



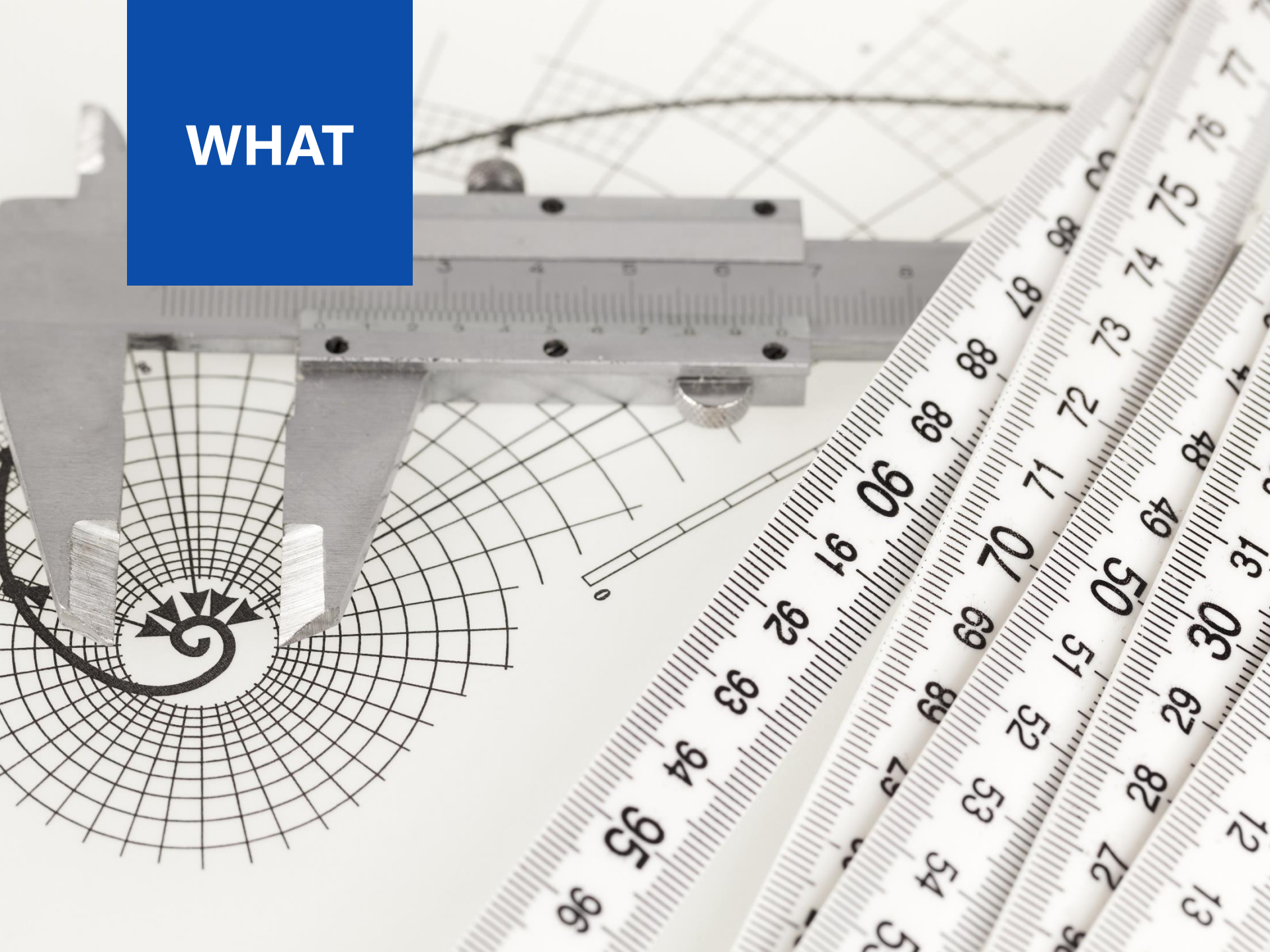
# INTERNATIONAL EQUITY

FACTOR-BASED MODEL PORTFOLIO STRATEGY



2019/04

**WHAT**



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# Summary

## Key Points in a Nutshell

1

We are proud to introduce the Factor-Based International Equity Model Portfolio Strategy with institutional level of liquidity and low portfolio turnover.

2

The portfolio gained an annualized return of 19.2% since 2000. It has proven to outperform on a relative basis against the MSCI ACWI Ex US TR.

3

The portfolio returns are achieved by strategically selecting 25 quality at a reasonable price (QARP) companies generating wealth for its shareholders.





# Objectives

## Setting a Way to Achieve Success

The portfolio is designed for potential investors with medium risk tolerance seeking exposure to International Equities by following a rigorous bottom-up factor based quantitative approach. The investment objectives of the portfolio are to:

- 1 Target long term capital appreciation among International Equities.
- 2 Consistently deliver performance over the MSCI ACWI Ex US TR.
- 3 Maximize tax efficiency by having a low portfolio turnover ratio.

