Understanding ETFs
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For more information on the topics in this booklet, or for additional information on BMO ETFs, please visit our website at www.bmo.com/etfs.
What are Exchange Traded Funds (ETFs)?

An Exchange Traded Fund (ETF) is an open-ended fund that is listed and traded on a stock exchange and which can be bought or sold directly during trading hours, much like a stock. An ETF is a basket of securities which may consist of stocks, bonds, or other assets such as commodities. The asset mix of an ETF generally aims to track the performance of an index or asset class. There are different types of ETFs available in the market place and can be broadly classified into equity, bond, and commodity ETFs.

ETFs offer many benefits to investors, including low fees, transparency, tax efficiency, liquidity, flexibility and diversification.

What are the benefits of ETFs?

ETFs offer attractive features and benefits for investors, including:

**Lower cost**

ETFs tend to charge lower management fees and expenses than many other diversified investment options. Lower costs mean that more of your money is working for you over the long-term. By purchasing an ETF, an investor avoids the commission costs that would normally be paid for purchasing each underlying security in a diversified portfolio, while only paying one commission fee for the purchase of an ETF. Trading costs in the portfolio that make up most ETFs are also kept to a minimum.

**Portfolio transparency**

An investor can view the current trading price of an ETF at any time during the course of a regular trading day. Investors can also verify the composition of an ETF’s actual portfolio on a daily basis. This provides ongoing transparency, which can be particularly helpful during volatile investment markets.

**Tax efficiency**

Because ETFs are traded on a stock exchange, investors do not need to transact with the ETF. Instead, units are primarily bought and sold between different investors. This means that there are typically fewer realizations of capital gains and losses with ETFs than with other investment products.

Similarly, as ETFs track the performance of a specific benchmark, they tend to have lower overall portfolio turnover. Fewer transactions within the ETF again means fewer realizations of capital gains and losses that may flow through to ETF holders.

**Liquidity**

Unlike other similar investments, ETFs enable investors to buy and sell whenever they want when the markets are open. In addition, the liquidity of the underlying securities represents the true liquidity of an ETF due to the “creation and redemption process” inherent to managing ETFs.

**Investment flexibility**

Most ETFs can be bought and sold at current market prices at any time during the trading day. ETFs allow investors to access securities that are broadly linked to a particular region, market, sector, commodity or theme without the need to analyze and trade each individual security. Plus, by appropriately investing either long or short, investors are able to implement their positive or negative views on a particular market or sector.

**Diversification**

By aiming to replicate a specific index or market return, an ETF aims to incorporate all, or a representative sample of, the securities that make up that index, regardless of the number of securities involved. This offers investors lower portfolio variability and can reduce the impact that volatile markets can have in terms of rising and falling prices, especially when compared to holding individual securities.
# How ETFs can be used

ETFs can be used to address long-term investment objectives and short-term market movement opportunities. They are equally suited for longer-term strategic plays and shorter-term tactical plays.

## A full suite of solutions that deliver to meet client needs.

### Effective Core Solutions
Low cost ETFs with the indexes you know and want.

### Thoughtful Sector Solutions
ETFs that give unbiased exposure.

### Innovative Specialty Solutions
ETFs that are at the forefront at recognizing and initiating industry development.

## BMO ETFs

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<td>Temporary shifts by asset class, sector or region.</td>
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<td>Keep the portfolio fully invested.</td>
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The true liquidity of ETFs

The traded volume of an ETF has little effect on its liquidity. While the liquidity of an individual security is directly related to the traded volume of that security, the same correlation does not apply to ETFs.

Instead, the liquidity of an ETF is best measured by the underlying securities which it holds. If the individual securities that compose the ETF have a high traded volume, and are therefore very liquid, then the ETF that holds them will have the same degree of liquidity. Similarly, if the underlying securities of the ETF have a low traded volume, or are illiquid, the ETF will have a low degree of liquidity as well. BMO ETFs have been constructed to have liquid portfolios by establishing traded volume requirements for each security held within the portfolios.

An ETF’s underlying liquidity can be seen by observing the difference between the buying price and the selling price, or the “bid-ask spread.” A tighter bid-ask spread on an ETF generally indicates that the underlying securities also have tight bid-ask spreads and are therefore also more liquid. In this way, even an ETF with low traded volume is liquid if its bid-ask spread is tight. Again, if the securities that make up the ETF are liquid, so is the ETF itself.

