

Introduction to Factors by MSCI

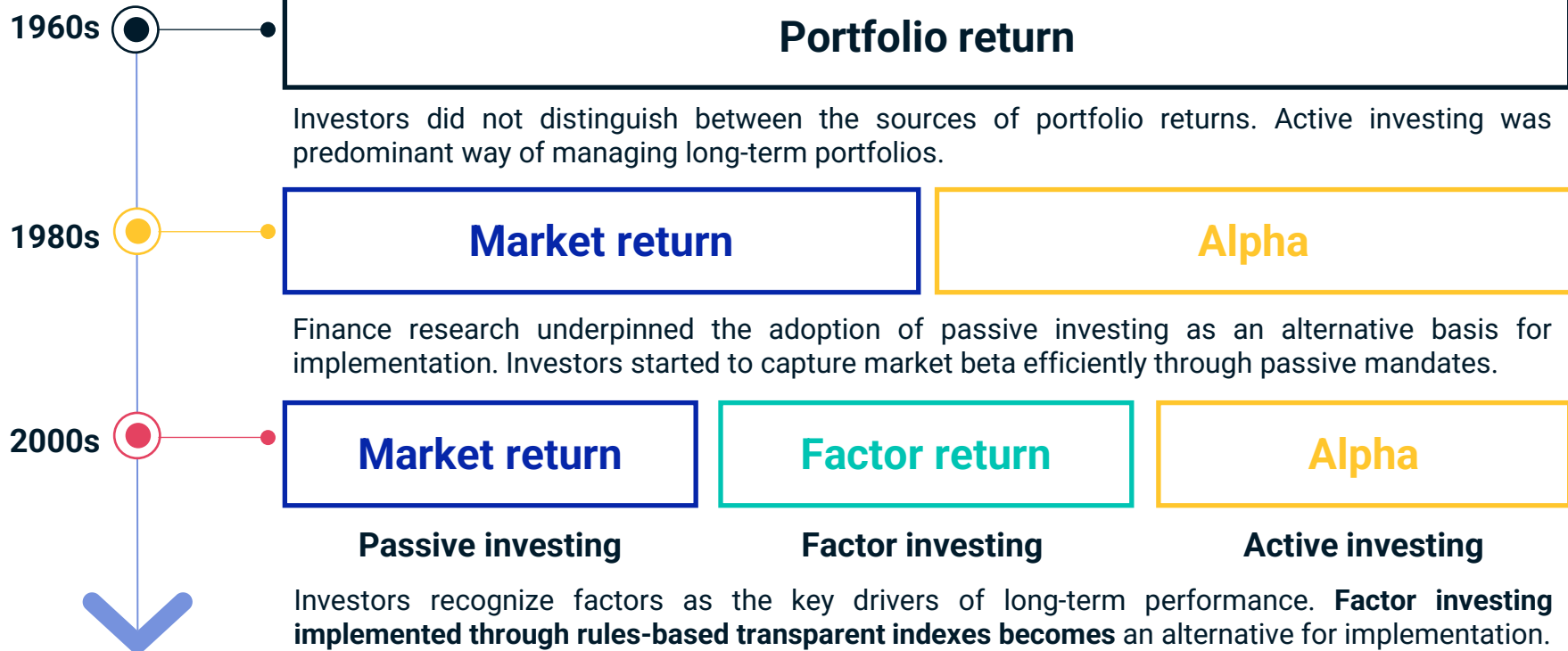
2021

Background on Factors

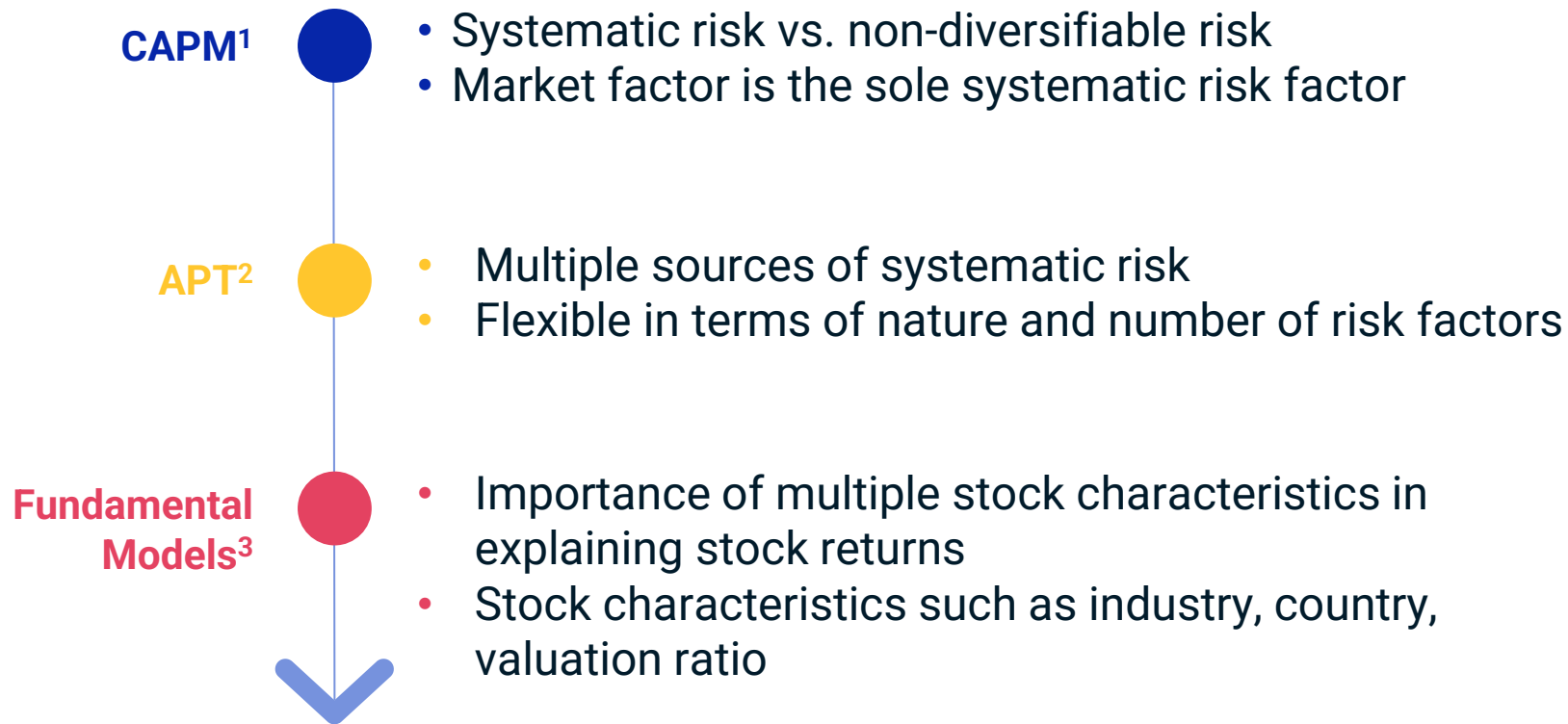


HISTORY AND FOUNDATIONS

Evolution in the understanding of portfolio returns



Origins of Factors: what drives stock returns

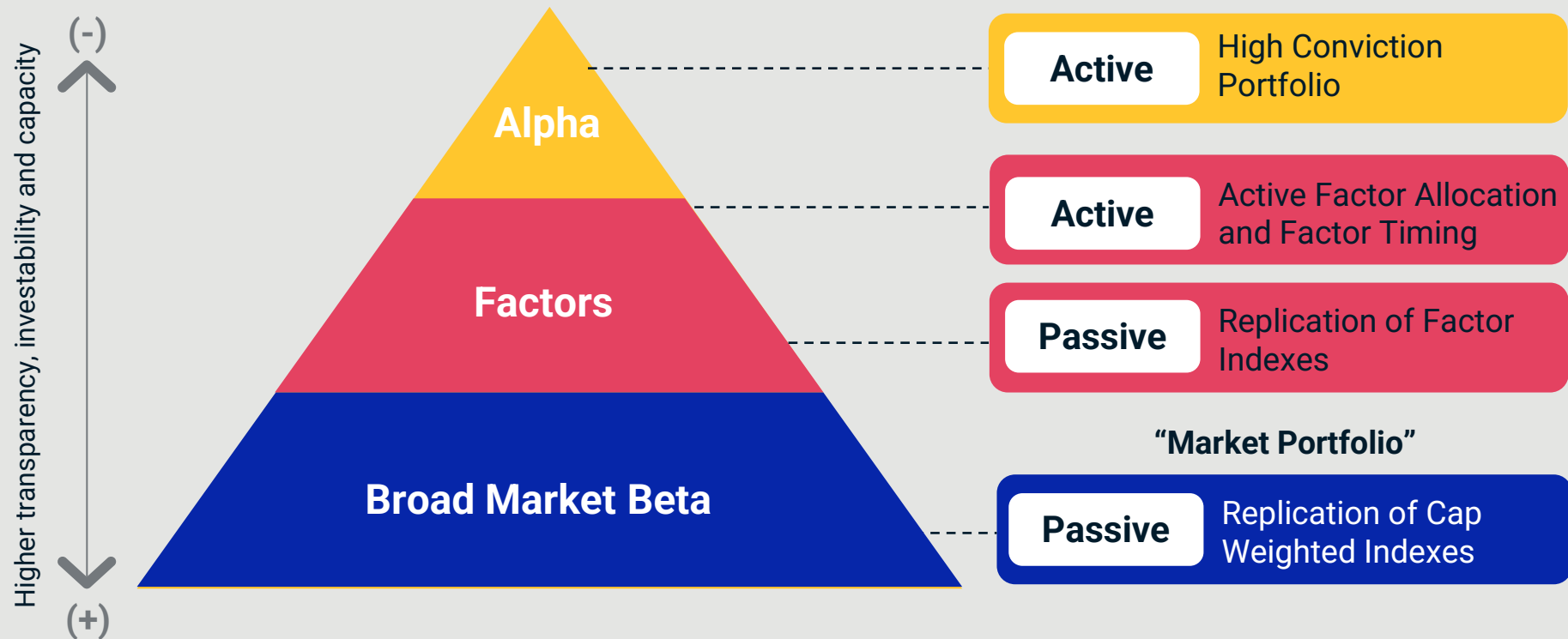


1. [1964] Capital Asset Pricing Model, William Sharpe.

2. [1976] The Arbitrage Theory of Capital Asset Pricing, Stephen Ross.

3. [1976] Common factors in security returns: Microeconomic determinants and macroeconomic correlates, Rosenberg, Barr and Vinay Marathe.

Harvesting sources of investment returns



Introducing Factors

WHAT ARE FACTORS?, HOW DO THEY WORK? AND WHY INCORPORATE THEM IN THE INVESTMENT PROCESS?

What are Factors?

A factor is any characteristic that can explain the risk and return performance of an asset

Factors represent some of the most intuitive and widely used investment concepts including:



VOLATILITY



YIELD



QUALITY



MOMENTUM



VALUE



SIZE



GROWTH

Evolution of Factor investing



Originally, factors were used to **aggregate risk and attribute performance** across dimensions through the Barra Risk Model



Today, they are widely used in **security selection** across equity and fixed income portfolios

Basic criteria to define a Factor

- 1 Have **explanatory power**
- 2 **Distinguish returns** (i.e. stocks that have high value perform differently than those with low value)
- 3 Represent **intuitive market themes** or concepts (i.e. high quality)

Style Factors: description of flagship Factor groups



Low volatility
Lower risk stocks



Captures excess returns to stocks with lower-than-average volatility, beta, and/or idiosyncratic risk



Dividend yield
Cash flow paid out



Captures excess returns to stocks that have higher-than-average dividend yields



Quality
Sound balance sheet stocks



Captures excess returns to stocks that are characterized by low debt, stable earnings growth, and other "quality" metrics



Momentum
Rising stocks



Reflects excess returns to stocks with stronger past performance



Low size (small cap)
Smaller companies



Captures excess returns of smaller firms (by market capitalization) relative to their larger counterparts



Value
Relatively inexpensive stocks



Captures excess returns to stocks that have low prices relative to their fundamental value



Growth
Measure of change in sales + earnings



Measures company growth prospects using historical earnings, sales and predicted earnings



ESG
Stock resilience to long-term ESG risks



Measures the impact of ESG exposures on a stock's risk and returns as captured by MSCI ESG scores

How to identify Factors?