# Characteristics

## Comparison of Smart Beta Strategies



**QARP** stands for Quality At Reasonable Price. We are finding companies of quality trading at attractive multiples that consistently generate wealth for its shareholders.

	Market Cap Weighted Index	Factor-Based International Equity
Risk management goals	None	None
Systematic rebalancing	Quarterly	Quarterly
Human input required	No	Supervised
Use of Leverage	None	None
Systematic Risk	Medium	Medium
Portfolio turnover	Low	Low
Investment process	None	Bottom-Up
Investment style	None	QARP
Market behavior	Trend Following	Relative return



# Methodology

## Quantitative Modeling



### HOW IT WORKS

A quantitative model systematically identifies mispriced stocks and attempts to deliver absolute and relative performance. Briefly, a ranking system sorts stocks from a universe based on pre-selected factors and the portfolio periodically buys the best ones and sells the ones in which conditions have deteriorated over time following various rules.

### WHY IT WORKS

By rigorously adhering to this stock selection framework based on a thoroughly tested ranking system, we are able to remove the emotional element of the investment process. 80% of portfolio managers cannot beat their benchmark because 1) it is difficult to do so and 2) they unconsciously let fear and greed emotions affect their investment decisions.

A close-up, black and white photograph of several interlocking metal gears. The gears are made of a polished, reflective metal, likely steel, and their teeth are sharply defined. The lighting creates strong highlights and shadows, emphasizing the three-dimensional texture of the gear teeth and the circular forms. A blue rectangular box is overlaid in the top-left corner, containing the word "HOW" in white, bold, sans-serif capital letters.

**HOW**

# Philosophy

## Factor-Based (FB)

### 1. QARP (Quality At Reasonable Price)

The end goal is to invest in quality companies trading at attractive multiples that consistently generate wealth for their shareholders.

### 2. Undexing

Our goal is to beat the market over the long run. We believe the best way to do it is to create a portfolio that looks very different from it.

### 3. Concentration

We are striving to achieve a balance between diversifying to remove specific risk yet not too much to avoid ending up mimicking the index.

### 4. Low Turnover

Excessive portfolio churning increases trading costs for an investor. It also means a lack of confidence, decisiveness and tax awareness.



# Overview

## Our Investment Process

### 6. Monitoring

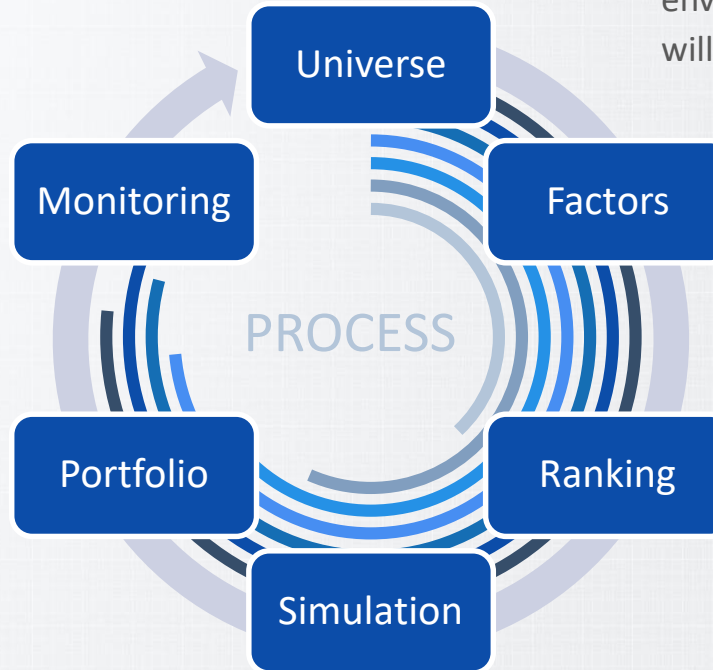
Monitor the portfolio, rebalance and carry out performance attribution.

### 5. Portfolio

Build the live portfolio by investing real money in the defined strategy.

### 4. Simulation

Form a strategy resulting from a mix of set rules and filters applied to the ranking system.



### 1. Universe

Define the investment environment in which we will pick our companies.

### 2. Factors

Design factors based on academic literature and innovative concepts.

### 3. Ranking

Create a composite of factors to rank companies from our defined universe.

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# Universe

## Our Investment Environment

### 33

**percent** largest market cap of the world, including developed and emerging markets, investable universe excluding US companies.

### 45

**\$million** of average daily liquidity for the past month expressed as price x volume.



### 425

**Stocks** coming from the US ADR universe and foreign companies listed on the US stock exchange directly.

### 25

**Stocks** in our portfolio, are chosen from the best ranking decile.

# Factor

## Our Selection Method

We backtested in our universe hundreds of factors individually to find the ones generating the most alpha over the last two investment cycles. We then select the best factors using four criteria shown below:





# Ranking

Based on Our Factor Selection

## Quality

### Operating Margin (OPMG) ↑

This ratio is calculated as the Operating Income divided by Total Revenue expressed as percentage.

