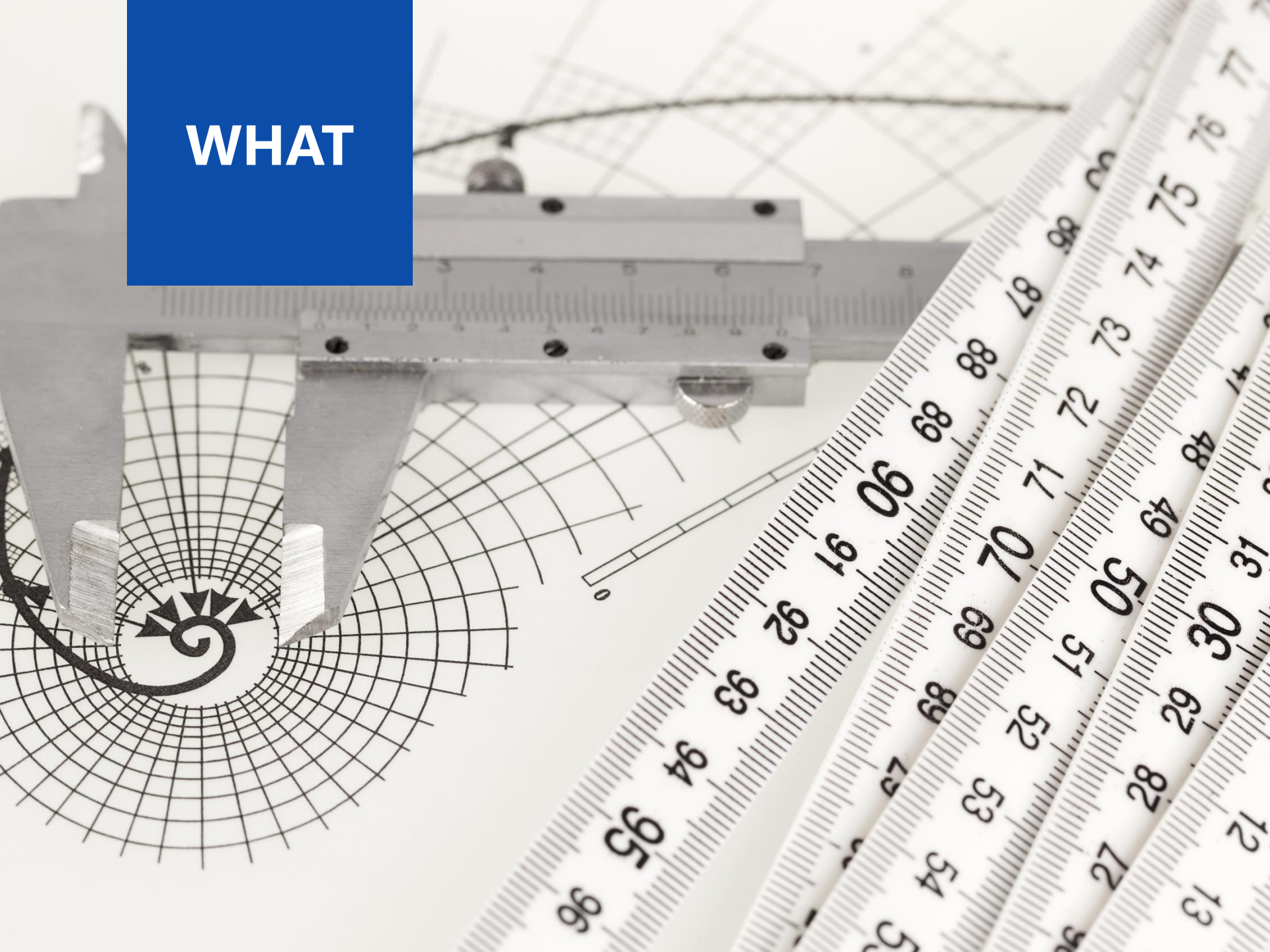# INTERNATIONAL EQUITY

FACTOR-BASED MODEL PORTFOLIO STRATEGY

2020/07

WHAT

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 17.5% 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.

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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.

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Characteristics

Comparison of Smart Beta Strategies

	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

!

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

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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.

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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.

