

Exchange Traded Fund Basics

An Introductory Guide to Exchange Traded Funds (ETFs)

WHAT IS AN ETF?

ETFs or Exchange Traded Funds (or can simply be referred to as Funds) are investment vehicles that replicate an index, strategy or asset class (stocks, bonds, commodities) similar to mutual funds. Unlike mutual funds, ETFs are exchange traded, meaning they have a ticker symbol (i.e. SPY) on an exchange (such as the NYSE or NASDAQ) and can easily be bought or sold throughout the day like a stock. Since some investments (i.e. real estate, commodities etc.) are more difficult for an every day investor to invest in and complex to manage, an ETF instead allows an investors the flexibility to easily buy and sell an index, basket of stocks, bonds, commodities etc.

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ETF CORE BENEFITS




Low Costs

The low costs of owning an ETF makes them appealing to most investors that are trying to invest in broad areas of the market



Access

In the past owning assets such as oil, gold, volatility, currencies etc, was costly and accessible mostly to large institutions. ETFs allow any investor access to all areas of capital markets



Transparency

Most ETF managers provide their portfolio on a daily basis (as opposed to mutual funds that are required to disclose portfolios quarterly with a 60-day lag)



Liquidity & Pricing

ETFs can be traded like a single stock and are continuously priced throughout the day. As their name implies, they are traded on an exchange where many buyers and sellers come together to transact.



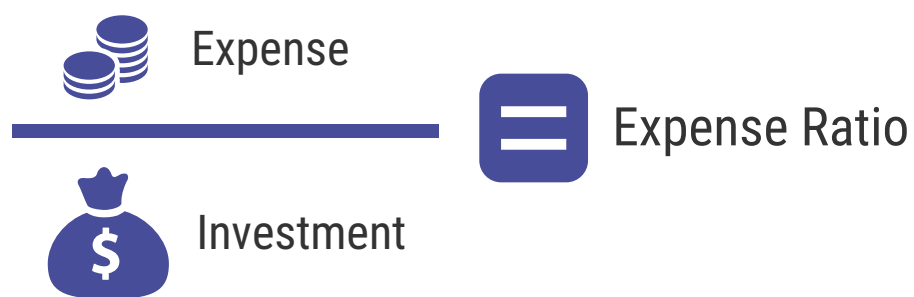
Tax Efficiency

Since many ETFs are passive they have low portfolio turnover and hence lower taxes. Also, ETFs reduce taxable events by delivering securities rather than cash for redemptions.

EXPENSE RATIO

An Expense Ratio tells us how much the ETF costs. For example, the expense ratio of SPY ETF is 0.09%, which means that for every \$10,000 investment, an investor would pay the ETF manager \$9 a year. The Expense Ratio can vary and go up to a few percentage points. When ETF management fees are compared to mutual fund fees, ETFs are typically less expensive. However, not all ETFs are cheap. Depending on their strategy, liquidity, and business model, some ETFs are more expensive than others, even when tracking the same index.

That said, as ETFs remain a very efficient way for investors to gain access to broad market indices, sectors or investment strategies, understanding the Expense Ratio is an important task when choosing an ETF.