What: Is the company generating strong operating margins?

Why: The interpretation of this ratio is that higher is always better.

### Gross Profit / Total Asset (GPTA) ↑

This ratio is calculated as the Gross Profits (Revenues minus COGS) to its Total Assets.

What: How much gross profit per unit of asset is the company making?

Why: The interpretation of this ratio is that higher is always better.

### Dividend Yield (DIVY) ↑

This ratio is calculated as the Projected Dividend divided by the current Price, multiplied by 100.

What: How much Dividend is paid by the company relative to its Price?

Why: The interpretation of this ratio is that higher is always better.

# Ranking

## Based on Our Factor Selection

Value

(1<sup>st</sup> part)

### Gross Profit / EV (GPEV) ↑

This ratio is calculated as the Gross Profits (Revenues minus COGS) divided by Enterprise Value (EV). EV is defined as Market Capitalization + Total Debt + Preferred Equity + Minority Interest – Cash & Equivalents.

What: How much Gross Profits per unit of EV is the company making?

Why: The interpretation of this ratio is that higher is always better.

### Operating Income / EV (OIEV) ↑

This ratio is calculated as the Operating Income After Depreciation divided by Enterprise Value (EV). EV is defined as Market Capitalization + Total Debt + Preferred Equity + Minority Interest – Cash & Equivalents.

What: How much Operating Income per unit of EV is the company making?

Why: The interpretation of this ratio is that higher is always better.

### Free Cash Flow / EV (FCEV) ↑

This ratio is calculated as the Free Cash Flows divided by Enterprise Value (EV). EV is defined as Market Capitalization + Total Debt + Preferred Equity + Minority Interest – Cash & Equivalents.

What: How much Free Cash Flow per unit of EV is the company making?

Why: The interpretation of this ratio is that higher is always better.

# Ranking

## Based on Our Factor Selection

Value

(2<sup>nd</sup> part)

### Forward Earnings / EV (FEEV) ↑

This ratio is calculated as the Next Fiscal Year Forward Earnings divided by Enterprise Value (EV). EV is defined as Market Capitalization + Total Debt + Preferred Equity + Minority Interest – Cash & Equivalents.

What: How much Forward Earnings per unit of EV is the company making?

Why: The interpretation of this ratio is that higher is always better.

### Price / Earnings Growth (PEGR) ↓

This ratio is calculated as the Price / Earnings divided by the long term growth rate. It represents a simple rule of thumb: “The Price / Earnings of any company that’s fairly priced will equal its growth rate”.

What: What is the position of the Price / Earnings from its Long Term Growth?

Why: The interpretation of this ratio is that lower is always better.

### Price / Earnings Relative (PERE) ↓

This ratio is calculated as the trailing twelve month Price / Earnings Ratio divided by the 5-Year Price / Earnings Low. This ratio returns a value that will at least be equal or higher than 1.

What: What is the position of the current P/E from its historical 5-Year low?

Why: The interpretation of this ratio is that lower is always better.

# Ranking

## Based on Our Factor Selection

### Momentum

#### Price Momentum (PMOM) ↑

This ratio is calculated as 50-Day Volume Weighted Average divided by the 100-Day Volume Weighted Average. This measure can be seen as the medium-term slope of the price movement.

What: Is the company's price trading in a medium-term uptrend?

Why: The interpretation of this ratio is that higher is always better.

#### Volume Momentum (VMOM) ↑

This ratio is calculated as last week (5-Day) Average Trading Volume Minus last semester (126-Day) Average Trading Volume divided by last semester (126-Day) Average Trading Volume.

What: Has the company's trading volume activity increased recently?

Why: The interpretation of this ratio is that higher is always better.

#### Short Term Pullback (PULL) ↑

This ratio is calculated as the 11-Day Exponential Moving Average dividend by the Current Price.

What: Has the company's price experienced a short term pullback?

Why: The interpretation of this ratio is that higher is always better.



# Simulation

## Our Portfolio Rules and Filters

### G General Rules

- The portfolio is long only and without any leverage whatsoever.
- Approximately 25 stocks are held with 30% max weight deviation:  
Avg W: 4.0% | Min W: 2.8% | Max W: 5.2%
- Transactions are recorded at the average high | low of trade day.
- Rebalancing frequency is quarterly and sent before market open.
- Variable slippage (average daily \$ traded) is taken into account.

### B Buy Rules

- No penny stocks are allowed. In other words, no stocks below \$1.00 are part of the simulation.
- Shareholder's Equity Total must be above zero at inclusion.
- Country Inflation Rate < 7.5%
- Country Interest Rate < 7.5%
- Country not facing geopolitical nor major economical turmoil (i.e. civil war, corruption, chronic deflation, debt default, etc.)