Additionally, all factors should meet and hold the following criteria:

1

Persistent



Across long periods of time and different economic regimes

2

Pervasive



Across countries, regions, sectors, and even asset classes

3

Robust



For various definitions (e.g., there is a value premium whether it is measured by price-to-book, earnings, etc.)

4

Investable



Not just on paper, but also after considering actual implementation issues, such as trading costs

5

Intuitive



There are logical risk-based or behavioral-based explanations for its premium and why it should continue to exist

What are the main Factor categories?

Passive investing

Market return

Factor investing

Factor return

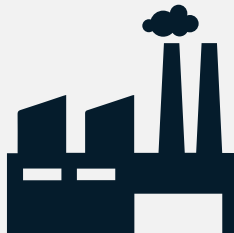
Active investing

Alpha

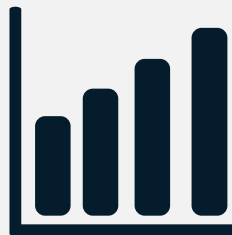
Factor categories



Country



Industry



Style



Currency

“Approximately **70% of all active returns** on the overall fund can be explained by exposures to **systematic factors**”

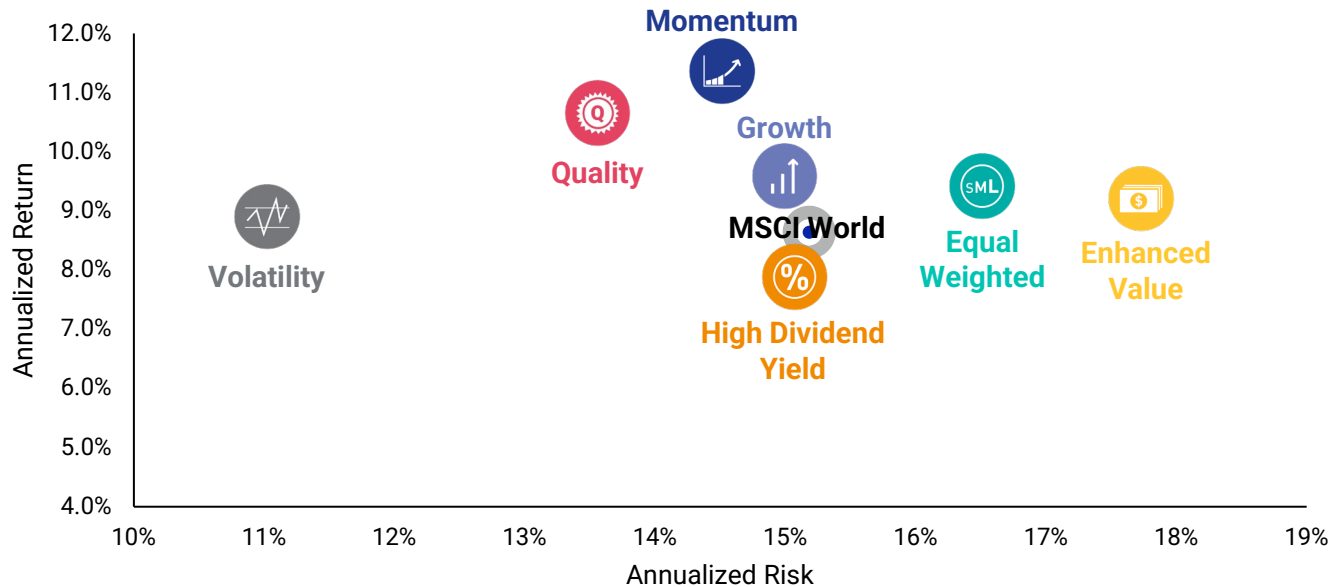
Ang, et.al: Report on Norway's Government Pension Fund

Why Factor investing?

Investors have been attracted historically to factors in order to:

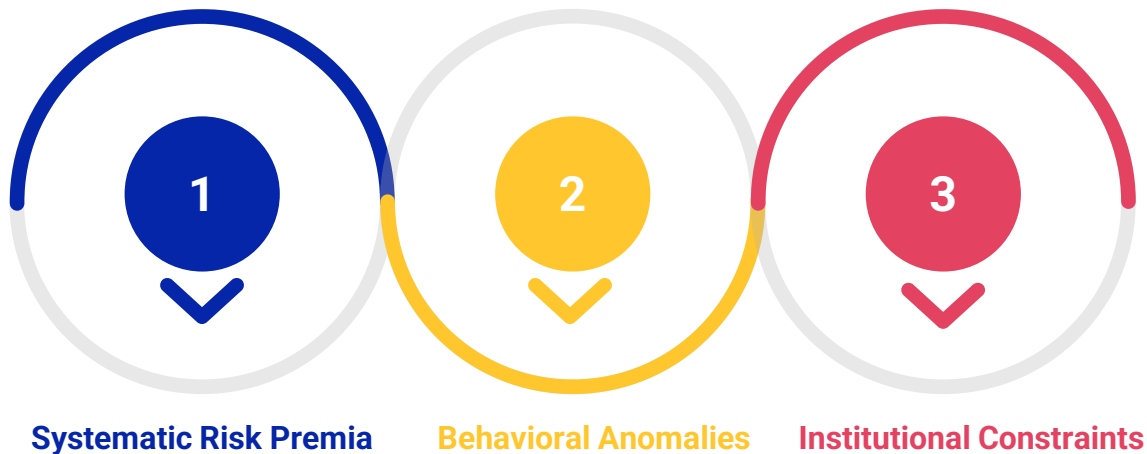
- 1 Capture excess returns
- 2 Manage Volatility
- 3 Increase Yield

Long Term Factor Performance
From 2001 to 2021



Why do Factors work?