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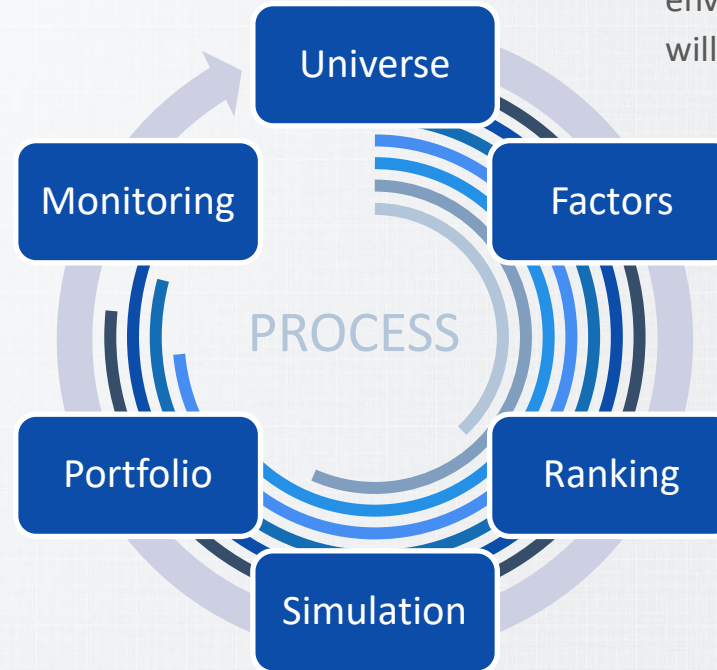
Overview

Our Investment Process

1. Universe

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

6. Monitoring

Monitor the portfolio, rebalance and carry out performance attribution.

2. Factors

Design factors based on academic literature and innovative concepts.

5. Portfolio

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

3. Ranking

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

4. Simulation

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

Universe

Factors

Ranking

Simulation

Portfolio

Monitoring

PROCESS

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.

WORLD

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.

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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 criterions shown below:

Single Factor: P/E Ratio (TTM)
Hypothesis: Lower is better
Period tested: 1999-2017

#4 Low Portfolio Turnover

#3 Stable Deciles

#2 Rising Slope

#1 High Top Decile

Annualized Returns

S&P 500 TR · 0_10 · 10_20 · 20_30 · 30_40 · 40_50 · 50_60 · 60_70 · 70_80 · 80_90 · 90_100

Highest P/E Decile ← Universe Ranked by Decile → Lowest P/E Decile

Ranking

Based on Our Factor Selection

Q uality

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

(1st 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

(2nd 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.

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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.

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Portfolio

Historical Performance

Factor-Based   MSCI ACWI Ex US TR
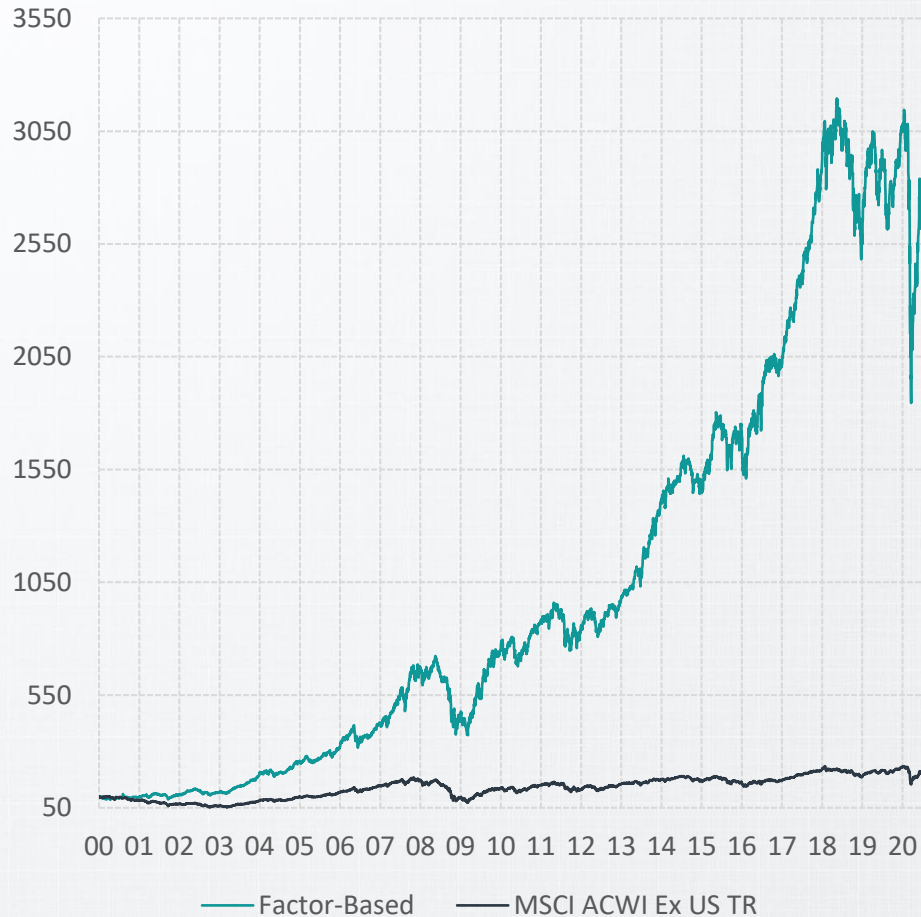
Key Portfolio Statistics