### S Sell Rules

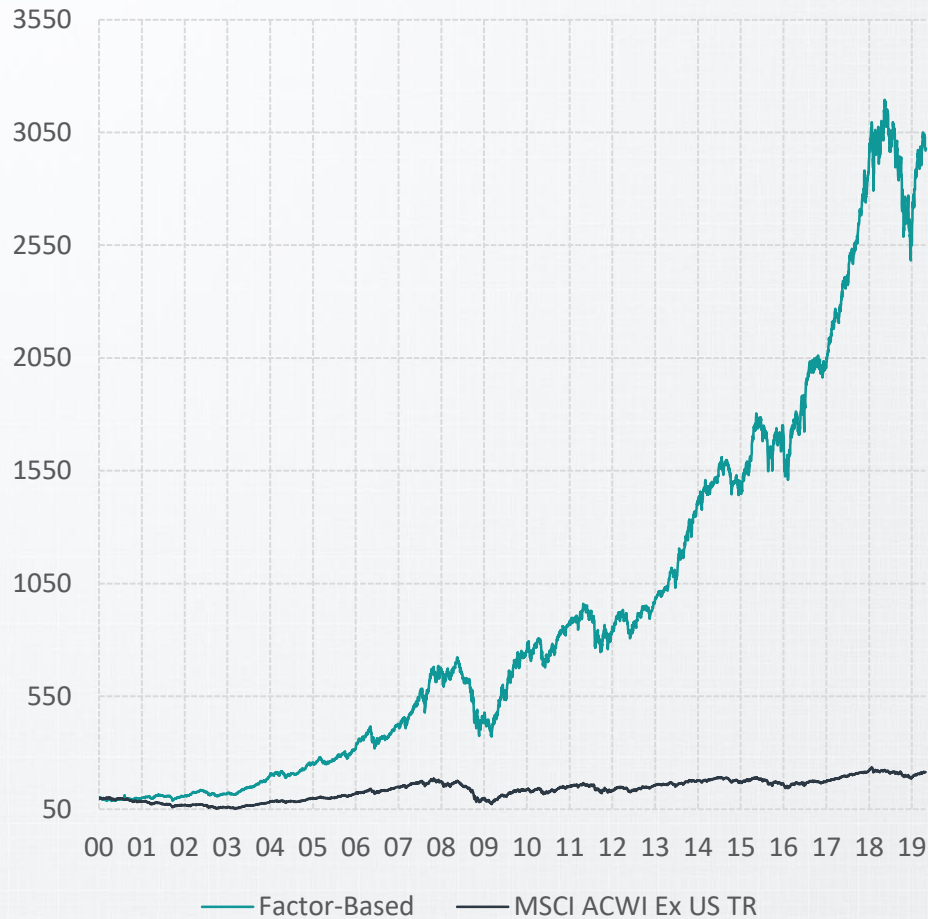
- Sell stocks when its ranking falls below three deciles.
- Trim stocks weights back to 7.5% and below if their individual weights in the portfolio goes above 7.5%.
- We force positions in the universe if they are replaced inside our defined universe.
- Sell stocks with weight below 2.5% and if it's been more than 252 trading days.