Factors have been observed to derive **persistent** premia from the following sources:



Investor rationale



Avoid stocks that are highly correlated with the economic cycle

Systematically undervalue companies with certain characteristics

Unable to short stocks or leverage the portfolio

Stock effect



Higher risk exposure earns a risk premia

Mis-pricing earns higher returns

These frictions may earn higher return

Implementing Factors

A

Factor based strategies have historically produced **long-term outperformance** but have also experienced significant multi-year **periods of underperformance**

B

Allocating to multiple factors may provide investors with a transparent, flexible and cost-effective way to seek **diversified exposure** to a portfolio of risk premia

C

Factor investing requires strong **investment beliefs** that the historical premium will persist and **governance structures** to withstand underperformance periods

Allocation to Factor Strategies



Investment
Horizon



Investment
Beliefs



Governance
Structures



Diversified
Exposure

Factors in MSCI

PRODUCT OVERVIEW

Market and country Factors

Explicit market factor for each market segment:

DM
ex US Developed Markets
ex-US Equity

EM Emerging Markets Equity

US US Equity



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Country factors

Dynamic exposures on
Country factors capture
sensitivities to the
factor returns

DM ex US

Australia
Austria
Belgium
Canada
Denmark
Finland
France
Germany
Hong Kong
Ireland
Israel
Italy
Japan
Netherlands
New Zealand
Norway
Portugal
Singapore
Spain
Sweden
Switzerland
United Kingdom

EM

Argentina	Jamaica	Poland
Bahrain	Jordan	Qatar
Bangladesh	Kazakhstan	Romania
Bosnia & Herz.	Kenya	Russia
Brazil	Kuwait	Saudi Arabia
Bulgaria	Latvia	Serbia
Chile	Lebanon	Slovakia
China	Lithuania	Slovenia
China	Macedonia	South Africa
International	Malaysia	South Kora
Colombia	Malta	Sri Lanka
Croatia	Mauritius	Taiwan
Cyprus	Mexico	Thailand
Czech Republic	Montenegro	Trinidad &
Egypt	Morocco	Tobago
Estonia	Namibia	Tunisia
Ghana	Nigeria	Turkey
Greece	Oman	Ukraine
Hungary	Pakistan	UAE
Iceland	Palestine	Vietnam
Indonesia	Peru	Zambia
Ivory Coast	Philippines	

US

United States

Industry Factors

- Separate Industry factors for each market segment
 - Developed Markets ex-US and US markets use same as GEMLT model (45 industry factors)
 - Emerging Markets segment uses same as EMM1 (26 industry factors)
- Multi-Industry membership to model a realistic representation of the business of the company
- Dynamic exposures capture sensitivities of returns to the industry factor return



ENERGY



MATERIALS



INDUSTRIALS



CONSUMER
DISCRETIONARY



CONSUMER
STAPLES



HEALTH
CARE



FINANCIALS



INFORMATION
TECHNOLOGY



COMMUNICATION
SERVICES



UTILITIES



REAL
ESTATE

Style Factors

- 16 style factors in each of the three market segments
 - Each segment is standardized across its market estimation universe
- Style factors are the same used in Barra Global Model for Long-Term Investors
- Systematic Equity Strategy factors incorporated



VOLATILITY

Beta

Residual volatility



YIELD

Dividend yield



QUALITY

Leverage

Earnings variability

Earnings quality

Investment quality

Profitability



MOMENTUM

Momentum



VALUE

Book-to-price

Earnings yield

Long-term reversal



SIZE

Size

Mid cap



GROWTH

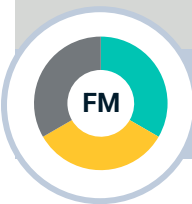
Growth



LIQUIDITY

Liquidity

Factor Mix: top-down construction



The **MSCI Factor Mix** Indexes are constructed as the combination of a group of target factors providing broad diversification and reducing the cyclicalities of single factor approaches

How does MSCI implement Factor Mix?

A Component index weighting

Each component index is attributed equal weight, in the case of Factor Mix A indexes, one third of the following:



VALUE WEIGHTED



QUALITY



VOLATILITY

B Security weighting

The weight of each security is based on its weight in each underlying component index, and on the weight of each component index



MSCI Factor Mix Indexes implement a top-down approach which combines a group of target factors in a simple, transparent manner with moderate index turnover and low replication costs

Key features of Factor Mix Indexes:

- 1 Top-down construction: simplicity and transparency
- 2 Diversification across factors: cyclicalities offset by low correlations between factors
- 3 Flexibility and customization: this approach can be include any range of existing factor indexes

Why are Factor Mix indexes considered high capacity?

- ▶ This is derived from its construction; the top-down approach uses the parent's index constituents, thus capturing the standard opportunity set and ensuring they integrate seamlessly with other MSCI Indexes.