Annualized Return (%)
(MSCI ACWI Ex US TR= 3.8)   17.5

Maximum Drawdown (%)
(MSCI ACWI Ex US TR= -60.6)   -48.5
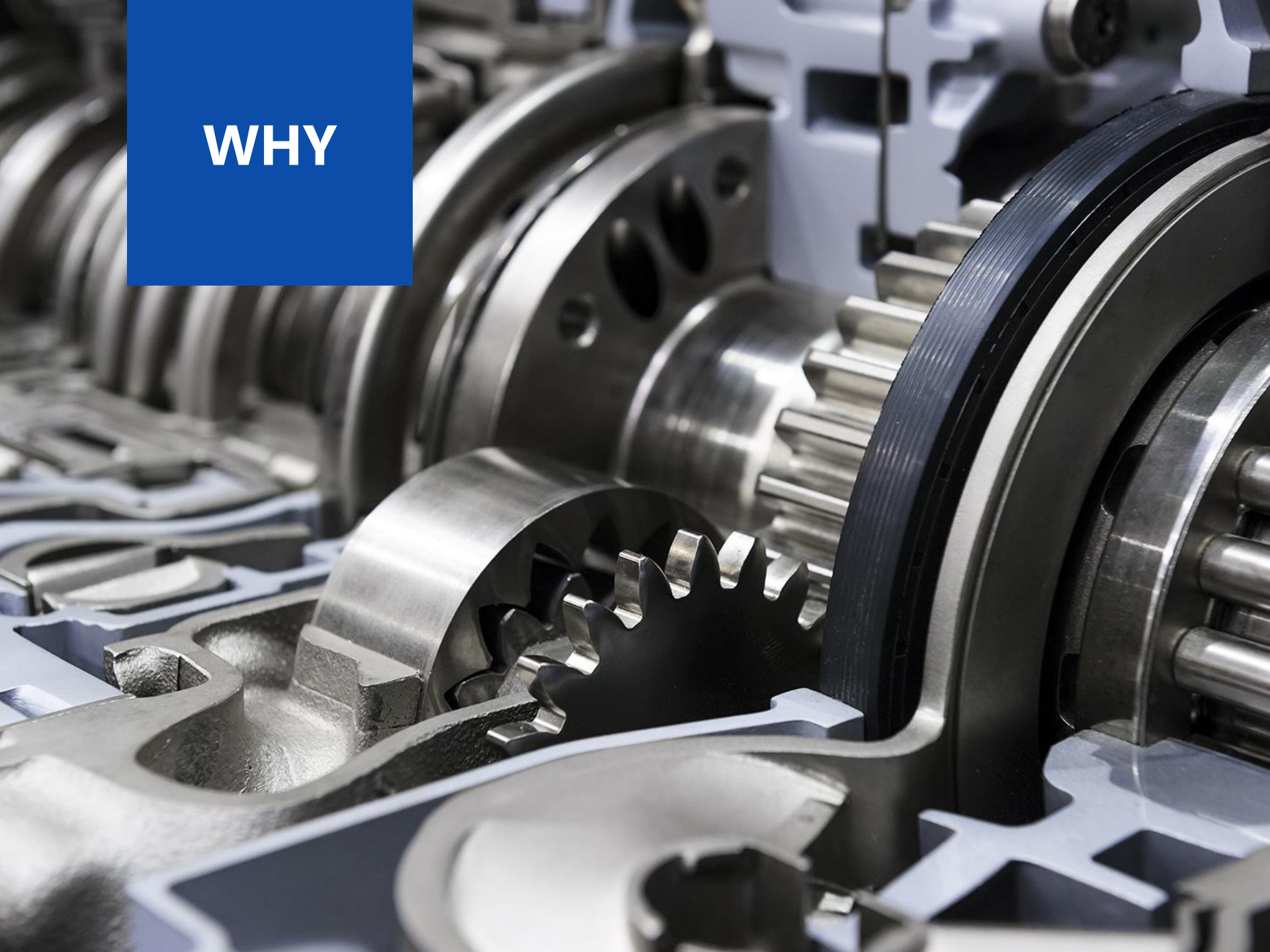
Portfolio Turnover (%)
(MSCI ACWI Ex US TR= 7.4)   70.9