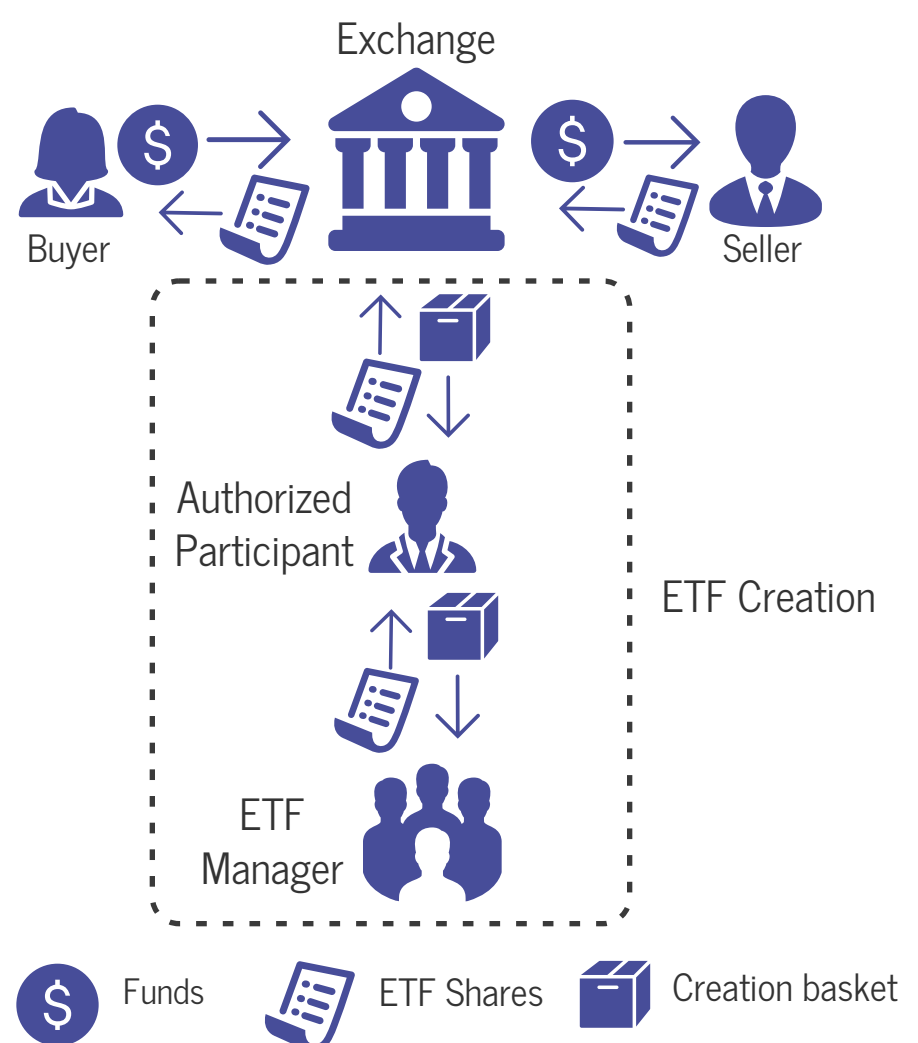
CREATION AND REDEMPTION

One unique element of ETFs, that is crucial for ETFs being so liquid is the so called *creation and redemption process*. Although ETFs trade on stock exchanges they do not get there through an initial public offering (IPO). Instead, ETFs use a process called creation and redemption that allows for the continuous creation and removal of available shares. When an investor buys shares in an ETF the ETF fund manager is not involved in the transaction at all. The ETF does not know who bought these shares and it does not receive any cash from the purchase. The shares actually just transfer in the market from seller to buyer. The big question is, "where do the shares come from initially?"

A group of broker-dealers called authorized participants (APs) acts as market makers for the ETF are authorized by the fund to create and redeem shares. The fund (ETF) publishes on a daily basis the intended composition of the portfolio. For example, an S&P 500 tracker ETF may want to own all the securities in the S&P 500 Index with the correct weights of the index. The holdings of each ETF are disclosed publicly each day and are referred to as

the "creation basket". These holdings are also used to calculate the net asset value (NAV) of the portfolio. New shares are created when an AP buys up the stocks in the creation basket. It then delivers this basket of securities to the ETF manager in exchange for shares of the ETF. The AP then sells the ETF shares to individual investors. This is how shares are created (aka creation). The redemption process works the same way in reverse. The AP would sell the ETF shares for redemption to the ETF manager and receive the basket of underlying securities, which the AP then sells in the market. This is how ETF shares are removed from the market (aka redeemed).

The creation and redemption is central to liquidity which is one of the core benefits of investing in ETFs. The process keeps the price of an ETF in a range near the NAV of the underlying portfolio and relies on the AP to exploit any arbitrage opportunities. As with all stocks, the price of a share of an ETF is based entirely on supply and demand. If there are more buyers than sellers, the price of the ETF goes up and if there are more sellers than buyers, the price goes down. If the relationship between the supply and the demand of the ETF shares creates a meaningful difference such that the ETF shares are trading at a premium to the value of the portfolio, an arbitrage opportunity is created whereby the AP can buy the portfolio basket in the market and sell that basket to the fund manager in exchange for shares of the ETF.