# Portfolio

## Historical Performance



## Key Portfolio Statistics

**Annualized Return (%)**  
(MSCI ACWI Ex US TR= 4.0) 19.2

**Maximum Drawdown (%)**  
(MSCI ACWI Ex US TR= -60.6) -48.5

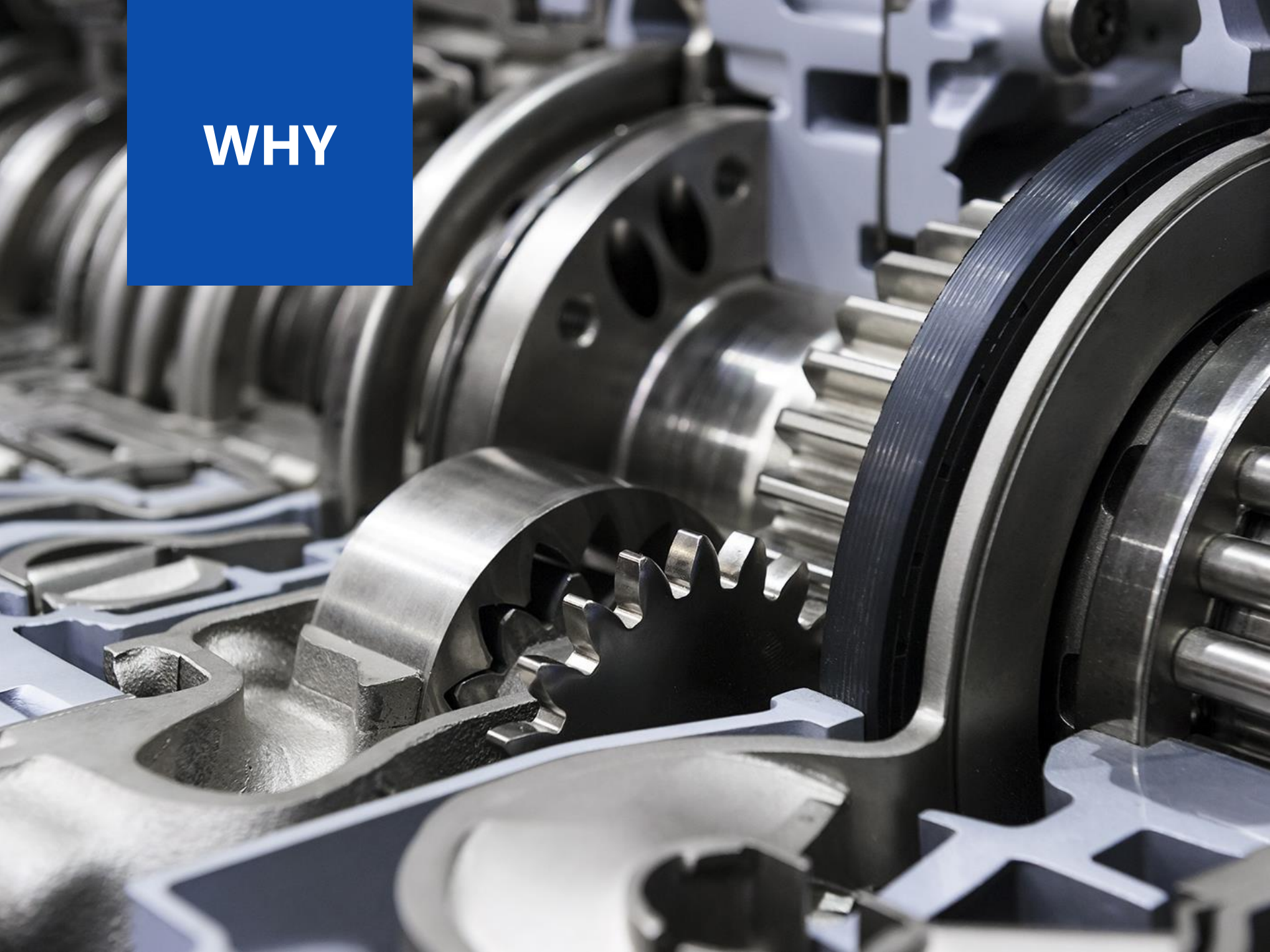
**Portfolio Turnover (%)**  
(MSCI ACWI Ex US TR= 7.4) 70.9

**Index Correlation**  
(MSCI ACWI Ex US TR= 1.00) 0.88

**Sharpe Ratio**  
(MSCI ACWI Ex US TR= 0.22) 1.02

Since Inception (January 1<sup>st</sup>, 2000)

**WHY**





# Statistics

## Calendar Performance

### Yearly

Calendar Returns	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Factor-Based	-0.8	9.0	9.0	68.2	30.3	22.1	36.0	56.9	-32.7	64.6
MSCI ACWI Ex US TR	-15.1	-19.5	-14.7	41.4	21.4	17.1	27.2	17.1	-45.2	42.1
Difference	14.3	28.5	23.7	26.8	9.0	4.9	8.8	39.8	12.6	22.5

Calendar Returns	2010	2011	2012	2013	2014	2015	2016	2017	2018	YTD
Factor-Based	17.6	-4.3	15.3	46.6	4.6	16.5	16.0	43.3	-10.4	15.3
MSCI ACWI Ex US TR	11.6	-13.3	17.4	15.8	-3.4	-5.3	5.0	27.8	-13.8	13.4
Difference	6.0	9.0	-2.1	30.8	8.0	21.7	11.0	15.6	3.4	1.9