Index Correlation
(MSCI ACWI Ex US TR= 1.00)   0.89

Sharpe Ratio
(MSCI ACWI Ex US TR= 0.21)   0.91

Since Inception (January 1st, 2000)

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Statistics

Calendar Performance

Yearly

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

Returns (%)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Factor-Based	17.6	-4.3	15.3	46.6	4.6	16.5	16.0	43.3	-10.4	18.9	-8.8
MSCI ACWI Ex US TR	11.6	-13.3	17.4	15.8	-3.4	-5.3	5.0	27.8	-13.8	22.1	-6.7
Difference	6.0	9.0	-2.1	30.8	8.0	21.7	11.0	15.6	3.4	-3.2	-2.1

Monthly

Returns (%)	08/19	09/19	10/19	11/19	12/19	01/20	02/20	03/20	04/20	05/20	06/20	07/20
Factor-Based	-4.3	4.3	1.5	3.3	4.1	-3.2	-8.8	-19.4	11.2	8.1	2.2	4.29
MSCI ACWI Ex US TR	-3.1	2.6	3.5	0.9	4.4	-2.7	-7.9	-14.4	7.6	3.3	4.6	4.50
Difference	-1.2	1.7	-2.0	2.4	-0.3	-0.5	-0.9	-5.0	3.6	4.8	-2.3	-0.2

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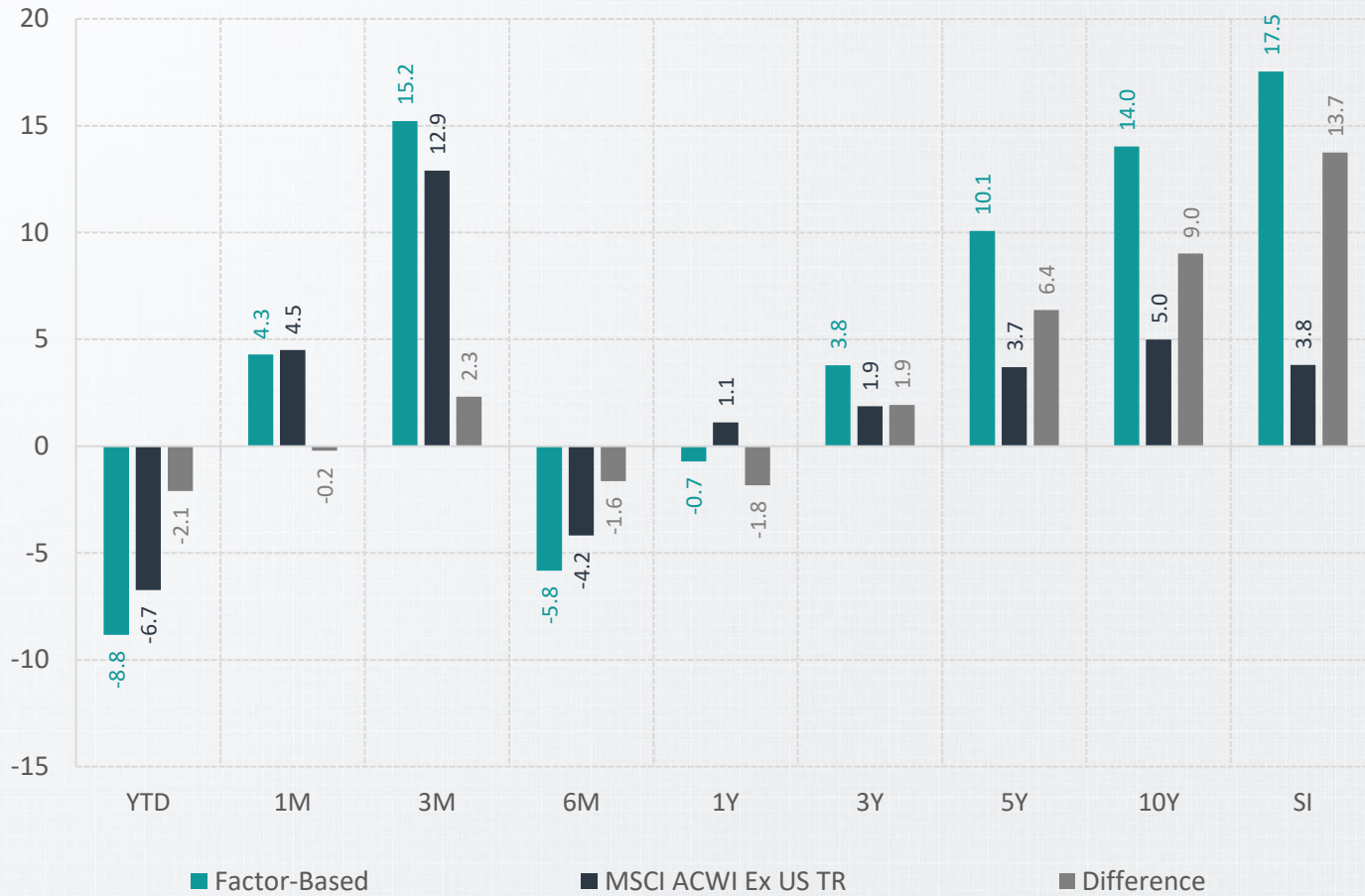
Statistics

