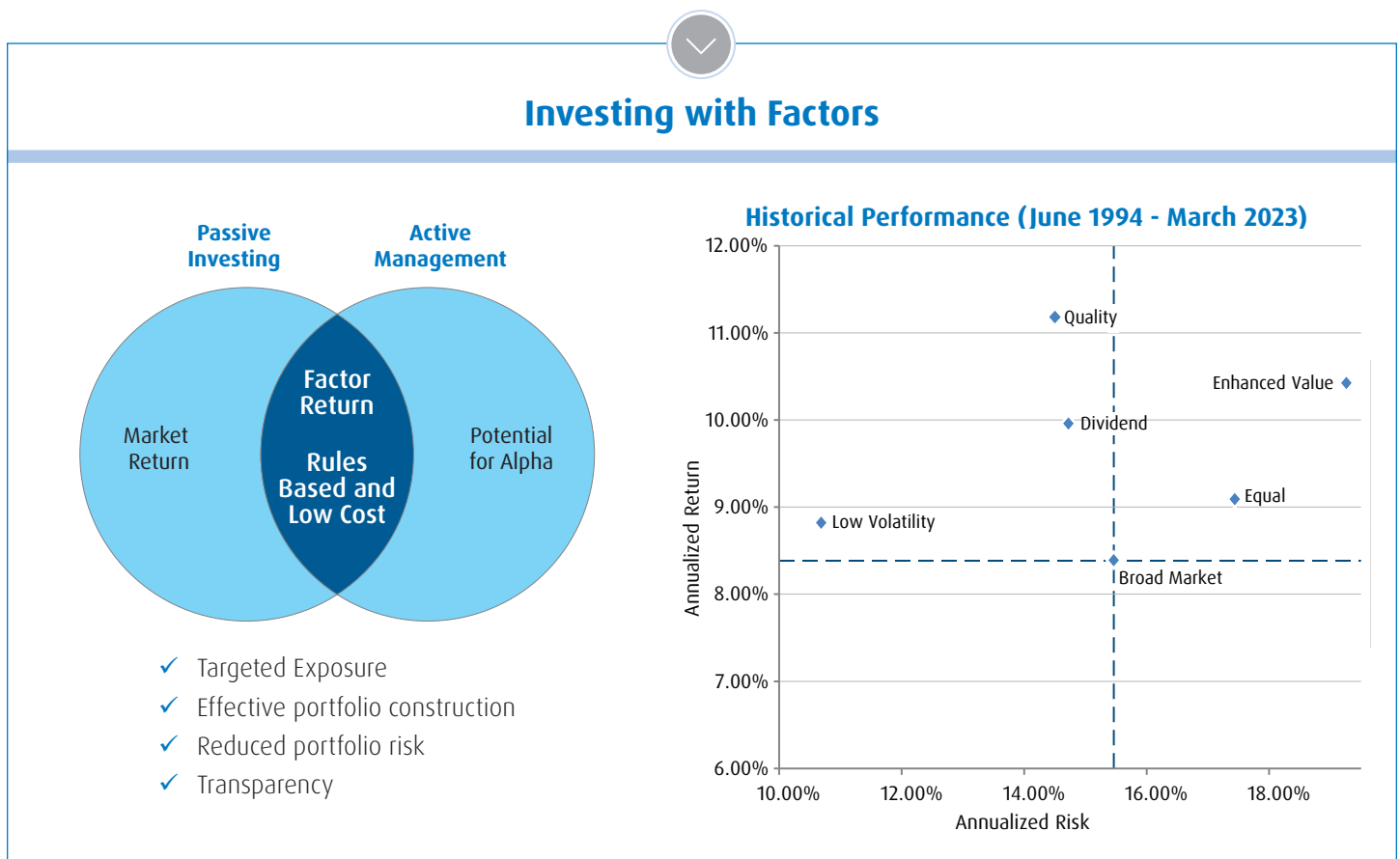


# Smart Investing With A Factor-Based Approach

## Why factor-based investing?

Smart beta is a powerful tool used to meet investing objectives. It is an index construction methodology that differs from traditional market-capitalization weighting. With smart beta, investors can target specific factors which are based on isolated characteristics. Each factor has defining attributes which explain its returns and can offer different risk adjusted exposures. Using these factors, investors can build a portfolio to change its risk profile or to generate more alpha.