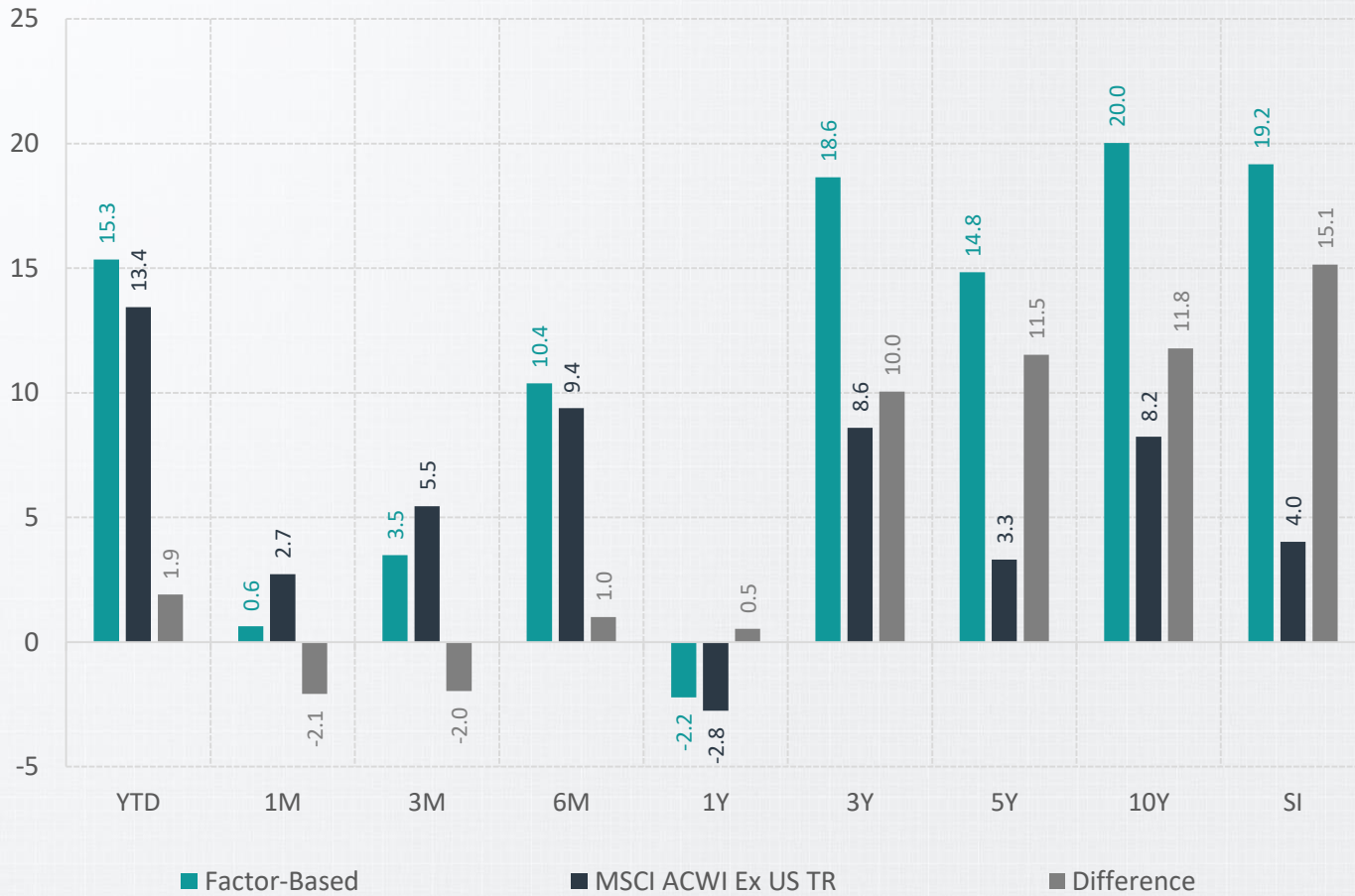
### Monthly

Calendar Returns	05-18	06-18	07-18	08-18	09-18	10-18	11-18	12-18	01-19	02-19	03-19	04-19
Factor-Based	2.2	-3.7	3.3	-3.5	-2.4	-7.5	1.0	-5.2	11.5	2.1	0.7	0.6
MSCI ACWI Ex US TR	-2.2	-1.8	2.4	-2.1	0.5	-8.1	1.0	-4.5	7.6	2.0	0.7	2.7
Difference	4.4	-1.8	0.8	-1.4	-2.9	0.6	0.0	-0.7	3.9	0.2	0.0	-2.1