MSCI Factor indexes historical performance

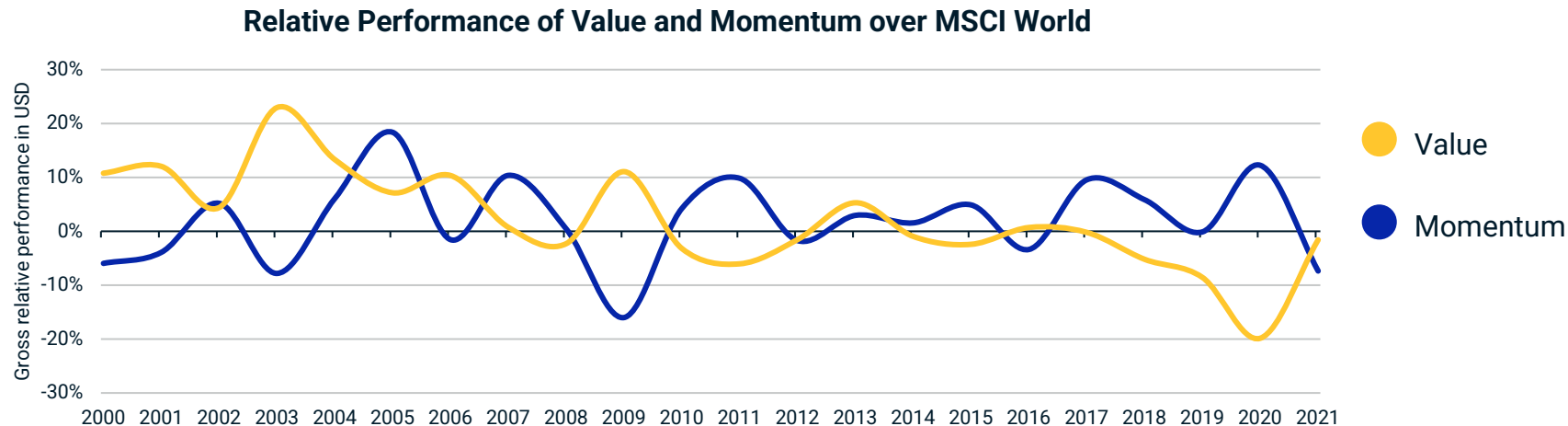
Although factor strategies have exhibited long-term outperformance, in the short-term, factors have exhibited cyclical behavior, which tends to generate short periods of underperformance.

MSCI World Factor Index performance

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
VI -4.50%	Vo -9.60%	VI 56.70%	VI 28.60%	Mt 28.40%	VI 31.00%	Mt 19.90%	Vo -29.20%	Sz 42.00%	Sz 18.20%	Vo 8.00%	Sz 16.70%	VI 32.70%	Vo 12.10%	Vo 5.80%	Yd 10.30%	Mt 32.60%	Vo -1.40%	Qy 36.70%	Mt 28.70%	Qy 26.10%
Yd -8.00%	Yd -9.80%	Sz 50.40%	Sz 24.10%	VI 17.20%	Yd 28.90%	Qy 16.80%	Qy -33.50%	VI 41.90%	Mt 16.50%	Yd 4.80%	World 16.50%	GT 30.73%	Qy 9.00%	Mt 4.50%	Sz 9.40%	Qy 26.60%	Mt -2.40%	World 28.40%	Qy 22.73%	World 22.35%
Vo -10.00%	Sz -13.60%	GT 40.11%	Mt 21.30%	Sz 15.20%	Sz 22.10%	GT 11.39%	GT -37.80%	Yd 33.80%	Vo 12.80%	Mt 4.80%	VI 15.00%	Mt 30.30%	Mt 7.00%	Qy 4.20%	GT 8.94%	GT 26.43%	Qy -5.10%	Mt 28.30%	GT 18.06%	VI 20.77%
Sz -11.50%	Mt -14.40%	Yd 30.50%	Vo 20.80%	GT 13.19%	GT 21.63%	VI 10.30%	Mt -39.90%	Qy 33.50%	World 12.30%	Qy 4.40%	Mt 14.80%	Qy 27.70%	World 5.50%	GT 1.24%	VI 8.90%	Sz 23.90%	Yd -6.70%	GT 27.44%	World 16.50%	GT 18.19%
Qy -12.10%	VI -15.10%	World 33.80%	Yd 20.00%	World 10.00%	Vo 21.20%	World 9.60%	World -40.30%	GT 31.90%	Qy 11.40%	World -5.00%	GT 14.31%	World 27.40%	VI 4.60%	World -0.30%	Vo 8.20%	World 23.10%	World -8.20%	Sz 24.50%	Sz 10.12%	Yd 16.81%
World -16.50%	Qy -16.50%	Vo 26.00%	GT 19.32%	Yd 8.50%	World 20.70%	Yd 7.30%	Sz -41.90%	World 30.80%	GT 9.33%	GT -6.25%	Qy 13.70%	Sz 26.50%	GT 4.55%	Sz -1.00%	World 8.20%	VI 22.90%	GT -8.50%	Yd 24.30%	Vo 3.26%	Sz 15.40%
Mt -20.50%	GT -19.37%	Mt 25.90%	World 15.20%	Vo 8.30%	Mt 19.10%	Sz 6.40%	Yd -42.40%	Vo 17.20%	VI 9.10%	Sz -9.30%	Yd 13.30%	Yd 22.90%	Sz 3.40%	Yd -2.40%	Qy 5.10%	Yd 19.20%	Sz -11.80%	Vo 24.00%	Yd 0.95%	Mt 14.95%
GT -19.41%	World -19.50%	Qy 22.00%	Qy 12.70%	Qy 6.00%	Qy 16.80%	Vo 6.10%	VI -42.60%	Mt 14.80%	Yd 7.20%	VI -11.00%	Vo 8.90%	Vo 19.40%	Yd 3.30%	VI -2.70%	Mt 4.70%	Vo 18.00%	VI -13.40%	VI 19.80%	VI -3.35%	Vo 14.84%

Risk premia factors sensitivity: no free lunch

Risk premia factors are **sensitive to macro-economic and market sentiments** and could underperform for long periods of time.



However, they do not react to the same drivers and, hence, any one of them can have low correlations relative to other factors.

