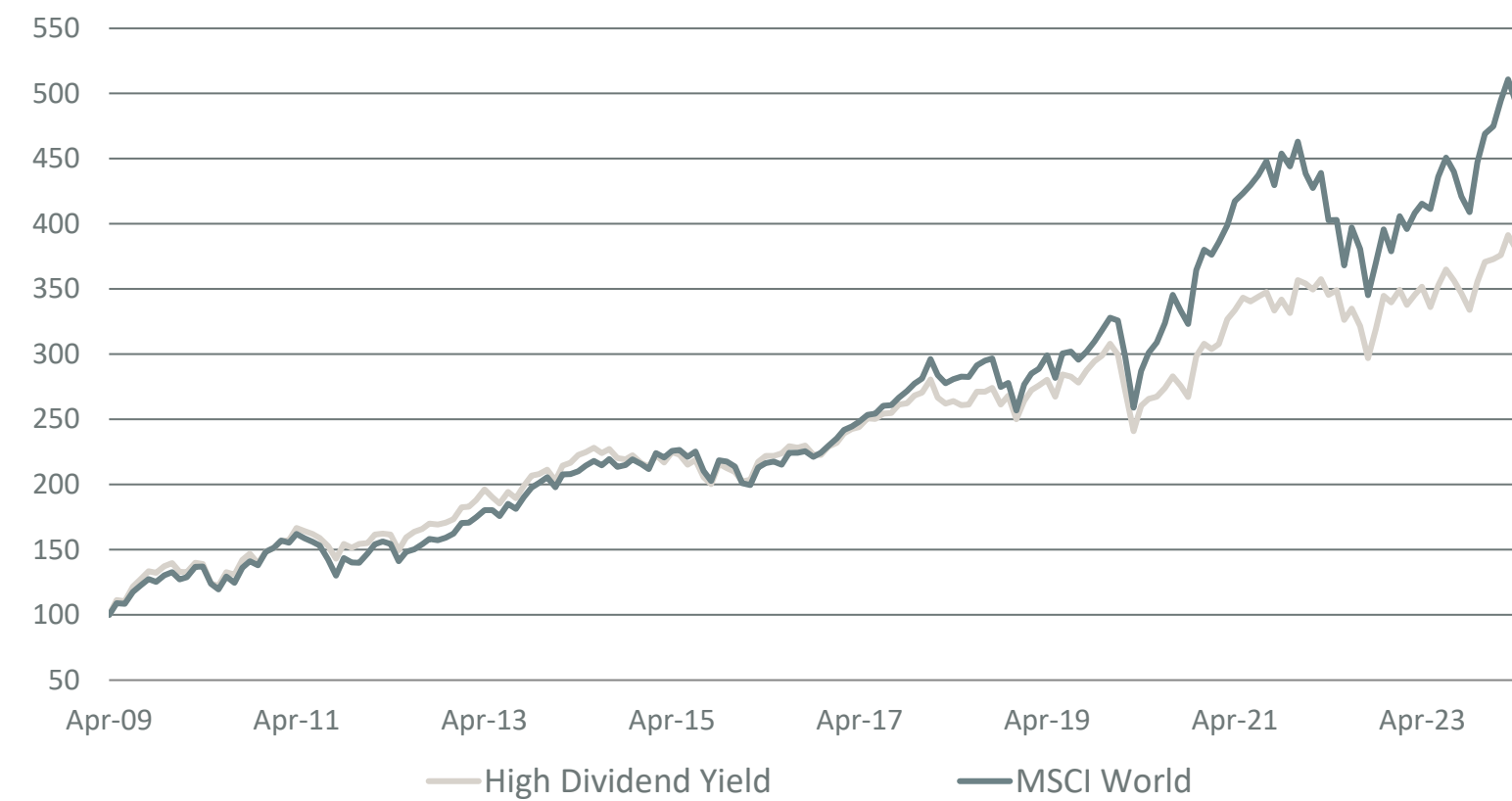
MSCI World High Dividend Yield

Introduction

The MSCI World High Dividend Yield Index is based on MSCI World its parent index, which includes large and mid cap stocks across all Developed Markets countries. The index is designed to reflect the performance of equities in the parent index (ex REITs) with higher dividend income and quality characteristics than average. Starting in May 2013, the index also applies quality screens and reviews 12-month past performance to omit stocks with potentially deteriorating fundamentals that could force them to cut or reduce dividends.