# Statistics

## Trailing Performance





# Statistics

## Return & Risk Measurements

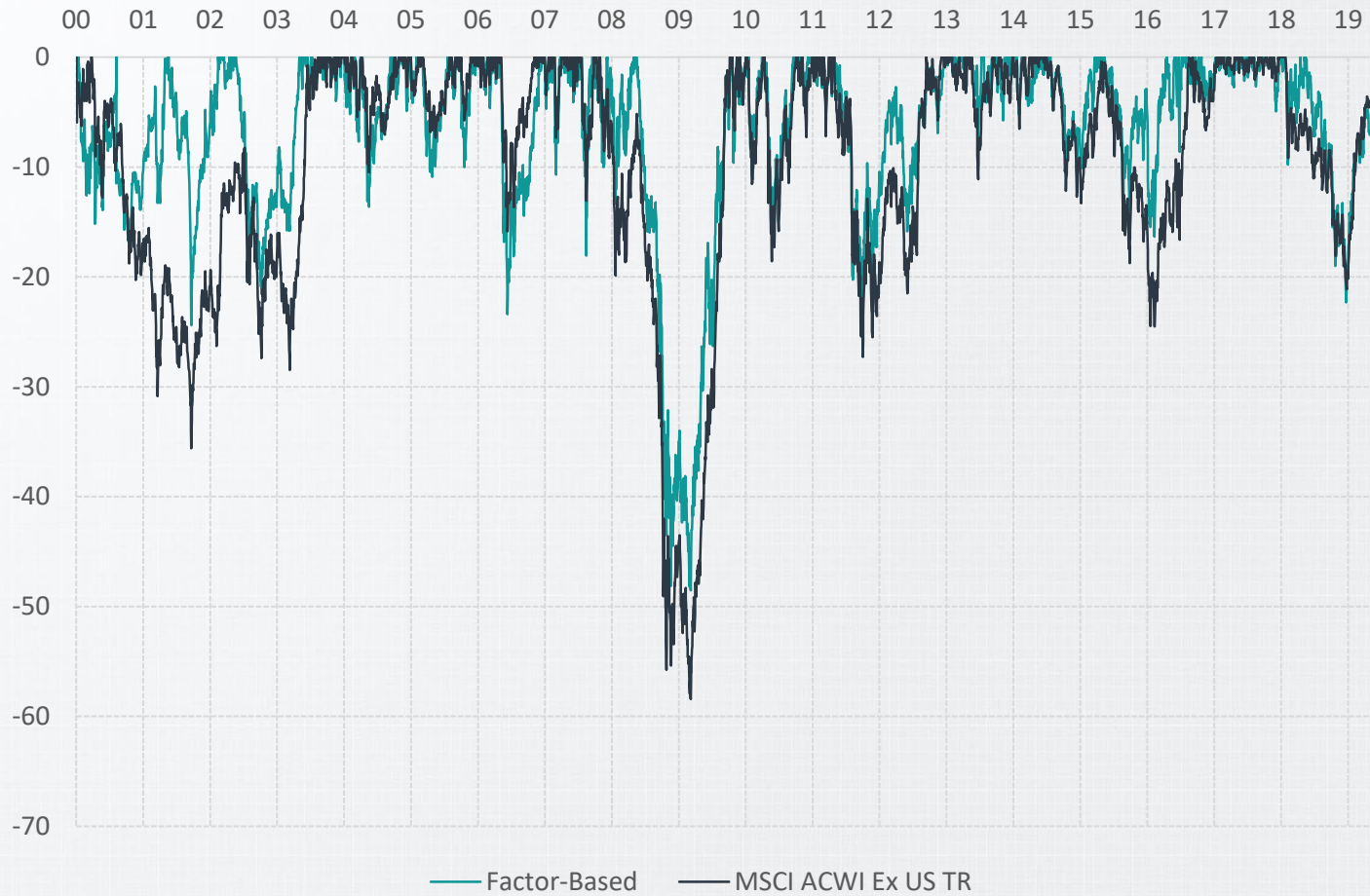
Trailing 3 Year	Factor-Based	MSCI ACWI Ex US TR	Difference
Annualized Return (%)	18.6	8.6	10.0
Standard Deviation (%)	12.0	10.5	1.5
Max Drawdown (%)	-22.3	-21.1	-1.2
Portfolio Turnover	70.9	7.4	63.5
Sharpe Ratio	1.36	0.78	0.58
Sortino Ratio	1.84	1.10	0.74
Index Correlation	0.87	1.00	-0.13
R-Squared	0.75	1.00	-0.25
Beta	0.99	1.00	-0.01
Alpha (%) (Annualized)	10.05	0.00	10.05

Since Inception	Factor-Based	MSCI ACWI Ex US TR	Difference
Annualized Return (%)	19.2	4.0	15.1
Standard Deviation (%)	17.1	16.8	0.2
Max Drawdown (%)	-48.5	-60.6	12.1
Portfolio Turnover	70.9	7.4	63.5
Sharpe Ratio	1.02	0.22	0.80
Sortino Ratio	1.40	0.29	1.11
Index Correlation	0.88	1.00	-0.12
R-Squared	0.78	1.00	-0.22
Beta	0.89	1.00	-0.11
Alpha (%) (Annualized)	15.14	0.00	15.14