TRACKING ERROR

Since ETFs often have a benchmark index that they are meant to replicate, the tracking error is used to measure the efficiency of the fund in tracking the benchmark.

Tracking error may be influenced by a few factors such as management fees which reduce performance, the fund management's skill in investing, and market volatility which makes re-balancing the fund's holdings more costly.

Aside from the factors noted above, another big driver for performance differences between a fund and its benchmark is how an ETF manager goes about replicating an index in the first place. This is typically done by *representative sampling*. Consider any equity index-tracking ETF and the number of securities that make up that index. To perfectly track the index the ETF manager would have to purchase every underlying stock in the index. Doing this would mean buying hundreds of individual stocks which is expensive and time consuming.

The alternative employed by ETF managers is to purchase only a representative sample of stocks that perform closely to an index (*representative sampling*). By doing this the ETF manager can build a portfolio that closely tracks the index while remaining liquid and cost efficient. This is also why two ETFs that track the same index may have different performances and hence different tracking errors given that representative sampling is at the discretion of the Fund manager.

NET ASSET VALUE (NAV)

Net Asset Value (NAV) is considered an important indicator of the actual value of the ETF (as well as mutual fund). To determine the NAV all of the ETF holdings are aggregated and divided by the number of shares. NAV is determined at a specific chosen time every day at which point assets are valued. Prices of assets are recorded and aggregated, then reduced by liabilities to arrive at the fund's portfolio value. For example, this would be fairly straightforward for a US listed ETF tracking US equities. As the market closes at 4:00 PM, the fund would value its assets and publish the NAV as of the 4:00 PM close.

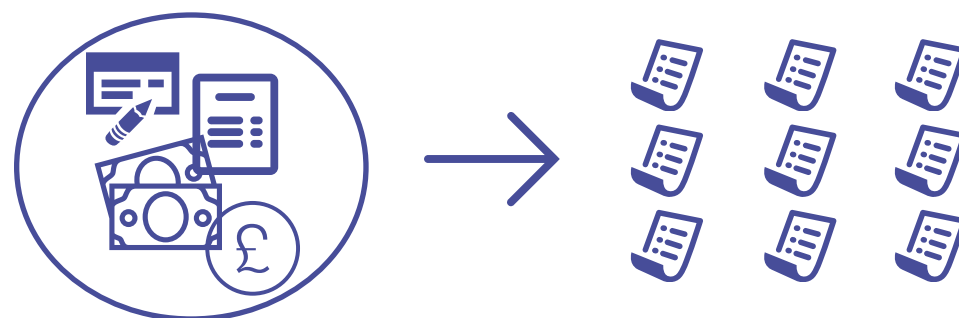
This process becomes more challenging if a fund that tracks European stocks trades on a US exchange. NAV for European stocks would be determined at the European

market close at 11:30 AM EST. For the rest of the trading day (until 4:00 PM) in US, the ETF would trade with a "stale" NAV as of 11:30 AM. As a lot can happen in four and a half hours, differences between the ETF price and NAV can appear.

For greater transparency, besides NAV which is available at the end of the day, funds also have iNAV (Intraday/Indicative Net Asset Value) that could be useful in determining the value intraday. iNAV is calculated by a third-party vendor and published every 15 seconds.

Note: NAVs and iNAVs are calculated in base currency of the fund. If an ETF's assets are in a different currency, to determine the NAV/iNAV one may need to do a currency conversion to determine whether the fund is trading at premium or discount.

ETF Assets... divided by # of shares = Net Asset Value



PREMIUMS AND DISCOUNTS

As ETFs are traded on the exchange, the price that is associated with them is the current market price. However, an ETF's actual value is measured by its net asset value (NAV) at the end of the day, as well as by intraday NAV in the middle of the day.