Summary

Historical Performance



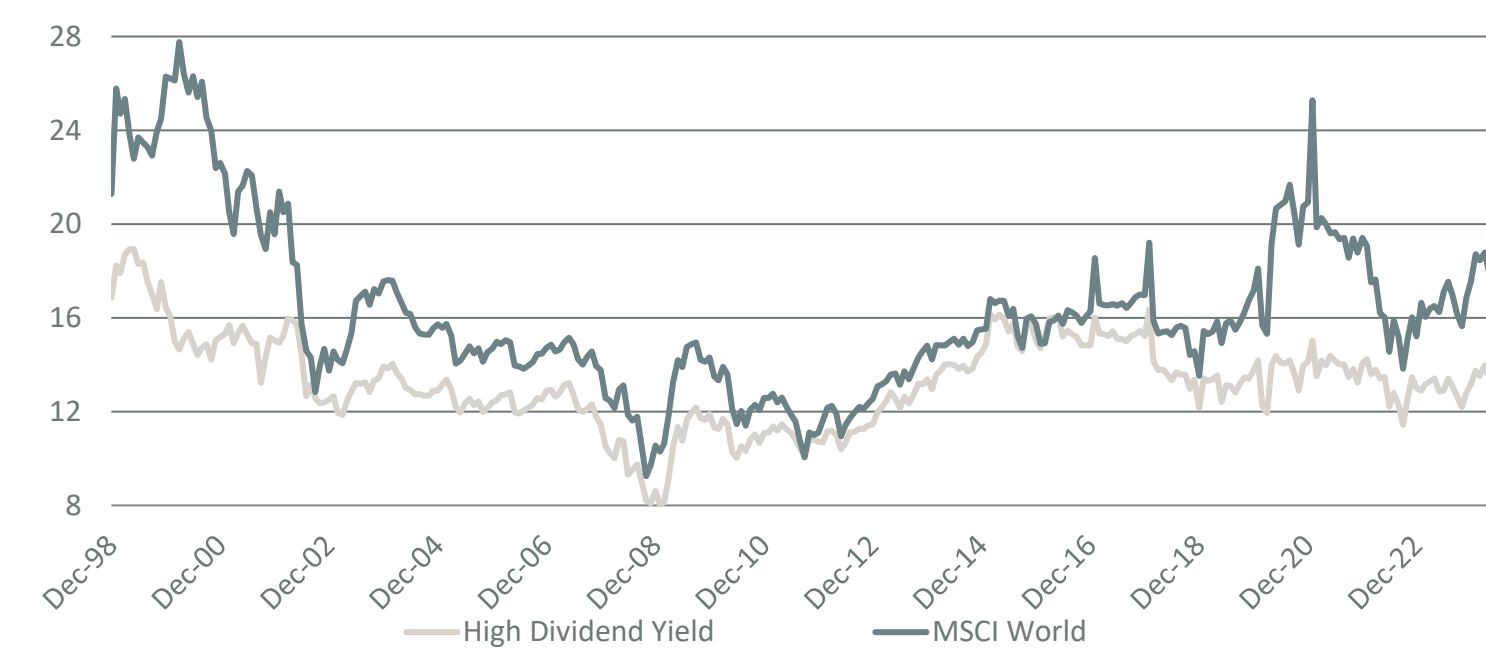
Risk and Return

Return	High Dividend Yield	MSCI World
Last 1M	-2.9%	-3.7%
Last 6M	13.8%	20.3%
Last 1Y	8.1%	18.4%
Last 5Y	6.3%	10.5%

Risk ¹	High Dividend Yield	MSCI World
5Y Vol.	15.3%	18.3%
6M Sharpe Ratio	3.5	4.8
Max DD	-33.6%	-34.0%
Beta	76%	-
Tracking Error	7.7%	-