Return & Risk Measurements

Trailing 3 Year	Factor-Based	MSCI ACWI Ex US TR	Difference
Annualized Return (%)	3.8	1.9	1.9
Standard Deviation (%)	20.5	15.9	4.6
Max Drawdown (%)	-42.2	-34.4	-7.9
Portfolio Turnover	70.9	7.4	63.5
Sharpe Ratio	0.27	0.17	0.11
Sortino Ratio	0.32	0.21	0.11
Index Correlation	0.94	1.00	-0.06
R-Squared	0.89	1.00	-0.11
Beta	1.21	1.00	0.21
Alpha (%) (Annualized)	1.93	0.00	1.93

Since Inception	Factor-Based	MSCI ACWI Ex US TR	Difference
Annualized Return (%)	17.5	3.8	13.7
Standard Deviation (%)	17.9	17.1	0.8
Max Drawdown (%)	-48.5	-60.6	12.1
Portfolio Turnover	70.9	7.4	63.5
Sharpe Ratio	0.91	0.21	0.70
Sortino Ratio	1.22	0.27	0.94
Index Correlation	0.89	1.00	-0.11
R-Squared	0.79	1.00	-0.21
Beta	0.93	1.00	-0.07
Alpha (%) (Annualized)	13.75	0.00	13.75