How does the ETF liquidity mechanism work?

First level of liquidity – On the exchange

The interaction between buyers and sellers creates the first level of liquidity for an ETF. This natural liquidity is established when a sell order from an existing unit holder is matched with a buy order from a purchaser on the exchange. Popular and established ETFs with high transaction volumes can develop even greater liquidity than their underlying holdings.

Second level of liquidity – Market maker activity

Market makers are responsible for posting bid and ask offers on the exchange. This enhances liquidity and allows a buyer or seller to transact with minimal trading costs. For BMO ETFs, the market maker continuously posts units on both the bid and ask side, at a price which reflects the spread of the underlying securities.

The Liquidity of the BMO Aggregate Bond Index ETF (ZAG)

The following chart illustrates the depth of liquidity of ZAG. A large $80 million trade was placed on ZAG effectively increasing the ETFs size by 50%. Despite the large trade size, there was no impact on the trade’s execution price.

Third level of liquidity – Unit creation based on underlying securities

Because ETFs are open-end structures, the market maker can correct supply imbalances by creating or redeeming units. This is essential as the market maker can offset an increase in demand by creating more units. On the other hand, when the demand for the units decreases, the market maker redeems units to tighten supply.
When a large buy order occurs, the market maker will buy the basket of securities and initiate a creation order with the ETF provider. The cost to the investor would be the fair value of the units based on the midpoint of the spread, the market maker’s costs of building the basket, and the investor’s single trade commission rate with their broker. The market maker’s costs are based on how much each security trade impacts its traded volume. With very liquid underlying securities, this cost is minimal. The cost increases as the liquidity of the underlying securities decreases.

By comparison, if the investor instead purchased each underlying security within the ETF, they would be faced with commission costs on each individual trade, plus the trading costs incurred with each transaction.

When evaluating ETFs, the underlying liquidity is what matters. This is especially evident on a new ETF. Consider the BMO S&P/TSX Equal Weight Global Gold Index ETF (ZGD) and BMO S&P 500 Index ETF (ZUE). Liquidity of the ETFs were driven by the volume of the underlying which regularly trade at much higher volumes. This is where the ETFs true liquidity resides. Trading volume was light, but the ETFs easily absorbed large transactions with minimal impact. Despite the low volume on the new ETFs, the bid-ask spread remained very tight.

The true liquidity of an ETF is best measured by the liquidity of its underlying securities and allows for significant trade orders without having an impact on the price of the ETF itself.
Evaluating ETFs

The ETF market in Canada has expanded significantly over the last five years. Not only has the number of new products and investment niches expanded, but additional products have been launched that offer exposure to existing market segments. These new products can offer different replication structures, diverse portfolio construction methodologies, or simply lower management fees. With over 250 Canadian ETFs currently available to investors, it has become increasingly important to learn how to evaluate ETFs.

1. Choose Your Exposure
   First, review the merits of diversification available through a wider exposure ETF against the precise targeting allowed by an industry ETF. As an example, an investor looking to invest in Canadian banks could use broad market equity ETFs, dividend ETFs, financial sector ETFs, or a bank specific ETF.

2. Choose How the Portfolio is Weighted
   While ETFs may target the same market segment or industry, they could use a different weighting scheme such as market capitalization, equal weighting, or factor weighting. The appropriate choice may differ across asset classes or through the preferences of specific investors.

3. Choose How to Access the Exposure
   The majority of Canadian ETFs attain exposure by holding physical securities. A subset of ETFs use total return swaps to get market exposure. These ETFs receive the return of an index from a financial institution. An investor should analyze the added counterparty risk and additional fees against the advantages offered through the swap.

4. Choose a Trusted Provider
   It’s important to look at the track record, product shelf, and financial soundness of a provider. As the industry matures, ETF closures may occur, putting greater importance on using established providers.

Return considerations

Total cost
The total cost of transacting in an ETF includes the management expense ratio (MER), the trading expense ratio (TER), and the trading spread on the exchange. The MER will include management fees and taxes. The TER will include portfolio expenses such as commissions paid and withholding tax on foreign income. The trading spread will reflect the liquidity of the underlying portfolio and will decrease as the ETF matures and is more heavily traded in the secondary market.