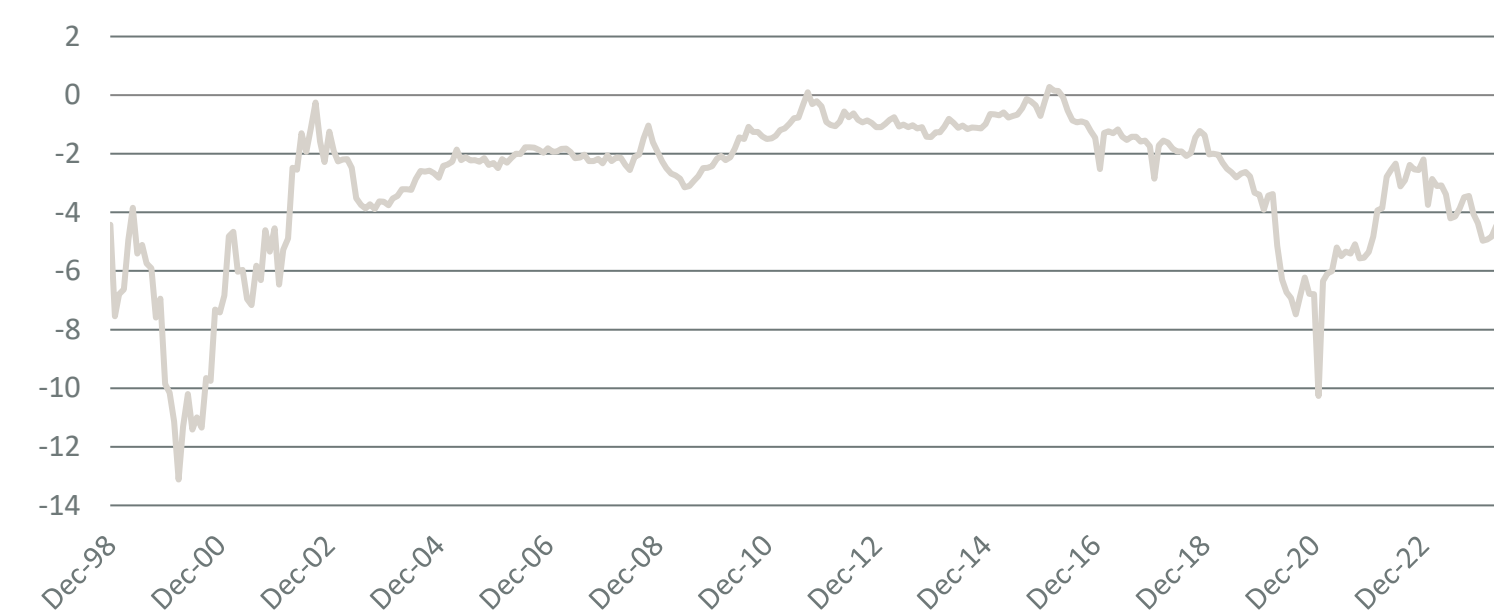
Valuations (relative to historical averages)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	13.5	-0.5	8.0 - 18.9



