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Are you ETF sticker-shocked? Don't be.

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Why ETF prices may not necessarily reflect their true value

Exchange-traded funds (ETFs) are pooled investments, with certain characteristics similar to mutual funds, but trade on an exchange throughout the day, like stocks. In an ideal world, the price of an ETF would perfectly reflect the value of its underlying investments. However, there are times when an ETF can be priced higher or lower than its net asset value (NAV). Why is this the case?

ARE YOU OVERPAYING OR DID YOU GET A GREAT DEAL?

Overpaying for an ETF, or buying at a premium, can occur when the market price of an ETF is higher than its NAV, or its true underlying value. Conversely, investors can feel as if they're *getting a great deal*, also known as buying at a discount, when the market price of an ETF is lower than its NAV. These subtle, often short-lived and yet important price deviations can impact critical buying and selling decisions. Information on the deviations is not always readily accessible, putting further emphasis on the importance of having a team of professionals in place to manage and trade ETF positions across portfolios.

WHAT CAN CAUSE THESE PRICE DISCREPANCIES?

There are several explanations for an ETF's market price being above or below its NAV, such as:

Time Zone Differences: Securities can trade on multiple exchanges globally, allowing investors to access the capital markets more conveniently during their local business hours. This ultimately leads to more buyers and sellers across securities and promotes greater overall liquidity. ETFs trade on those same global exchanges, and if there are time differences between the exchange the ETF trades on and the one on which the underlying securities trade, stale pricing can result in temporary premiums and discounts. This effect can be amplified by overnight currency fluctuations. While they can lead to artificial short-term tracking error, these differences reconcile themselves pretty quickly.

Liquidity: There is the potential for an ETF's underlying investments to be less liquid than the ETF itself. Higher costs may be incurred in trading of the less liquid underlying asset classes, resulting in premiums and discounts.

KEY TERMS

ETF: Exchange-traded funds are pooled investments, with certain characteristics similar to mutual funds, but trade on an exchange, like stocks.

Net asset value (NAV): The true value of an ETF. Calculated as an ETF's assets minus liabilities divided by the number of shares outstanding. This generally reflects the fair value of one share of the fund.[1]

Asset classes: Groupings of investments (e.g. stocks or bonds) that behave similarly.

iNAV: Intraday NAV represents the value of an ETF based on the last prices at which the underlying securities traded (updated every 15 seconds).[2]

[1] Disclosed once a day based on the last traded prices of underlying securities. Since ETFs trade throughout the day, this figure can become stale and not reflect the most current value of underlying securities.

[2] Based on last traded prices, so can be stale if markets in which underlying securities trade are closed.

Infrequent trading: An ETF's market price is updated when a trade takes place between a buyer and a seller. If an ETF isn't traded for several days, or any extended period of time, the market price could be higher or lower than its true value or NAV.

Fund Flows: If an ETF is bought or sold aggressively, the price of the ETF may rise or fall faster than the prices of its underlying securities, resulting in premiums and discounts.

WHICH AREAS OF THE MARKET ARE USUALLY MOST AFFECTED?

While an ETF's market price has the potential to deviate from its NAV within any asset class, certain areas of the market have a greater tendency to experience this phenomenon.

- **International Equity:** Due to the time zone differences described above, international ETFs may have a greater tendency to exhibit higher premiums and discounts relative to domestic ETFs.
- **Small Cap Equity:** Small-cap stocks tend to be less liquid than larger-cap stocks and may experience more severe premiums and discounts as a result.
- **Fixed Income:** Certain sectors within fixed income, such as corporate bonds and municipal securities, tend to be less liquid than U.S. Treasuries and therefore may experience larger premiums and discounts.

WHAT DOES THIS MEAN FOR AN INVESTOR?

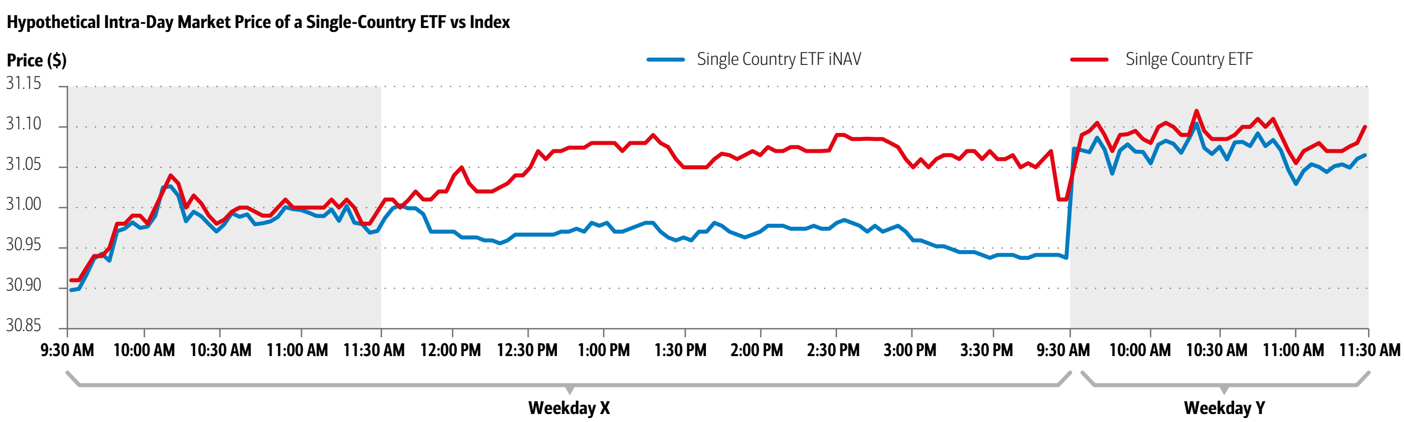
Premiums and discounts can materially impact performance over a given time period depending on the snapshot you take. Their presence may come and go over a given period of time for various reasons. Therefore, it is important to keep the nature of premiums and discounts in perspective when evaluating performance.