Source: Morningstar, March 31st 2023

Risk is defined as the uncertainty of a return and the potential for capital loss in your investment. Broad Market Proxy: MSCI ACWI Index (USD), Low Volatility Proxy: MSCI ACWI Minimum Volatility Index, (USD) Quality Proxy: MSCI ACWI Quality Index (USD), Dividend Proxy: MSCI ACWI High Dividend Yield Index (USD), Value Proxy: MSCI ACWI Enhanced Value Weighted Index (USD) Equal Weight Proxy: MSCI ACWI Equal Weight Index.

## Gaining access to factor-based investing

ETFs can accurately target a factor by selecting a basket of securities through the use of a unique methodology, an advanced screening process and a rules-based approach. ETFs have the ability to maintain this exposure by rebalancing frequently to ensure the securities continue to align with a given factor. Traditionally, the ability to access factor exposure was attributed to active managers in search of portfolio alpha, but with smart beta ETFs, factors are now accessible with greater transparency and at a lower cost.

What considerations should factor-investors make?

When determining which factor to invest in, an investor should make several key considerations:

- 1) Risk appetite
- 2) Economic cycle
- 3) Correlations between factors
- 4) Geographic exposure

### Market risk, market volatility, and returns:

Factors, like all investments, exist on a risk-reward spectrum. Some factors, such as value, provide much greater potential for returns, yet are often characterized as having greater volatility than the broad market. Other factors such as low volatility, carry significantly less market risk. Depending on an investor's financial goals and market outlook they can choose to tilt their portfolios towards a factor to decrease market risk, generate alpha, or both.

### Risk Metrics by Factor – 3 year average

Factor	MSCI World	Low Volatility	Dividend	Quality	Enhanced Value	Equal Weighted
Sharp Ratio	0.54	0.27	0.54	0.51	0.44	0.42
Sortino Ratio	0.82	0.40	0.84	0.81	0.67	0.61
Beta	1.00	0.65	0.95	0.71	0.84	0.96

Source: MSCI Inc. Risk and return data annualized for the January 1st 2001 to March 31st 2023 period.

Source: Morningstar Inc, 10 year sortino.

### Portfolio Statistics

Index Name	Yield %	P/BV	P/E Fwd	EPS Growth
MSCI World Index	2.15	18.23	15.91	2.77
Enhanced Value	2.64	18.23	16.42	2.9
Quality	1.85	18.61	19.18	6.29
Equal Weighted	3.82	13.13	12.83	2.42
Dividend	3.87	9.10	9.19	1.09
Low Volatility	2.59	17.68	14.82	1.81

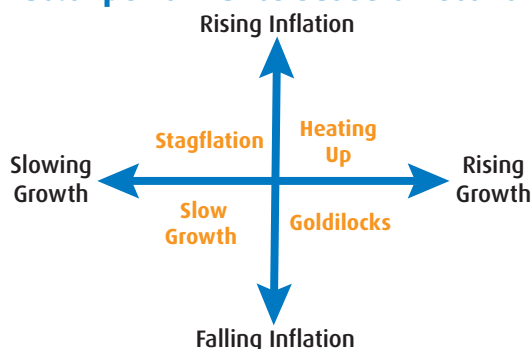
Source: MSCI Inc., March 31, 2023. All factor returns gross and in CAD. Valuation ratios as of March 31, 2023.

Broad Market Proxy: MSCI World Index (CAD), Low Volatility Proxy: MSCI World Minimum Volatility Index, (CAD) Quality Proxy: MSCI World Quality Index (CAD), Dividend Proxy: MSCI World High Dividend Yield Index (CAD), Value Proxy: MSCI ACWI World Value Weighted Index (CAD).