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Statistics

Rolling Maximum Drawdown

Factor-Based ———— MSCI ACWI Ex US TR

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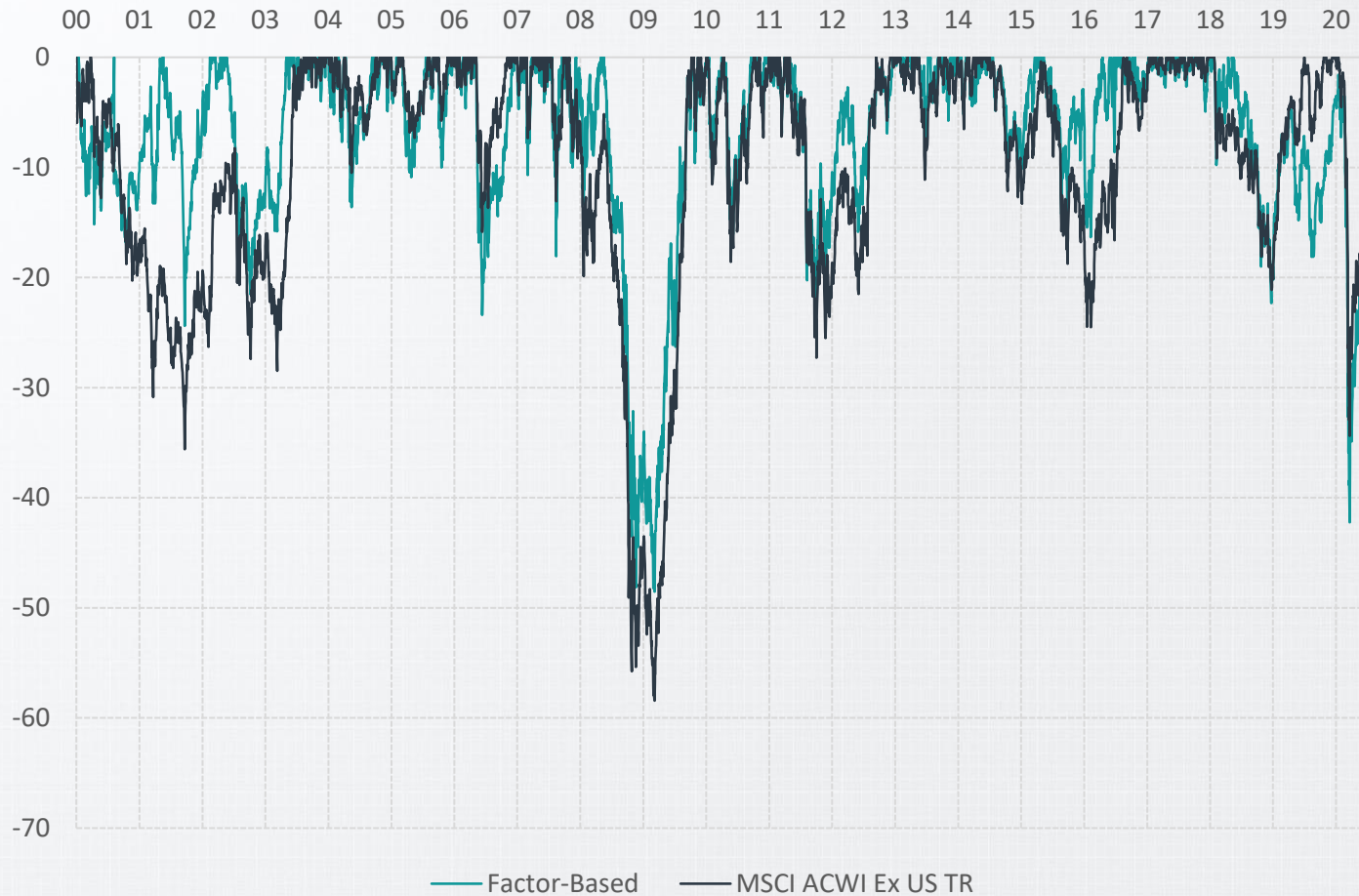
Statistics