For example, it is common for market prices of international equity ETFs to line up with their NAV when all relevant markets are open, and to deviate again as foreign markets close. Premiums and discounts are reported based on the end-of-day NAV and the last market price. If you hold an international ETF, larger premiums and discounts may be exhibited if the foreign markets on which the underlying securities of the ETF are traded close before the time the premium or discount is recorded.

As you might imagine, the more geographically diverse an ETF is, the higher the number of exchanges involved and the higher the potential for variances in market hours. Therefore, it may be helpful to evaluate a single-country ETF in order to isolate the market hour impact on premiums and discounts.

The chart below is a hypothetical example to compare the market price of a single-country ETF with that of its intraday NAV (iNAV).

Exhibit 1: Premiums and discounts tend to be reduced or generally corrected when trading hours overlap



Shaded areas indicate hours that both markets, the U.S. and the international exchange for a single-country ETF, are open at the same time (EST).
The chart displays U.S. trading hours from 9:30 a.m. to 4:00 p.m. on Weekday X and 9:30 a.m. to 11:30 a.m. on the following Weekday Y (EST).
Sources: CIO, Bloomberg. Data as of September 2017.
Exhibit 1 is for illustrative purposes only. This hypothetical illustration does not reflect the performance of any specific investment.

In this hypothetical example, a single-country ETF trades on a U.S. stock exchange (NYSE ARCA), but the underlying securities trade on the country's local exchange. The two markets' trading hours overlap from 9:30 a.m. to 11:30 a.m. EST. It would be expected that premiums and discounts would be smaller during the time the two markets are open, and larger when the international exchange closes at 11:30 a.m. EST. As illustrated above, the market price of the single-country ETF is closest to that of the iNAV from 9:30 a.m. to 11:30 a.m. EST on Weekday X when both the U.S. and the international exchange are open. They then deviate from each other for the remainder of the trading day in the U.S. once the international exchange is closed. This phenomenon is to be expected, as the iNAV is based on the last traded prices of the underlying securities (on the international exchange). Investors in the U.S., however, can trade the ETF throughout the day on the U.S. exchange, taking into consideration news that may affect the value of the ETF's underlying securities. In this example, the phenomenon proves to be temporary, as the two merge together again the following morning once both markets resume trading at the same time.

WHAT DOES THIS MEAN FOR A DIVERSIFIED PORTFOLIO?

The chart illustrates the premium or discount that could occur for a given ETF, but how impactful is this effect in aggregate within a portfolio comprised of many ETFs? Although the magnitude of premiums and discounts may vary by investment, the day and time you look at them can have a meaningful impact on your performance evaluation at the portfolio level as well. If you look at individual days, some of the data may appear concerning. However, a seemingly significant premium or discount effect captured over a period of days, weeks or even months may be corrected if viewed over a longer time frame. Thus, it is important to consider the length of time over which you are evaluating the impact of premium and discount effects on a portfolio's performance.

For an investment vehicle that may seem as straightforward as an ETF, when looking under the hood there can be many complexities. Individuals often fail to appreciate the nuances of ETF pricing. Ensuring you are working with an investment professional to fully understand buying and selling decisions through education and access to timely information, may be beneficial in your decision-making process. At the end of the day, no one goes shopping for a *bad deal*.

IMPORTANT DISCLOSURES

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Investing involves risk, including the possible loss of principal. Any investment plan should be subject to periodic review for changes in your individual circumstances, including changes in market conditions and your financial ability to continue purchases.

ETF Risk Considerations: ETFs are subject to certain risks that may affect the price, yield, total return and ability to meet its investment objectives, including: general market risks; a particular asset class risk; the fact the funds in the ETF are typically passively managed; concentrations in a particular industry or region and; market trading risks (e.g., a lack of market liquidity and trading at prices at or above their NAV). For a discussion of the risks specific to a particular ETF, please refer to the ETF's prospectus. An investment in an ETF is not insured or guaranteed by the FDIC or any other governmental agency. ETF shares may trade at a premium or discount to NAV. ETFs may be subject to management fees, transaction costs or expenses.

It is not possible to invest directly in an index.

Asset allocation, diversification, dollar cost averaging and rebalancing do not ensure a profit or protect against loss in declining markets.

Equity securities are subject to stock market fluctuations that occur in response to economic and business developments

Stocks of small-cap companies pose special risks, including possible illiquidity and greater price volatility than stocks of larger, more established companies.

International investing involves special risks, including foreign taxation, currency risks, risks associated with possible differences in financial standards and other risks associated with future political and economic developments. Investing in emerging markets may involve greater risks than investing in more developed countries. In addition, concentration of investments in a single region may result in greater volatility.

Investing in fixed-income securities may involve certain risks, including the credit quality of individual issuers, possible prepayments, market or economic developments and yields and share price fluctuations due to changes in interest rates. When interest rates go up, bond prices typically drop, and vice versa. Income from investing in municipal bonds is generally exempt from Federal and state taxes for residents of the issuing state. While the interest income is tax-exempt, any capital gains distributed are taxable to the investor. Income for some investors may be subject to the Federal Alternative Minimum Tax (AMT).

Past performance is no guarantee of future results.

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