A key consideration in evaluating total cost of ETFs against other investment vehicles is the time horizon of the investment. The longer the holding period, the greater the impact of the low MERs on ETFs. The shorter the holding period, the greater the impact of possible spread costs on ETFs.

Tracking error
A key measurement of success is the ETF’s ability to closely track its index. Tracking error can be both positive and negative, however, even positive tracking may not be favourable, as it indicates the possibility of negative tracking in the future. While the expected tracking error may widen on more difficult to access asset classes compared to plain vanilla Canadian equities which are very liquid, a fair comparison can be made across similar ETFs.
Building portfolios with ETFs

Whether you are building a portfolio on your own or with the assistance of a financial advisor, you must complete two basic but critical steps:

1. Identify your objectives, time horizon, risk tolerance, level of financial knowledge, and personal preferences;
2. Select a range of appropriate investments and decide how much to allocate to each asset class to maximize returns for a given level of risk.

Ideally, you want an optimal portfolio — one that provides maximum potential returns for a given level of risk. By using the efficient frontier, investors can see the trade-offs between risk and return offered by different portfolios. From this, they can then work to pinpoint the portfolio that may best achieve their objectives.

Portfolio building strategies using ETFs

ETFs are a valuable tool that can be used to build more optimal portfolios. An ETF tracks the performance of a specific index, such as an equity or bond index, mirroring its returns.

ETFs are ideally suited for use in portfolio building strategies because of their flexibility, low cost and wide range of investment options. The following are three examples of strategies that can be used on their own or in conjunction with one another and the benefits of using ETFs to implement them.

Blend index and actively managed funds

Indexed funds offer market performance which matches the “beta,” or returns of the overall market or of a specific segment of the market. Active management, meanwhile, provides the potential for “alpha” (outperformance relative to the market) through individual security selection, sector rotation or other active strategies.

Get the benefits of each type of investment by incorporating both into your portfolio.

Benefits of using ETFs:

ETFs provide diversified indexed exposure at a low cost; they are traded throughout the day, which provides added flexibility.

Mix core and satellite investments

The “core” is comprised of major asset classes combined to achieve a particular risk/reward profile. For example, these could include the Canadian and U.S. equities, and domestic investment grade fixed income. “Satellites” have the potential to add value when combined with your core, but may be associated with additional risk.

An example of a satellite position includes U.S. high yield bonds. Investors who want exposure to this less correlated asset class with its higher income potential could invest in a TSX listed ETF that provides the performance of a diversified basket of these securities.

Benefits of using ETFs:

Wide variety of equity and fixed income ETF options; easy and efficient access to various markets and market segments; suitable for both core and satellite portions of portfolio, depending on investor requirements.

Employ a tactical short-term strategy

ETFs are an efficient means to adjust portfolio exposure through specific sector or segment investments. For example, if an investor wants tactical access to growth and dividend income provided by the Canadian banking industry, they could invest in a TSX listed ETF that holds all of the big six banks in an appropriately diversified manner.

Benefits of using ETFs:

Low entry and exit cost; easy and efficient access to segments and sectors that you want in your portfolio.
Fixed income investing using ETFs

Just as with equities, diversification can add value to fixed income portfolios. Fixed income portfolios can benefit from the advantages of different bond categories: sectors, credit ratings and maturities. However, a traditional approach of selecting individual bonds can be time consuming, costly and inefficient. Fixed income ETFs allow investors to treat fixed income investing like equity investing.

Why use ETFs for fixed income investing?

Simple exposure
Rather than build a fixed income portfolio using a large number of individual bonds, fixed income ETFs provide investors with quick access to diversified bond portfolios in a cost effective and timely manner.

Unlike equity markets which are generally more liquid and transparent, buying individual bonds over the counter (OTC) is difficult.