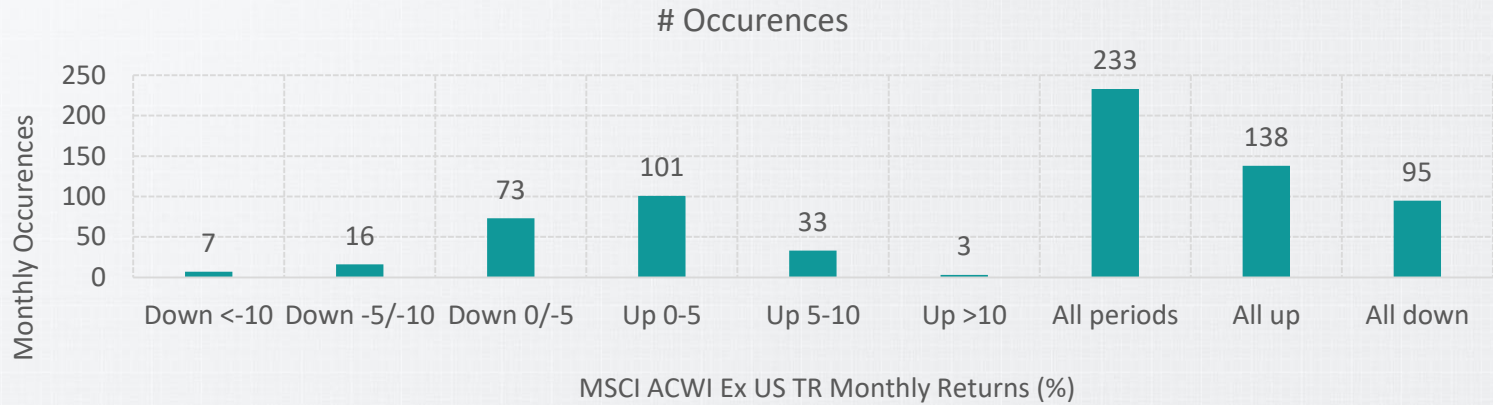
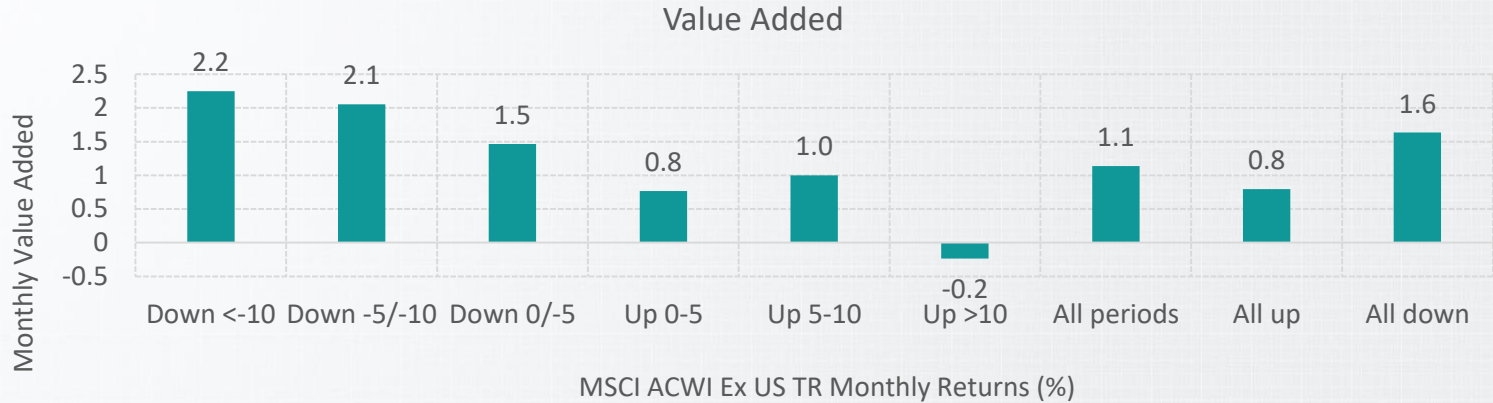
# Statistics

## Rolling Maximum Drawdown



# Statistics

## Outperformance in Different Market Conditions





# Characteristics

## Top Ten Holdings & Fundamentals

Ticker	Weight (%)	Sector
BHP	6.2	Materials
CEO	5.7	Energy
DEO	5.1	Staples
MOMO	5.1	Telecom
TEL	5.1	Info Tech
JHG	5.1	Financials
WNS	5.1	Info Tech
NVO	4.7	Health Care
RIO	4.4	Materials
YY	4.4	Telecom

Median	Factor-Based	MSCI ACWI Ex US TR
Market Cap (\$B)	50.8	11.1
Price / Earnings	10.4	13.6
Price / Book	2.5	1.9
Price / Sales	2.4	1.6
Price / Cash Flow	9.0	10.3
Return on Equity	18.5	11.0
Dividend Yield	3.0	1.8
5Y EPS Growth	7.8	5.7
Debt / Equity	0.3	0.6
5Y Beta	1.31	1.00





# Allocation

## Sector Weights & Benchmark Deviations

Weights	Factor-Based	MSCI ACWI Ex US TR	Deviations
Materials	18.6	7.6	11.0
Info Tech	18.0	8.4	9.7
Telecom	16.2	7.1	9.1
Health Care	14.8	8.4	6.4
Energy	9.1	7.4	1.7
Discretionary	10.8	11.1	-0.4
Utilities	0.0	3.3	-3.3
Staples	5.1	9.9	-4.8
Industrials	0.0	11.7	-11.7
Financials	5.1	25.1	-20.0

**WHO**



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# Who We Are

Factor-Based (FB)



## IN A NUTSHELL...

Factor-Based (FB) is a financial research firm that specializes mostly in equities for private, investment advisors and institutional clients. We are dedicated to produce exceptional risk adjusted returns for our investors by strictly adhering to factor-based investing methods.

# Disclosures

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