### Factor rotation and the economic cycle:

Not all factors have the same macroeconomic drivers, and therefore some factors will outperform others based on inflation, the interest rate environment, and the economic cycle. Rotating into and out of factors to align with the current economic cycle can be a profitable strategy.

### Factor performance based on economic regimes



Index	Heating Up	Goldilocks	Slow Growth	Stagflation
World Equal Weighted Index	0.07%	0.46%	-0.14%	-0.16%
World Dividend Index	-0.06%	-0.05%	0.19%	0.31%
World Low Volatility Index*	-0.47%	-0.52%	0.41%	0.44%
World Quality Index	0.01%	-0.15%	0.28%	0.30%
World Enhanced Value†	0.35%	0.71%	0.06%	-0.08%

Source: MSCI Inc.

Average Monthly Gross Active Returns relative to MSCI World from Dec 1975 to Dec 2022.

Broad Market Proxy: MSCI World Index (USD), Low Volatility Proxy: MSCI World Minimum Volatility Index, (USD) Quality Proxy: MSCI World Quality Index (USD), Dividend Proxy: MSCI World High Dividend Yield Index (USD), Value Proxy: MSCI World Enhanced Value Weighted Index (USD).

\* Based on official MSCI Minimum Volatility Index Levels from May 1988; Low Volatility Tilt Index prior to that.

\*\* Based on MSCI Enhanced Value Index methodology. Prior to 1997, cash earnings, to price is used in place of CFO/EV. Before 1994, sector definitions are extended by mapping the Barra model industry classification to the GICS sectors.

## Annual Returns by Factor

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023 (YTD)
Enhanced Value 17.0	Quality 6.5	Dividend 15.1	Quality 25.3	Low Volatility 0.9	Quality 38.4	Quality 22.3	Enhanced Value 28.2	Dividend -4.6	Enhanced Value 2.8
Low Volatility 15.8	Low Volatility 4.9	Enhanced Value 15.0	Enhanced Value 21.3	Quality -3.1	USA 30.9	USA 20.7	Quality 27.1	Low Volatility -9.7	Equal Weight 4.5
Dividend 13.8	USA 0.7	Equal Weight 13.6	USA 21.2	Dividend -3.2	Equal Weight 29.3	Equal Weight 14.6	USA 26.5	Enhanced Value -14.8	USA 4.0
Equal Weight 12.7	Dividend -0.3	USA 10.9	Equal Weight 18.6	USA -5.0	Low Volatility 27.1	Low Volatility 5.1	Equal Weight 25.1	Equal Weight -17.4	Quality -3.5
USA 12.7	Equal Weight -3.0	Low Volatility 9.8	Dividend 18.4	Equal Weight -8.5	Enhanced Value 26.5	Dividend 0.6	Dividend 20.9	USA -19.8	Dividend -1.8
Quality 11.2	Enhanced Value -7.0	Quality 7.3	Low Volatility 18.4	Enhanced Value -11.7	Dividend 21.3	Enhanced Value -1.1	Low Volatility 20.4	Quality -23.0	Low Volatility -2.1

Source: Morning Star, March 31, 2023

## Factor Correlations

Each factor has a varying degree of correlation with other factors. One approach would be to combine highly correlated factors to magnify potential returns or pair negatively correlated factors to provide a diversifying benefit.

## Correlation Matrix

Security	MSCI World	Low Volatility	Enhanced Value	Quality	Dividend	Equal Weighted
MSCI World	1.00	-	-	-	-	-
Low Volatility	0.93	1.00	-	-	-	-
Enhanced Value	0.97	0.93	1.00	-	-	-
Quality	0.92	0.94	0.87	1.00	-	-
Dividend	0.89	0.81	0.79	0.94	1.00	-
Equal Weighted	0.98	0.91	0.92	0.94	0.94	1.00

Source: MSCI World factor index, based on monthly returns for the November 1, 2018 – March 19, 2023 period.