The bond universe offers a diverse spectrum of risks, returns and credit qualities. With fixed income ETFs, investors can easily gain broad exposure or target specific credit qualities, durations, sectors and maturities. Investors can get the precise exposure that is required to meet their wide range of objectives. Depending on the market environment, time horizon and their personal risk and return preferences, fixed income investors can choose specific fixed income sectors and maturities for their portfolios. A wide variety of fixed income choices are available, including federal, provincial and corporate bonds with different ratings and maturities (see Canadian Bond Market).

Canadian Bond Market

ETFs make it easy to gain exposure to a range of bonds.
Pricing
In the fixed income ETF world, you also get the added benefit of institutional pricing. Sourcing a particular bond is difficult, sourcing a particular bond and receiving a good price is even more difficult due to wide bid-ask spreads. A bond’s bid-ask spread is the difference between what the buyer is willing to pay and what the seller is willing to accept. The implicit savings are derived from the narrow ETF spreads.

ETFs can also take advantage of the volume it transacts on, which is many times greater than the activity of any single investor. This advantage is similar to differences between wholesaler and retailer pricing for consumer goods.

Furthermore, the process of bond trading is often inefficient because the information necessary to make a sound investment decision is not easily accessible. Fixed income ETFs are traded on stock exchanges which provides all investors with pricing transparency.

Liquidity
Certain fixed income securities are more difficult, time consuming and expensive to trade. Fixed income ETFs democratize fixed income investing – providing an efficient channel to fixed income securities that were previously unobtainable for individual investors.

ETFs provide liquid access to fixed income asset classes that are difficult to access such as real return bonds and high yield bonds.

Accessing a wide range of bonds is one matter, trading them efficiently is another. The DEX Universe Bond Index for example has over 1200 issues. It would be a daunting task for an individual investor to replicate this aggregate bond index. Having fixed income ETFs actively traded on the stock exchange makes it much easier. Fixed income ETFs can be easily traded at anytime while markets are open.

Target maturities
Target maturity bond ETFs are designed to have characteristics similar to traditional bonds. They make regular income payments and have a fixed maturity date just like traditional bonds. The average time to maturity of the ETF’s underlying portfolio will decrease to match the approaching maturity date. Like a regular bond that matures on a specific date, the target maturity bond ETF will “mature” or convert into a short-term bond fund. This gives the investor the flexibility to access funds when needed while reducing the risk profile of the portfolio over time due to the decreasing time to maturity and duration.
Equity investing using ETFs

In equity investing, choosing the appropriate risk exposures allows individuals to target their investment needs. By using ETFs, equity investors receive a transparent investment vehicle that can be tailored to their specific goals or investment strategies.

**What types of ETFs are available for equity investing?**

**Broad market ETFs**

Also known as “index investing” broad market ETFs provide exposure to many companies without specifying the industry and often follow a country’s market index. The average investor can benefit from using broad market ETFs as the core of their portfolio by obtaining a large cross section of a country’s equities in one purchase. To reproduce the world’s indices an investor would often be required to purchase hundreds of securities and regularly buy and sell these securities rebalancing the portfolio to match index changes. By buying an ETF that tracks the index, the investor receives all the exposure to the market, including the rebalancing of the ETF, at a fraction of the cost. This return after fees can have a large impact as your investment in the ETF compounds over time.

**Sector specific ETFs**

Along with broad market options, investors have the choice of investing in ETFs that provide exposures to a specific sector. The equity universe offers a diverse spectrum of risk and return characteristics where investors can target their exposures more precisely to a group of companies.

Whether trying to build a more concentrated portfolio of outperforming sectors or adjusting the weightings of their portfolio in combination with a broad market investment, using sector specific ETFs can provide more specificity to the investor’s desired risk exposures.

**Alternative exposure ETFs**

In addition to sector specific ETFs, equity investors can target their desired portfolio even further by using a rules based investment strategy. These ETFs set out a specific set of criteria for investment which must be met to be included in the ETF. The ETF is managed with the specific rules so that an investor can benefit from an investment strategy without having to build the strategy themselves.

Suppose an investor has been previously writing covered calls on a basket of Canadian banks held in the portfolio. To achieve this strategy the investor buys the banks for the portfolio and then writes call options on the securities to generate cash flow from the premiums. By using a rules based ETF with this strategy the investor merely purchases the ETF and lets the manager take care of the implementation. This investor would purchase the BMO Covered Call Canadian Banks ETF.

