ETF Education

The Basics of Exchange Traded Funds

PACER ETFs

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ETF Background

Exchange traded funds (ETFs) are a collection of securities traded like individual stocks on major exchanges. Passive ETFs are designed to track the price of an index or underlying asset.

ETFs were first developed in the 1990s as a means to provide liquid exposure to passive index funds for institutional investors.

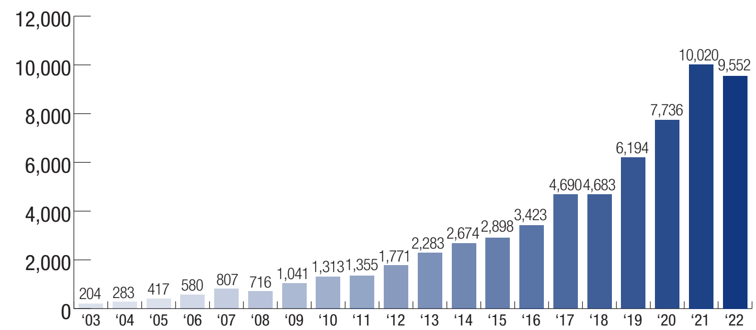
ETFs have grown in popularity over the past several decades and are best known for their liquidity, low-cost, diversification and tax efficiency.

(1)https://www.statista.com/statistics/278249/global-number-of-etfs/
(2)**NAV: Net Asset Value** – A real-time estimate of the ETF's fair value, based on the underlying holdings that make up an Index

The Marketplace

The global ETF market grew markedly during the period from 2003 to 2022. The number of ETFs listed on exchanges around the world grew from 276 in 2003 to 8,754 at the end of 2022. As of the end of 2022, global ETF assets totaled nearly $10 trillion U.S. dollars.[1]

Development of assets of global exchange traded funds (ETFs) from 2003 to 2022 (in billion U.S. dollars)



Source: Deutsche Bank; Bloomberg; Thomson Reuters; ETFGI

Some Potential ETF Benefits

1. Tax Efficiency – ETFs are generally considered more tax efficient than mutual fund peers because of the creation/redemption process which can help shield investors from capital gains as changes are made to the portfolio.

2. Transparency – Unlike mutual funds, passive and transparent ETFs disclose and publish their full portfolio holdings and changes on a daily basis. This information is easily accessible so investors can know what they own at all times.

3. Liquidity – Unlike mutual funds, ETFs can be traded intraday. ETFs are priced every 15 seconds throughout the day to keep the price close to the NAV[2] of its underlying holdings.

4. Low Cost – Passive ETFs generally have lower costs than other comparable investment vehicles due to their passive nature. ETFs also commonly have lower management fees and less internal trading costs due to their low portfolio turnover.

5. Diversification – ETFs offer diversified exposure across a broad range of markets and asset classes. ETFs generally track indices which can hold hundreds or thousands of securities.

6. Trading Flexibility – Unlike mutual funds, ETFs can be bought and sold throughout the day (intraday) at prices close to their Net Asset Values (NAVs).