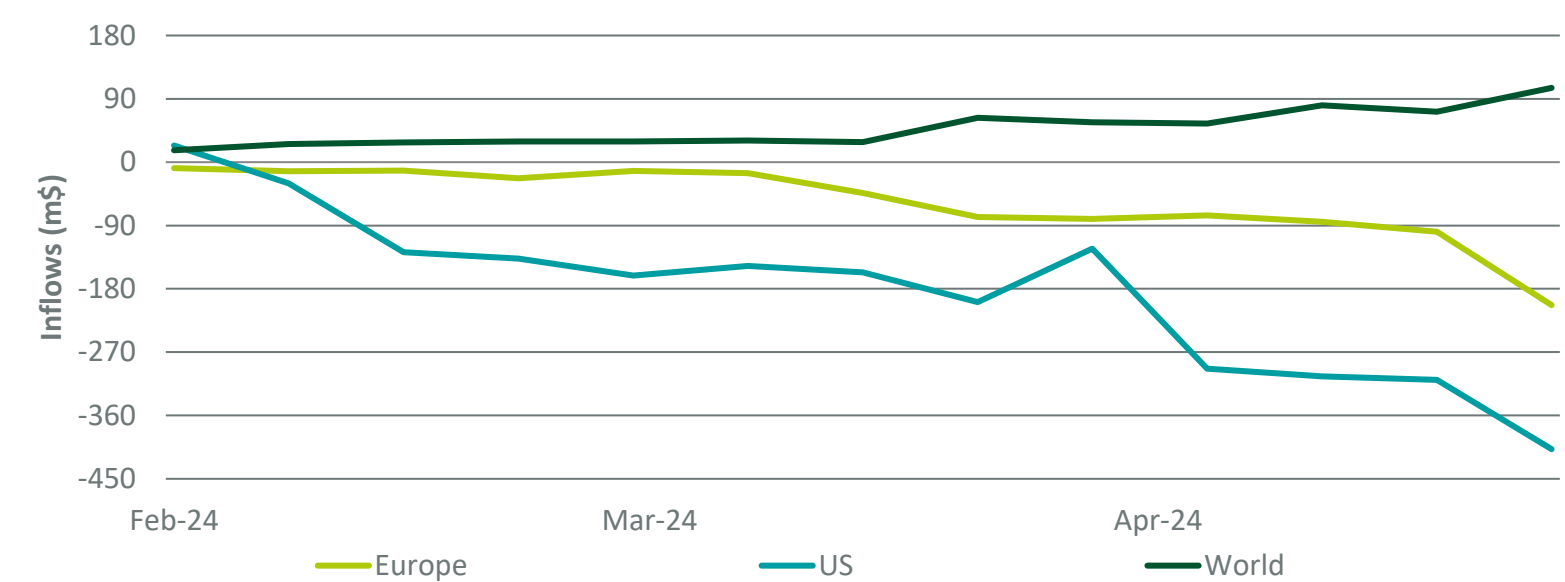
Valuations (relative to MSCI World)²

Factor	Current	Change ²	Current value (vs Historical Highs and Lows) ⁵
12M Forward P/E	-4.5	0.4	-13.1 - 0.3



Cumulative Flows (UCITS ETFs)³

Factor	1M Flows	3M Flows	6M Flows	1Y Flows
Yield Europe	-122	-203	-475	-830
Yield US	-285	-408	-393	-1192
Yield World	49	106	204	559
Total	-331	-455	-747	-1398

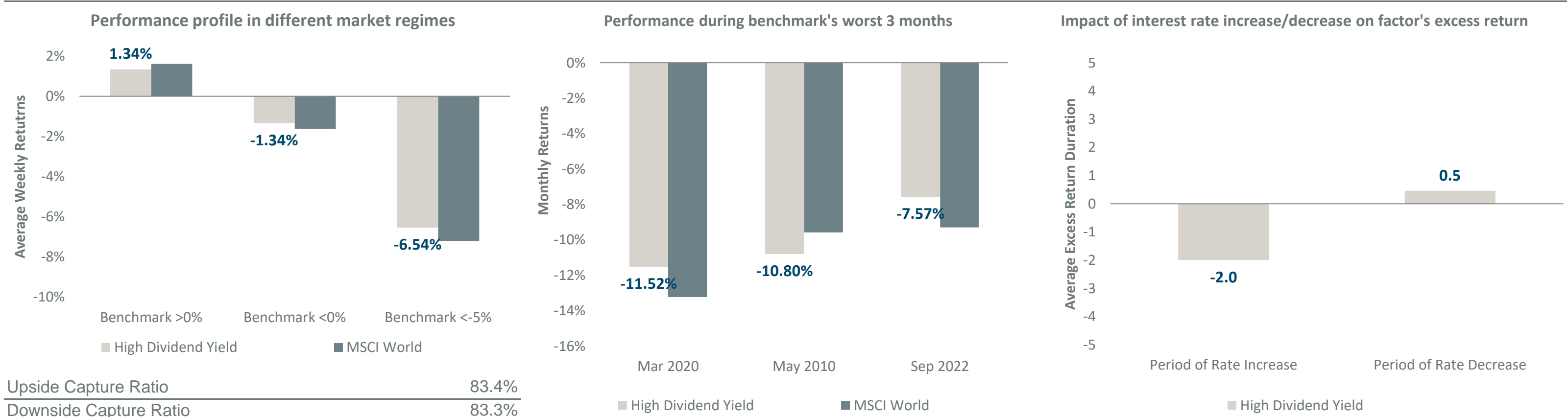


11 Month Momentum⁴

11 Month Performance (1M Removed)

High Dividend Yield	11.2%
MSCI World	23.0%

Risk Profile Analysis⁵



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- All calculations are done over the last 15 years.