## BMO ETFs Factor Exposures:

- 1) Low Volatility
- 2) Dividend
- 3) Quality
- 4) Equal Weighted
- 5) Enhanced Value

BMO ETFs has been deliberate in our approach when selecting which factors to provide to investors and which methodology to apply when constructing a factor-based ETF. We have selectively chosen factors that make sense based on market outlook and investor demand, and have used enhanced portfolio construction to make accessing these factors efficient and affordable for investors.



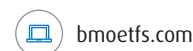
## BMO ETFs Smart Beta Suite

Factor	Overview	ETF
<b>Quality</b>	BMO ETFs quality strategy selects companies with high quality scores based on 3 variables: high return on equity, stable earnings growth, and low financial leverage ratio.	<ul style="list-style-type: none"> <li>• BMO MSCI All Country World High Quality Index ETF (ZGQ)</li> <li>• BMO MSCI Europe High Quality Hedged to CAD Index ETF (ZEQ)</li> <li>• BMO MSCI USA High Quality Index ETF (ZUQ, ZUQ.U, ZUQ.F)</li> </ul>
<b>Value</b>	BMO's value ETFs provide a pure approach to the value factor using MSCI's Enhanced Value methodology. The result is a refined strategy, identifying and avoiding potential value traps.	<ul style="list-style-type: none"> <li>• BMO MSCI Canada Value Index ETF (ZVC)</li> <li>• BMO MSCI USA Value Index ETF (ZVU)</li> </ul>
<b>Low Volatility</b>	BMO ETFs Low Volatility Strategy focuses on the risk of securities and analyzes the beta of a stock as the primary portfolio construction tool. BMO ETFs suite of Low Volatility ETFs provide investors with long-term solutions that provide downside protection.	<ul style="list-style-type: none"> <li>• BMO Low Volatility Canadian Equity ETF (ZLB)</li> <li>• BMO Low Volatility US Equity ETF (ZLU, ZLU.U, ZLH)</li> <li>• BMO Low Volatility International Equity ETF (ZLI, ZLD)</li> <li>• BMO Low Volatility Emerging Markets Equity ETF (ZLE)</li> </ul>
<b>Dividend</b>	BMO ETFs dividend approach is a customized strategy that combines high yield with sustainable growth. Through an advanced 4 step screening process BMO ETFs analyzes each company's willingness and ability to pay dividends over time with additional forward looking considerations.	<ul style="list-style-type: none"> <li>• BMO Canadian Dividend ETF (ZDV)</li> <li>• BMO US Dividend ETF (ZDY, ZDY.U, ZUD)</li> <li>• BMO International Dividend ETF (ZDI, ZDH)</li> </ul>
<b>Equal Weight</b>	BMO ETFs applies an equal weight methodology to developed sectors which reduces security concentration often found in traditional sector based ETFs. Each security is allocated an equal weight rather than a market capitalization weight, which decreases security specific risk. Equal weighted ETFs eliminate a market capitalization bias bringing more focus on small capitalization and in turn, value companies. BMO ETFs Equal Weight Strategy is a more efficient way to implement a sector strategy and can complement or replace single stock holdings.	<ul style="list-style-type: none"> <li>• BMO Equal Weight Banks Index ETF (ZEB)</li> <li>• BMO Equal Weight Oil &amp; Gas Index ETF (ZEO)</li> <li>• BMO Equal Weight Utilities Index ETF (ZUT)</li> <li>• BMO Equal Weight REITs Index ETF (ZRE)</li> <li>• BMO Equal Weight Industrials Index ETF (ZIN)</li> <li>• BMO Equal Weight US Health Care Hedged to CAD Index ETF (ZUH/ZHU)</li> <li>• BMO Equal Weight US Banks Index ETF (ZBK)</li> <li>• BMO Equal Weight US Banks Hedged to CAD Index ETF (ZUB)</li> <li>• BMO Equal Weight Global Base Metals Hedged to CAD Index ETF (ZMT)</li> <li>• BMO Equal Weight Global Gold Index ETF (ZGD)</li> </ul>

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### Forward-Looking Statement:

Index performance is provided as a benchmark but is not illustrative of any particular investment. You cannot invest directly in an index.

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