Some of the specific strategies that are offered through ETFs are:

**Equal weighting** – A strategy that mitigates company specific risk in concentrated portfolios, introduces a value bias and a small cap bias.

**Dividend focused** – A strategy focused on dividend paying equities that can provide higher long-term returns and lower portfolio volatility as a core investment in a portfolio.

**Low volatility** – A conservative strategy that targets a lower portfolio risk than the broad market to provide downside protection to the investor’s holdings.
Covered calls – An investment strategy where a basket of securities is owned and call options are sold on the underlying portfolio to generate option premiums.

Commodities – The type of commodity ETF best used to access commodities can differ under changing business environments and an investor’s investment objective.

• Physical-based ETFs – Are production weighted and invest in the underlying commodity.
• Equity-based ETFs – Invest in companies whose business is tied to the commodity.
• Futures-based ETFs – Invest in futures contracts of different commodities.

Laddered preferred share strategy – Higher ranking in the capital structure, preferred shares can provide a more protected income stream than dividends on straight equities.

Using a laddered preferred shares structure where annual buckets are equal weighted can reduce interest rate and reinvestment risk.

By combining these strategies in their portfolios, investors can more closely target their desired risk/return profile to suit their needs providing the specific equity exposure to meet their goals. Learn more about these strategies on the following pages.

This diagram shows the capability of an investor to achieve exposure from a broad market investment vehicle such as the BMO S&P/TSX Capped Composite Index ETF (ZCN), to a narrower market ETF such as the BMO Canadian Dividend ETF (ZDV), to a narrow sector market ETF such as the BMO S&P/TSX Equal Weight Banks Index ETF (ZEB).
Covered call option strategy

The covered call option strategy, also known as a buy–write strategy, is implemented by writing (selling) a call option contract while owning an equivalent number of shares of the underlying stock. This is considered a conservative strategy because it decreases the risk of stock ownership while providing additional income; however, it caps upside potential on significant price increases.

A call option is a contract which allows the purchaser to benefit from a rise in the stock price over a limited time period. Each contract has a stated exercise price which is the price at which the purchaser has the option to buy the underlying stock. The price of the option will be determined based on the difference between the stock price and the exercise price, the volatility of the underlying stock and the time to expiration of the option contract.

The covered call option strategy allows the portfolio to generate income from the written call option premiums in addition to the dividend income from the underlying stocks. Historically, covered call strategies have provided a similar overall return to the underlying portfolio with a significantly lower risk level.

Mechanics of covered calls

The ETFs sell out of the money (OTM) call options which cap the return of the portfolio at the option strike price until the option expires. For BMO ETFs, option expiries are generally 1-2 months.

Consider a portfolio that consists of 100 shares of Bank of Montreal (BMO) at a current price of $60, for a total value of $6,000. At the money (ATM) call options (strike price of $60) that expire in one month are valued at a premium of $1.50 per contract. To implement a covered call strategy, the portfolio writes call options on 100 BMO shares and receives $150 in premium.

Payoff without exercise: Premium received adjusted for any difference in stock price

If the stock price remains at $60, the calls are not exercised, and the portfolio benefits from the premium received. The new portfolio value is $6,150.

Break even point: Stock purchase price less premium received

If the stock price drops to $58.50, the calls are not exercised, but the portfolio value drops. The new portfolio value is $6,000 ($5,850 + $150) which is the break-even point. The portfolio will devalue at any price below $58.50.

Payoff with exercise: Premium received adjusted for any difference between stock price and exercise price

If the stock price rises to $62, the calls are exercised at $60 eliminating the benefit of the rising stock price except for the premium received. The new portfolio value is $6,150.

Impact of market conditions

The covered call option strategy is most effective when the underlying stocks are range bound, meaning that the stock’s price is not overly volatile.

When the stock price rises significantly and exceeds the strike price, the call option will move into the money. This caps the gain for the call writer based on the strike price and premium received.
Low volatility strategy

- **Target low risk broad market exposure**

  The trade-off between risk and return remains at the heart of portfolio construction and investing. Particularly following the market downturn of 2008, investors have become more aware of portfolio risk levels in addition to returns. They are questioning how much risk is in their portfolio and how it will affect their returns. Our low volatility strategy allows investors to target a specific portfolio risk level that is lower than the broad market, and potentially shelter their investments from market uncertainty.