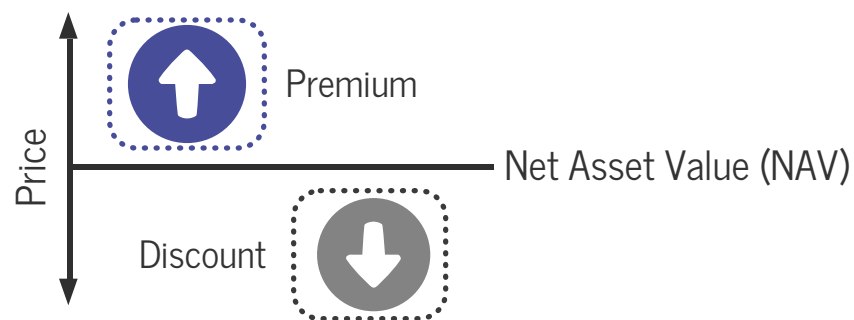
Market price and NAV do not move in lock-step, therefore when the price of an ETF is greater than its NAV it is said that the ETF is trading at "premium". Alternatively, when the price is below NAV, the ETF is trading at "discount". Generally, during calm markets with low volatility, the NAV and price are relatively close. During more volatile markets, the price moves to reflect the outlook on the market. NAVs take longer to adjust therefore causing premiums and discounts.

For example, if the investor wanted to express a view on the healthcare market by heavily buying a healthcare ETF, this would drive the price of the ETF higher. However, this

does not mean that underlying healthcare securities in the same ETF will also move higher. This would cause a premium between market price and NAV.

Authorized participants (AP) assist in ensuring that an ETF's market price is in line with its NAV. In case that material premium or discount arises, the APs can capitalize on it through the ETF creation/redemption process. Creations and redemptions exist to bring the supply and demand of the ETF shares together, which ultimately gets the market price in line with NAV.

Other than supply and demand that we covered above, other drivers of ETF premiums and discounts are also where NAV trades on a different exchange than the ETF as well as ETFs in which NAV is less liquid resulting in larger premiums and discounts.



LIQUIDITY

Liquidity, often defined as the ability to purchase and sell quickly is an important consideration of any investment. Generally, investors that are new to ETFs use indicators such as trading volumes and ETF asset levels to determine the liquidity of their investment. However these metrics are irrelevant due to an ETF's unique ability to issue and withdraw shares (creation/redemption) as a result of supply and demand. As a result of this create and redeem mechanism, the liquidity of the ETF is defined by the liquidity of the underlying assets of the ETF.

As the underlying assets of the ETF become more or less liquid, this is reflected in the bid/ask spread. As a general rule, the tighter the bid/ask spread, the better the liquidity and vice versa. Therefore, it is natural to consider the underlying asset liquidity when evaluating ETF liquidity. For example, an ETF that tracks US equities, which are very liquid, will have a better liquidity than an ETF that tracks an emerging markets bond index which could have underlying assets that are much less liquid. This translates into the ETF's liquidity.

TAXES

The primary tax consideration for many investors is capital gains and it is often considered one of the core benefits of ETFs. One unique tax advantage ETFs have over mutual funds pertains to capital gains distributions. ETFs typically distribute much less in capital gains taxes than mutual funds. Since many ETFs track indexes they tend to have less trading activity and therefore fewer capital gains. As the number of investment strategies housed in ETFs grows beyond index tracking to more creative strategies this may change, possibly increasing transaction activity and capital gains.

Another tax benefit of ETFs compared to other investments such as mutual funds is the way sales are treated. While both an ETF and a mutual fund hold investment assets, when an investor in a mutual fund decides to exit the fund, the portfolio manager needs to sell positions in the fund to generate cash for the investor, which generates capital gains for all investors in the fund. This differs from an ETF where the investor simply sells his/her shares on the open market to another investor without creating a taxable event for other investors in the fund.

Creation and Redemption, the process ETF managers perform to issue and withdraw shares also creates tax efficiency. As an ETF manager transacts with Authorized Participants to redeem shares, the manager can select which assets in the portfolio to exchange. This allows the ETF manager to select assets with the highest capital gains, effectively washing the fund of potential capital gains.

INVESTMENT TYPES

One of the core advantages of ETFs is accessibility to various areas of capital markets. In the past, investing in gold, real estate, oil, currencies etc., was accessible only to large institutions, while now anyone with a trading account has access to all these investments and more by using ETFs. Some ETF types:



and many more...