Diversification across factors has historically reduced the length of these periods of underperformance

Diversification effects over longer time periods

Longer time horizons → higher historical occurrence of outperformance, with **diversification** benefits becoming apparent over **longer investment periods**

Historical Frequency of Outperformance of MSCI World Factor Indexes - Data from 1998 to 2021								
Rolling Window	Minimum Volatility	High Dividend Yield	Quality	Momentum	Equal Weighted	Enhanced Value	Diversified Multiple Factor	Factor Mix
1 Y	52%	46%	63%	69%	57%	56%	73%	56%
3 Y	67%	49%	77%	79%	54%	53%	83%	71%
5 Y	73%	50%	79%	92%	53%	60%	87%	84%
10 Y	90%	50%	100%	99%	54%	76%	96%	97%
15 Y	91%	49%	100%	100%	72%	75%	100%	100%
20 Y	100%	70%	100%	100%	100%	100%	100%	100%
Frequency of MSCI World Factor Indexes Experiencing Lower Volatility - Data from 1998 to 2021								
1 Y	89%	63%	68%	46%	17%	23%	39%	95%
3 Y	100%	66%	90%	65%	9%	5%	51%	100%
5 Y	100%	63%	94%	60%	4%	0%	58%	100%
10 Y	100%	26%	100%	76%	0%	0%	56%	100%
15 Y	100%	39%	100%	65%	0%	0%	44%	100%
20 Y	100%	100%	100%	68%	0%	0%	46%	100%

The benefits of combining Factor Indexes

- ▶ Factor indexes have had prolonged periods of underperformance as well demonstrated low active correlations
- ▶ Our research shows that combining factor indexes has mitigated the cyclicalities of returns:
 - Eliminating the need for factor timing
 - Reducing tracking errors
 - Lowering overall trading

MSCI World Factor Indexes return correlations

	Minimum Volatility	High Dividend Yield	Quality	Momentum	Equal Weighted	Enhanced Value	Growth Target
Minimum Volatility	1						
High Dividend Yield	0.55	1					
Quality	0.42	-0.03	1				
Momentum	0.39	-0.02	0.34	1			
Equal Weighted	-0.10	0.13	-0.58	-0.10	1		
Enhanced Value	-0.20	0.25	-0.56	-0.17	0.67	1	
Growth Target	0.14	-0.02	-0.12	0.28	0.35	0.25	1

Appendix: Factor index descriptions



Minimum Volatility: lower risk stocks



The key objective of a minimum volatility strategy is to capture exposure to stocks with potentially **less risk**. Paradoxically, this strategy has produced a premium over long periods.

How does MSCI implement Minimum Volatility?

A Volatility

Frequency and change in return of stocks including drawdowns (peak-to-trough)

B Correlation

Stock correlation can have a significant impact on the overall volatility strategy (sectors, countries, etc.)

C Optimization

Considers correlation among stocks, factor constraints and ensures replicability and investability.

MSCI minimum volatility indexes are constructed by optimizing toward the lowest absolute risk and constraining exposure of non-target factors, sector and country weights.

Minimum Volatility Factor Overview



Defensive Factor



May be lower
Risk relative to market

Factors with low correlation



VALUE



MOMENTUM

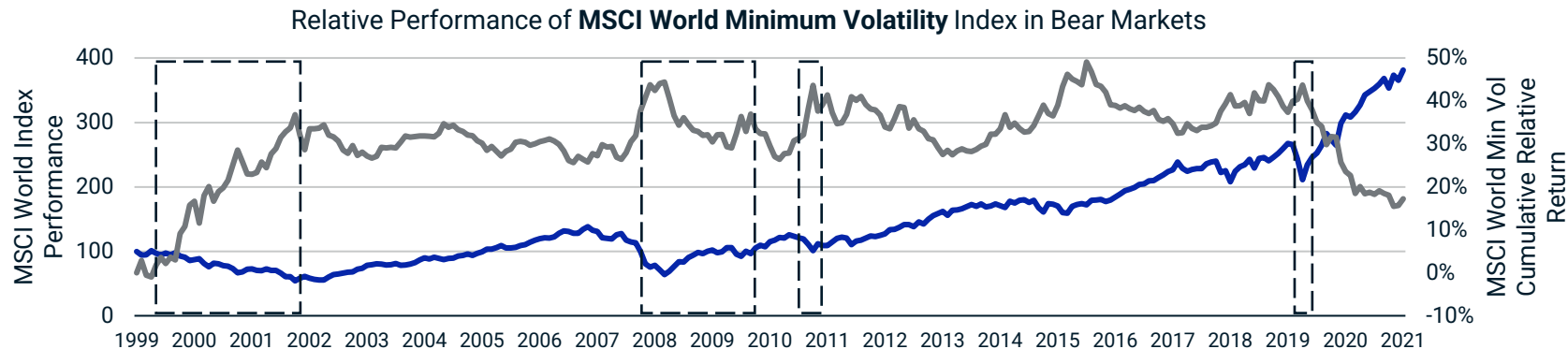
Behavioral Rationale for the Min Volatility premium

- ▶ Investors tend to overpay for glamorous, high-volatility stocks potentially overlooking the speculative nature of these stocks
- ▶ Investors may overpay for high volatility stocks hoping for outsized returns (lottery effect) or as a substitute for leverage (assuming a long-only constraint) while underpaying for low volatility stocks assuming they're less rewarding

Minimum Volatility performance in Bear Market



The **MSCI World Minimum Volatility** Index outperformed the market over the following periods and had considerably lower volatility



Absolute Returns (Gross USD)

Realized Volatility

	MSCI World	MSCI World Min Vol	Active return	MSCI World	MSCI World Min Vol
Mar 00 – Sep 02	-46%	-20%	27%	17%	11%
Oct 07 – Feb 09	-54%	-43%	11%	22%	17%
Apr 11 – Sep 11	-19%	-5%	14%	16%	9%
Feb 20 – Mar 20	-20%	-17%	3%	12%	4%



MSCI World Index



MSCI World Minimum Volatility Index relative performance

Why are the MSCI Min Vol indexes optimized?

MSCI Minimum Volatility Indexes follow a more sophisticated based on **MSCI Barra GEMLT** to create low volatility indexes compared to traditional ranking-based risk weighted indexes.

Heuristic approach

Ranking-based construction

Generally based on the volatility of individual stocks and **ignores the correlation between stock returns**, which **can have a major impact on strategy volatility** when cross sectional variation between correlations is high

Optimization

Optimized construction

While this adds complexity, a well-designed optimization can considerably improve the **quality** of the resulting index, improve its **replicability** and **avoid unintended exposures** to styles, countries or sectors

Minimum Volatility historical relative performance

From a longer-term perspective, the **MSCI World Minimum Volatility Index** generated an **annualized relative return of 1.4%** over MSCI World since 1999.