  Studies have shown that less volatile or defensive stocks have outperformed the broad market over the long-term, as less volatile stocks may benefit from a smaller decline during market corrections while still increasing during advancing markets. Additionally, low volatility stocks tend to be more mature and have a higher dividend yield.

  Studies have also noted that higher volatility stocks underperform over time, as investors are willing to pay a premium for “lottery tickets”, high risk - high reward stocks that often do not meet expectations. Investors have been attracted to these glamour stocks, preferring short-term big winners over long-term steady performers.

  To develop the low volatility strategy, we focus on the beta of a security. Beta is defined as the stock’s sensitivity to broad market movements, where the broad market is assigned a value of 1.00. A lower beta, where the beta is less than 1.00, is viewed as less risky than the broad market.

  As the following charts illustrate, the low volatility strategy has outperformed the broad market over longer time periods. The strategy had much less of a decline than the broad market during the major correction of 2008. An additional benefit is the reduced risk level of the portfolio, which lessens the swings in performance. Over the same period, we have observed the added benefit of an even better risk adjusted return, as the returns are less volatile. So not only does the lower volatility strategy have a higher return over the period, the risk adjusted return further favours the strategy.
Impact of currency returns

Currency returns are an important factor impacting any investor purchasing a non-Canadian asset. Since the underlying investments of these assets are bought in a foreign currency, the appreciation or depreciation of the foreign currency against the Canadian dollar can either add or detract from the total return.

An ETF can be fully exposed to currency returns, or it can be currency hedged. The objective of currency hedging is to remove the effects of foreign exchange movements, giving Canadian investors a return that approximates the return of the local market.

To reduce the effects of foreign exchange risk, ETFs that provide exposure to international markets are currency hedged. This is done by taking an offsetting short position in the foreign currency to match the total notional of the underlying portfolio, typically through the use of a forward contract.

The impacts of currency should not be overlooked

Currency exposure tends to be an afterthought with most investors purchasing a foreign investment. Some will argue that the impact of currency tends to net out at zero over the long-term. In theory, it is believed that there is purchasing power parity (PPP) between two currencies, to which they will revert over time. This would suggest the practice of currency hedging to be irrelevant over the long-term.

In practice however, there are a few flaws to this argument. Currencies can trade beyond their PPP for extended periods of time, and not all investors are looking to hold an investment over the long-term. Over the short-term, the impact of currency can actually be quite substantial. Even for longer-term investors, currency can attribute a significant amount of additional volatility and affect returns.

The table below illustrates a difference of over 5% return, with almost double the volatility over the ten year period for an investor who hedged their investment in the S&P500.

### A Closer Look at the Impact of Currency on Index Returns

<table>
<thead>
<tr>
<th></th>
<th>S&amp;P 500 Composite Total Return (Currency Hedged)</th>
<th>S&amp;P 500 Composite Total Return (Not Currency Hedged)</th>
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<tbody>
<tr>
<td>2002</td>
<td>22.10%</td>
<td>-23.14%</td>
</tr>
<tr>
<td>2003</td>
<td>28.68%</td>
<td>6.19%</td>
</tr>
<tr>
<td>2004</td>
<td>10.88%</td>
<td>2.75%</td>
</tr>
<tr>
<td>2005</td>
<td>4.91%</td>
<td>1.43%</td>
</tr>
<tr>
<td>2006</td>
<td>15.79%</td>
<td>16.16%</td>
</tr>
<tr>
<td>2007</td>
<td>5.49%</td>
<td>-9.65%</td>
</tr>
<tr>
<td>2008</td>
<td>-37.00%</td>
<td>-23.09%</td>
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<tr>
<td>2009</td>
<td>26.46%</td>
<td>9.28%</td>
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<tr>
<td>2010</td>
<td>15.06%</td>
<td>9.03%</td>
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<tr>
<td>2011</td>
<td>2.11%</td>
<td>4.50%</td>
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<tr>
<td>Average</td>
<td>5.03%</td>
<td>-0.65%</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>20.50%</td>
<td>13.56%</td>
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Source: Bloomberg
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