Outperformance in Different Market Conditions

Value Added

Occurences
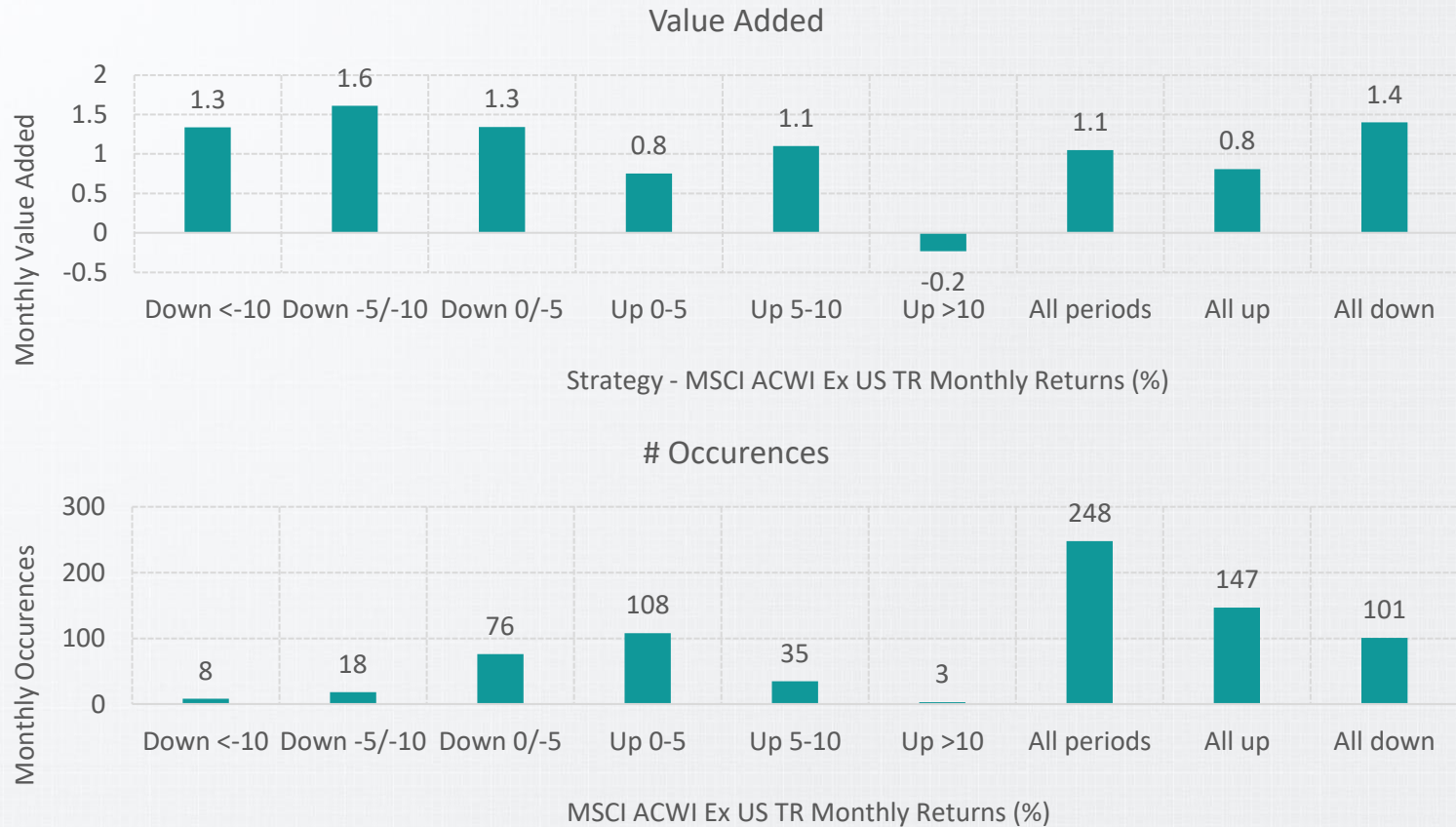
Characteristics

Top Ten Holdings & Fundamentals

Ticker	Weight (%)	Sector
SEDG	8.8	Info Tech
NVO	6.6	Health Care
BHP	6.6	Materials
RHHBY	5.5	Health Care
TEL	5.1	Info Tech
GRMN	5.0	Discretionary
RIO	4.9	Materials
DEO	4.8	Staples
JHG	4.5	Financials
LOGI	4.5	Info Tech

Median	Factor-Based	MSCI ACWI Ex US TR
Market Cap ($B)	58.5	10.4
Price / Earnings	16.2	15.9
Price / Book	3.7	2.3
Price / Sales	2.9	1.7
Price / Cash Flow	17.1	11.9
Return on Equity	19.1	7.6
Dividend Yield	2.7	0.8
5Y EPS Growth	7.3	4.7
Debt / Equity	0.4	0.6
5Y Beta	1.01	1.00

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Allocation

Sector Weights & Benchmark Deviations

Weights	Factor-Based	MSCI ACWI Ex US TR		Deviations
Info Tech	28.4	11.0	17.4	
Health Care	20.7	10.7	10.0	
Materials	13.4	7.6	5.8	
Utilities	4.2	3.5	0.7	
Energy	3.5	4.8	-1.3	
Discretionary	8.6	12.6		-4.0
Industrials	6.8	11.4		-4.6
Telecom	3.1	7.6		-4.5
Staples	4.8	10.0		-5.2
Financials	4.5	21.0		-16.4

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WHO

Who We Are

Factor-Based (FB)

Factor-Based (FB) is a financial research firm that specializes in equities and bonds for 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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