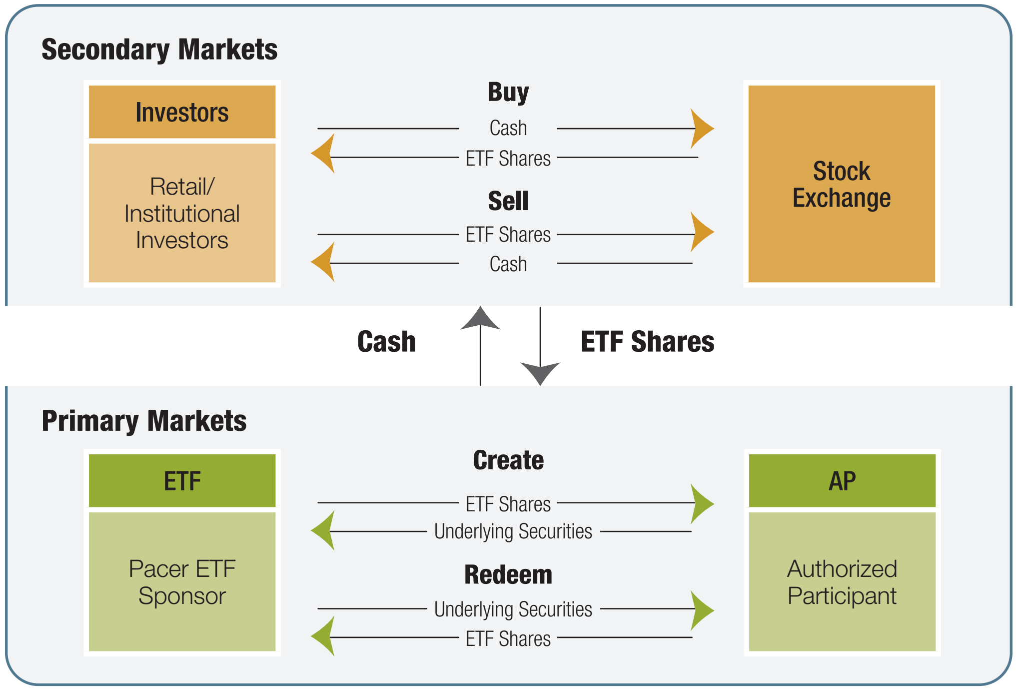
Tax Efficiency

Via the Creation/Redemption Process

Like stocks, investors can trade ETFs throughout the day in the secondary market. In the primary market, ETF sponsors work with Authorized Participants (APs) to create and redeem new shares of ETFs. The process of creating and redeeming ETF shares allows the ETF sponsor to transfer underlying securities to and from APs as the size of the fund changes, as well as during rebalances. As a result, the investor is not typically exposed to capital gains resulting from changes to underlying securities within the fund.

Creation/Redemption
Creation: increase inventory
Redemption: decrease inventory

- In-kind transfer of securities – When an Authorized Participant (AP) creates or redeems shares with the ETF sponsor they swap ETF shares for shares of the underlying securities, or vice versa. The AP and ETF sponsor are essentially exchanging baskets of equal value with one another. Since shares are delivered to and from APs as opposed to the ETF fund manager trading underlying shares in the secondary market, there is no taxable event for the fund or the ETF shareholder.
- Offset capital gains/losses – There are many opportunities for the fund manager to offset capital gains and losses during the creation/redemption process. ETFs can also take advantage of the creation/redemption process to offset capital gains during fund rebalances.



An AP, or Authorized Participant, is typically a large financial institution that enters into a legal contract with an ETF distributor to create and redeem shares of the fund. (Source: https://www.ici.org/doc-server/pdf%3Appr_15_aps_etfs.pdf)
An ETF sponsor is a financial firm that issues, manages, and markets an exchange-traded fund. (Source: https://www.investopedia.com/terms/e/etf-sponsor.asp)

Efficient Trading

Via Volume and Liquidity

Liquidity refers to the ability and ease at which investors can buy or sell assets at fair prices. The liquidity of an ETF is generally driven by the liquidity of the underlying securities it holds, as opposed to individual stocks, whose liquidity is driven primarily by average daily trading volume. If the underlying securities within an ETF are liquid, the ETF will have a potential for greater liquidity mirroring its underlying securities, regardless of the ETFs average daily trading volume.

Levels of Liquidity:

On the exchange
Much like stocks, secondary market liquidity is established by matching buy and sell orders for ETFs on an exchange. The interaction between buyers and sellers on an exchange helps to facilitate liquidity in the secondary market for ETFs.

Market maker activity
Market makers are high-volume traders that "make a market" for securities by always standing at the ready to buy or sell. Market makers provide liquidity, which ensures investors can trade quickly and at a fair price. Market makers buy securities from sellers and sell securities to buyers, generally from their own inventory. Market makers help to facilitate liquidity in the ETF market.