Factor Assessment Framework - Glossary

Definitions

Flows	Amount of money invested in UCITS ETFs
Sharpe Ratio	The Sharpe Ratio is a measure for calculating risk-adjusted return, and this ratio has become the industry standard for such calculations. It was developed by Nobel laureate William F. Sharpe. The Sharpe ratio is the average return earned in excess of the risk-free rate per unit of volatility or total risk.
Volatility	Historical volatility is an indicator of risk. It measures the degree of variation of a trading price series over time, as measured by the standard deviation of returns. In this case, it is calculated over the last 5 years using daily returns.
Maximum Drawdown	Maximum drawdown is an indicator of risk. It measures the largest drop from peak to trough in the price of an asset.
Beta	Beta is a measure of the risk compared to a given benchmark (here the large cap index). Beta is calculated using regression analysis. A beta of less than 1 means that the small cap index will be less volatile than the large cap index.
Tracking Error	Tracking error is a measure of relative risk versus a given benchmark. It is defined as the annualized divergence between the price behavior of an index and the price behavior of a benchmark calculated as the standard deviation of the difference between their returns. Here, it is calculated over the last 5 years using daily returns.
12m Forward P/E (Consensus)	Weighted Average Price/Earnings per Share ratio based on 12-month-forward Earnings
11 Month Momentum	Momentum refers to the rate of change of price movements for a particular index – that is, the speed at which the price is changing. In this case, the traditional measure of momentum is used i.e. the 11 Month performance of the index calculated a month ago.
Historical Median	Value lying at the midpoint of a frequency distribution of observed values, such that there is an equal probability of falling above or below it.
5 Year Historical Z-Score	A z-score (aka, a standard score) indicates how many standard deviations an element is from the mean. It is a dimensionless quantity obtained by subtracting the population mean from an individual raw score and then dividing the difference by the population's standard deviation. Here, the last 5 year data observed on a monthly basis is used.

A few words on Risk Profile Analysis

Performance Profile	This analysis aims to define the behavior of the factor in different market regimes. 3 market regimes are defined using weekly returns of the benchmark: Benchmark positive returns, Benchmark negative returns and Benchmark negative returns under -5%. The average weekly return of the factor in each of these 3 regimes is then calculated over the last 15 years. Cyclical factors will tend to show higher average returns during positive return regime and lower average in the other two. Defensive factors would react inversely.
Worst 3 months Performance	This analysis aims to define the behavior of the factor in crisis. The analysis focuses on the worst 3 months for the benchmark in term of performance over the last 15 years. The performance of the each factors over those 3 months is then compared to the benchmark's performance. Cyclical factors tend to show larger drawdowns and Defensive factors smaller ones
Impact of interest rate	This analysis aims to define the behavior of the factor with respect to interest rate changes. The analysis define periods in which the interest rates increase or decrease over the last 15 years. For each defined period, the sensitivity to interest rate is calculated by dividing the performance of the factor over/under the benchmark by the change in interest rate. Then the average of all the sensitivities during rate hike and rate decrease is calculated and displayed in the graph. A positive sensitivity indicate that the factor tends to move with the rate ie outperform the benchmark when rate increase and underperform the benchmark when rate decrease.

Rolling 12 Months Performance as of 30-Apr-2024

Name	Currency	30-Apr-23- 30-Apr-24	30-Apr-22- 30-Apr-23	30-Apr-21- 30-Apr-22	30-Apr-20- 30-Apr-21	30-Apr-19- 30-Apr-20	30-Apr-18- 30-Apr-19	30-Apr-17- 30-Apr-18	30-Apr-16- 30-Apr-17	30-Apr-15- 30-Apr-16	30-Apr-14- 30-Apr-15
MSCI World	USD	18.4%	3.2%	-3.5%	45.3%	-4.0%	6.5%	13.2%	14.7%	-4.2%	7.4%
MSCI World Min Vol	USD	4.4%	2.4%	1.2%	18.1%	-0.1%	10.7%	8.7%	7.0%	7.4%	12.7%
MSCI World Momentum	USD	26.8%	-0.2%	-10.6%	45.9%	3.1%	9.3%	24.4%	15.1%	-0.5%	12.7%
MSCI World Enhanced Value	USD	14.8%	3.4%	-2.7%	40.4%	-15.8%	-5.7%	17.1%	14.9%	-9.7%	6.4%
MSCI World Quality Sector Neutral	USD	21.8%	3.1%	-3.2%	41.0%	-1.3%	9.8%	13.7%	11.7%	-0.6%	9.2%
MSCI World Small Cap	USD	10.0%	-1.8%	-12.2%	66.1%	-14.6%	0.7%	14.7%	17.4%	-2.6%	6.2%
MSCI World High Dividend Yield	USD	8.1%	1.8%	3.5%	28.2%	-7.2%	6.2%	8.1%	10.0%	-1.3%	0.9%

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