MSCI World Factor Index relative performance

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
VI	Vo	VI	VI	Mt	VI	Mt	Vo	Sz	Sz	Vo	Sz	VI	Vo	Vo	Yd	Mt	Vo	Qy	Mt	Qy
12.00%	9.90%	22.90%	13.40%	18.40%	10.30%	10.30%	11.10%	11.20%	5.90%	13.00%	0.20%	5.30%	6.60%	6.10%	2.10%	9.50%	6.80%	8.30%	12.20%	3.75%
Yd	Yd	Sz	Sz	VI	Yd	Qy	Qy	VI	Mt	Yd	VI	GT	Qy	Mt	Sz	Qy	Mt	Mt	Qy	VI
8.50%	9.70%	16.60%	8.90%	7.20%	8.20%	7.20%	6.80%	11.10%	4.20%	9.80%	-1.50%	3.33%	3.50%	4.80%	1.20%	3.50%	5.80%	-0.10%	6.23%	-1.58%
Vo	Sz	GT	Mt	Sz	Sz	GT	GT	Yd	Vo	Mt	Mt	Mt	Mt	Qy	GT	GT	Qy	GT	GT	GT
6.50%	5.90%	6.31%	6.10%	5.20%	1.40%	1.79%	2.50%	3.00%	0.50%	9.80%	-1.70%	2.90%	1.50%	4.50%	0.74%	3.33%	3.10%	-0.96%	1.56%	-4.15%
Sz	Mt	Yd	Vo	GT	GT	VI	Mt	Qy	Qy	Qy	GT	Qy	VI	GT	VI	Sz	Yd	Sz	Sz	Yd
5.00%	5.10%	-3.30%	5.60%	3.19%	0.93%	0.70%	0.40%	2.70%	-0.90%	9.40%	-2.19%	0.30%	-0.90%	1.54%	0.70%	0.80%	1.50%	-3.90%	-6.38%	-5.54%
Qy	VI	Vo	Yd	Yd	Vo	Yd	Sz	GT	GT	GT	Qy	Sz	GT	Sz	Vo	VI	GT	Yd	Vo	Sz
4.40%	4.40%	-7.80%	4.80%	-1.50%	0.50%	-2.30%	-1.60%	1.10%	-2.97%	-1.25%	-2.80%	-0.90%	-0.95%	-0.70%	0.00%	-0.20%	-0.30%	-4.10%	-13.24%	-6.94%
Mt	Qy	Mt	GT	Vo	Mt	Sz	Yd	Vo	VI	Sz	Yd	Yd	Sz	Yd	Qy	Yd	Sz	Vo	Yd	Mt
-4.00%	3.00%	-7.90%	4.12%	-1.70%	-1.60%	-3.20%	-2.10%	-13.60%	-3.20%	-4.30%	-3.20%	-4.50%	-2.10%	-2.10%	-3.10%	-3.90%	-3.60%	-4.40%	-15.55%	-7.40%
GT	GT	Qy	Qy	Qy	Qy	Vo	VI	Mt	Yd	VI	Vo	Vo	Yd	VI	Mt	Vo	VI	VI	VI	Vo
-2.91%	0.13%	-11.80%	-2.50%	-4.00%	-3.90%	-3.50%	-2.30%	-16.00%	-5.10%	-6.00%	-7.60%	-8.00%	-2.20%	-2.40%	-3.50%	-5.10%	-5.20%	-8.60%	-19.85%	-7.51%

Quality: sound balance sheet stocks



Quality aims to provide exposure to companies with **durable business models** and **sustainable competitive advantages**.

How does MSCI implement Quality?

- A Return on Equity**
Shows how effectively a company uses investments to generate earnings growth
- B Earnings variability**
Measures how smooth earnings growth has been
- C Debt to equity**
A measure of company leverage and balance sheet health

MSCI uses multiple fundamental measures of quality to assess a stock's quality which includes dimensions of profitability, earnings stability and balance sheet strength.

Quality Factor Overview



Risk and Behavioral Rationale for the Quality premium

- ▶ Stocks with high (or low) quality tend to co-move, suggesting a common risk characteristic
- ▶ There have been studies on the profitability of firms which found quality was just as powerful as value in explaining returns such as the "earnings fixation hypothesis" which explains the relation of future performance across various components of earnings.

Why does MSCI use a composite score for Quality?

Combining descriptors:

- ▶ Our analysis shows that combining descriptors leads to **diversification benefits**.
- ▶ The MSCI quality score is composed of 3 fundamental descriptors which in combination, perform better than alone:
 - Return on equity (ROE)
 - Earnings variability (EV)
 - Debt to equity (D/E)



Data from November 2002 to May 2015.

Sector constraints:

- ▶ While the standard Quality Index methodology does not impose sector neutrality, there are investors who may be concerned about excessive sector biases.
 - For such investors, there is a sector neutral variation of the Quality Index

Quality historical relative performance



From a longer-term perspective, the **MSCI World Quality Index** generated an **annualized relative return of 2.2%** over MSCI World since 1999.