Unit creation based on underlying securities
Because ETFs are open-ended funds, APs can create/redeem units based on supply and demand in the market. This means if demand for an ETF outpaces supply (more buyers than sellers), APs can create ETF units to match demand, allowing investors to purchase the ETF at a fair price. On the other hand, if the supply of an ETF outpaces demand (more sellers than buyers), APs can redeem ETF units, allowing investors to sell the ETF at a fair price.

Trading Tips

1. Use Limit Orders

In order to know exactly what price you will get, place a limit order.

What happens when you place a limit order to buy 5,000 shares at $20.65?

1. The first 1,000 shares will immediately fill at $20.65. The remainder will "stay on the books" and fill at $20.65 or better when the shares are replenished by the market maker.

Caution: Watch your order. It is possible the market will move away from your order and it will not be filled. If that happens, readjust your limit order.

Hypothetical ETF Volume: 1,000,000					
	Bid			**Ask**	
CBOE	**20.64**	**1000**	CBOE 1	**20.65**	**1000**
ARCA	**20.63**	**1000**	ARCA 2	**20.67**	**1000**
NSDQ	**20.61**	**4400**	NSDQ 3	**20.80**	**3000**
EDGX	**20.60**	**8000**	EDGX	**20.81**	**5000**

2. Do Not Use Market Orders

To reduce potential poor execution, do not use market orders. WHY NOT: In the example above, what happens when a market order to buy is placed for 5,000 shares?

1. *The first 1,000 shares would fill at $20.65.*
2. *Immediately, the next 1,000 shares would fill at the next level - $20.67.*
3. *The remainder would be priced at $20.80.*

Trading Volume DOES NOT Equal Liquidity

Unlike stocks, an ETF's trading volume does not equal its liquidity. This is due to how ETFs are traded. With ETFs, new shares can be created and existing shares redeemed at any time based on investor demand. The creation and redemption process works by evaluating the liquidity of an ETF's underlying portfolio of securities. If the underlying stocks are liquid, the ETF will have a potential for greater liquidity, mirroring its underlying securities.

3. Place Your Limit Order Close to the IIV/IOPV

The bid and ask will be close to the IIV (Intraday Indicative Value)/IOPV (Indicative Optimized Portfolio Value). If the IIV/IOPV deviates too far from the bid/ask, the market makers will arbitrage (simultaneously buy and sell the ETF shares for a profit). Check the current IIV/IOPV using Google.com, Yahoo.com, Bloomberg, Reuters, etc. Place your bid close to the IIV/IOPV.

4. Large Orders Do Not Affect the IIV/IOPV

Since share price is based on the underlying value of the securities that make up an index, not supply and demand, a large order will not "move this market" (except in cases where the underlying securities are thinly traded). Historically, large market orders generally receive the worst execution prices, therefore, remember TIP #1: Use Limit Orders. Or contact your trade desk for explanation.

5. Redeem Shares at Any Time for a Fair Price

The market maker will always create or redeem shares based on the value of the underlying securities plus a spread (bid/ask). Using limit orders will greatly improve your overall execution prices. The IIV/IOPV is NOT determined by buys and sells.

6. IOPV Can Be Inaccurate for ETFs That Hold Foreign Securities

Foreign securities in some ETFs may be traded on exchanges which are closed during US market hours.

Limit Order: An order placed to buy or sell a set number of shares at a specified price or better.
Market Order: An order to buy or sell a stock immediately at the best available current price.
Bid: The price a buyer is willing to pay for a security.
Ask: The price a seller is willing to accept for a security.
Bid-Ask Spread: The amount by which the ask price exceeds the bid.
Intraday Indicative Value (IIV)/Indicative Optimized Portfolio Value (IOPV): A real-time estimate of the ETF's fair value, based on the underlying holdings that make up an index.

Speak with your financial advisor today to learn more about Exchange Traded Funds.
For more information, visit www.paceretfs.com.

Before investing you should carefully consider the Fund's investment objectives, risks, charges, and expenses. This and other information is in the prospectus. A copy may be obtained by visiting www.paceretfs.com or calling 1-877-337-0500. Please read the prospectus carefully before investing.

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PCR2023_ETF101 6/6/2023