MSCI World Factor Index relative performance

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
VI	Vo	VI	VI	Mt	VI	Mt	Vo	Sz	Sz	Vo	Sz	VI	Vo	Vo	Yd	Mt	Vo	Qy	Mt	Qy
12.00%	9.90%	22.90%	13.40%	18.40%	10.30%	10.30%	11.10%	11.20%	5.90%	13.00%	0.20%	5.30%	6.60%	6.10%	2.10%	9.50%	6.80%	8.30%	12.20%	3.75%
Yd	Yd	Sz	Sz	VI	Yd	Qy	Qy	VI	Mt	Yd	VI	GT	Qy	Mt	Sz	Qy	Mt	Mt	Qy	VI
8.50%	9.70%	16.60%	8.90%	7.20%	8.20%	7.20%	6.80%	11.10%	4.20%	9.80%	-1.50%	3.33%	3.50%	4.80%	1.20%	3.50%	5.80%	-0.10%	6.23%	-1.58%
Vo	Sz	GT	Mt	Sz	Sz	GT	GT	Yd	Vo	Mt	Mt	Mt	Mt	Qy	GT	GT	Qy	GT	GT	GT
6.50%	5.90%	6.31%	6.10%	5.20%	1.40%	1.79%	2.50%	3.00%	0.50%	9.80%	-1.70%	2.90%	1.50%	4.50%	0.74%	3.33%	3.10%	-0.96%	1.56%	-4.15%
Sz	Mt	Yd	Vo	GT	GT	VI	Mt	Qy	Qy	Qy	GT	Qy	VI	GT	VI	Sz	Yd	Sz	Sz	Yd
5.00%	5.10%	-3.30%	5.60%	3.19%	0.93%	0.70%	0.40%	2.70%	-0.90%	9.40%	-2.19%	0.30%	-0.90%	1.54%	0.70%	0.80%	1.50%	-3.90%	-6.38%	-5.54%
Qy	VI	Vo	Yd	Yd	Vo	Yd	Sz	GT	GT	GT	Qy	Sz	GT	Sz	Vo	VI	GT	Yd	Vo	Sz
4.40%	4.40%	-7.80%	4.80%	-1.50%	0.50%	-2.30%	-1.60%	1.10%	-2.97%	-1.25%	-2.80%	-0.90%	-0.95%	-0.70%	0.00%	-0.20%	-0.30%	-4.10%	-13.24%	-6.94%
Mt	Qy	Mt	GT	Vo	Mt	Sz	Yd	Vo	VI	Sz	Yd	Yd	Sz	Yd	Qy	Yd	Sz	Vo	Yd	Mt
-4.00%	3.00%	-7.90%	4.12%	-1.70%	-1.60%	-3.20%	-2.10%	-13.60%	-3.20%	-4.30%	-3.20%	-4.50%	-2.10%	-2.10%	-3.10%	-3.90%	-3.60%	-4.40%	-15.55%	-7.40%
GT	GT	Qy	Qy	Qy	Qy	Vo	VI	Mt	Yd	VI	Vo	Vo	Yd	VI	Mt	Vo	VI	VI	VI	Vo
-2.91%	0.13%	-11.80%	-2.50%	-4.00%	-3.90%	-3.50%	-2.30%	-16.00%	-5.10%	-6.00%	-7.60%	-8.00%	-2.20%	-2.40%	-3.50%	-5.10%	-5.20%	-8.60%	-19.85%	-7.51%

Value: relatively inexpensive stocks



The foundation of value investing is the idea that **cheap assets outperform expensive**, on average, in the long-term. However, there is still no consensus among investors on the best way to measure it.

How does MSCI implement value?

- A Price-to-book (P/B)**
Common measure of stock value, particularly relevant for firms that sell physical assets
- B Forward Price-to-Earnings (Fwd P/E)**
Used to validate potential future price appreciation for current undervalued stocks
- C Enterprise Value-to-Operating Cash Flow (EV/CFO)**
Serves to exclude companies with excessive leverage which would affect potential price appreciation

▶ The index aims to address the pitfalls of value investing, among them **“value traps”** – stocks that appear cheap but which in fact do not appreciate, by using 3 valuation descriptors above on a sector relative basis.

Value Factor Overview



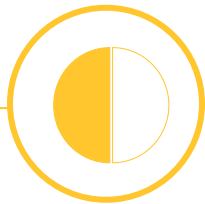
Rationale for the Value premium

- ▶ The value premium is a reward for bearing risk. Value stocks tend to be beaten up, or carry leverage which creates a level of distress risk.
- ▶ Investor behavior may create mispricing, such as extrapolating the earnings power and growth rates of “growth” stocks, resulting in overpricing of these and the subsequent underpricing of value stocks.

Index approaches to Value investing



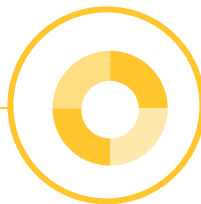
There are 3 main approaches to capture value through indexes:



Traditional Value indexes (V/G Style)

These indexes divide a specified market in two components: value and growth.

Value stocks are then weighted according to each stock's market capitalization.



Value Weighted indexes (also known as Fundamentally Weighted)

These group value stocks from a specified market, weighting them by sales, earnings, book value or another metric, rather than by market capitalization.

This is sometimes thought of as weighting stocks by their economic size rather than market size.



MSCI Enhanced Value indexes (High Exposure Value)

These combine multiple methods of index construction, including ways of identifying and avoiding potential "value traps"

Additionally they mirror a parent index's sector allocations to mitigate risk of extreme events.

MSCI Value index construction



MSCI's **Enhanced Value Indexes** provides deep value exposure, but with relatively high tracking error



Value Style



Value Weighted



Enhanced Value

Active exposure to FaCS Value	0.40	0.35	0.90
Tracking error / Active share	Low	Low	High
Concentration	Moderate	Low	High
Descriptors	Forward E/P, B/P, D/P	Sales, Book value, Earnings, Cash Earnings, Dividends	Forward E/P, B/P, CFO/EV
Historical Sector Tilts	Overweighs Financials	Overweighs Financials	Sector constrained
Historical Country Tilts	Low	Moderate	Underweighs US

Bio



Chris Breckon,
CFA, CAIA

SAN FRANCISCO
EXECUTIVE DIRECTOR
ASSET OWNER CLIENT COVERAGE

Chris Breckon is Executive Director within the MSCI Asset Owner coverage team for the western US. Having joined MSCI in 2014 and with seventeen years of investment experience, he represents MSCI's index and ESG interests, consulting with clients to improve investment results.

Prior to joining MSCI, Chris held positions at Goldman Sachs Asset Management and Smith Barney, working with independent advisors and high net worth investors. He holds a Master's Degree in Financial Mathematics from the University of Chicago, and Bachelor of Science degrees in Physics and Mathematics from Washington State University. Chris is a member of the CFA Society of San Francisco and is a CFA and CAIA charterholder.

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