Education

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ETF Liquidity

Master the Mechanics of ETF Trading

SPDR ETF Capital Markets Group & SPDR ETF Strategy and Research Team

- **Understanding ETFs' creation/redemption process gives investors insight into additional liquidity they can access.**
- **Bid/ask spreads are determined by the bid/ask spread of the underlying securities, the liquidity of those securities, execution costs and market risk.**
- **When trading in the secondary market, investors should consider market and limit orders; for large notional orders or block orders, engaging with institutional trading desks can provide additional liquidity support.**

Creation/Redemption Process — The Primary Market

Becoming familiar with the ETF creation/redemption process is key to understanding the true extend of an ETF's overall liquidity and achieving more efficient execution from a wider selections of funds. The creation and redemption process for ETFs takes place in the primary market and is facilitated by authorized participants (APs). APs are US registered, self-clearing broker dealers, who regulate the supply of ETF shares in the secondary market.

Creation is the process by which APs introduce additional shares to the secondary market. During this process, APs deliver the underlying securities to the fund sponsor in return for ETF shares. For redemptions, APs deliver ETF shares to the fund sponsor in return for the underlying securities. These transactions are executed in large increments known as unit sizes, which vary from 10,000 to 600,000 shares.

The ability to introduce additional shares into the marketplace on a daily basis demonstrates precisely why ETF trading volume is not an all-encompassing measure of the fund's overall liquidity. In order to understand the full liquidity of an ETF, investors must also consider the liquidity of its underlying securities.

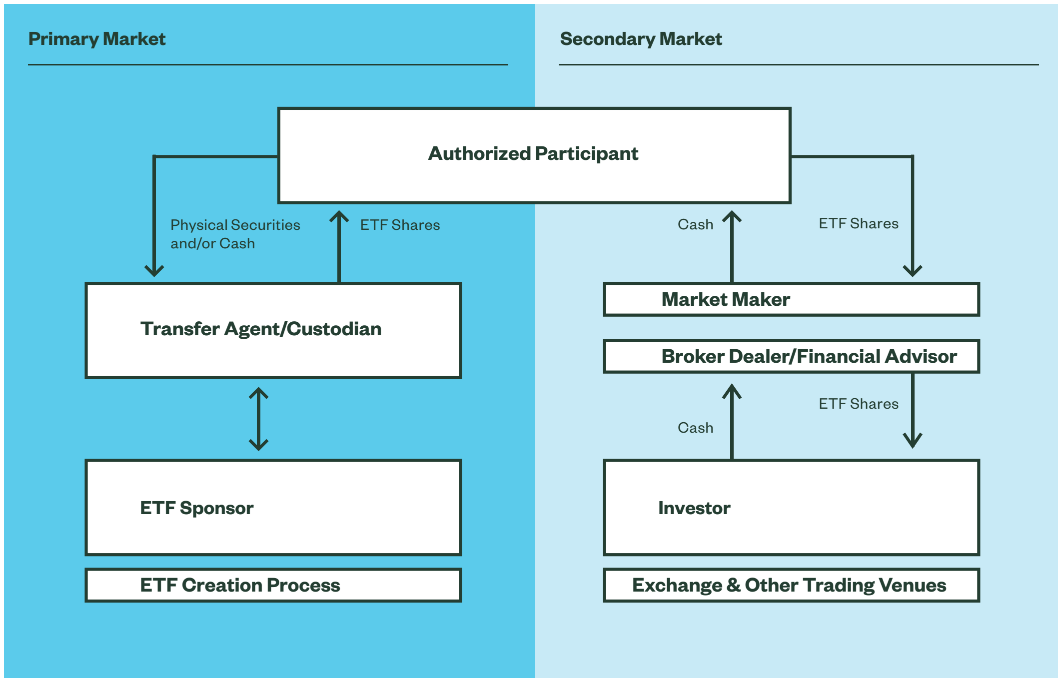
Why Does An AP Create Or Redeem ETF Shares?

There are a number of reasons why an AP creates or redeems ETF shares, including: arbitrage, inventory management, customer facilitation, and create to lend. The two reasons that are the most applicable to investors are customer facilitation and arbitrage.

Customer Facilitation APs have the ability to create or redeem ETF shares for clients in order to access additional liquidity beyond the secondary market. For example, if a pension fund is interested in acquiring $50 million of ETF XYZ, they may consider working with an AP to facilitate a creation. Additional detail can be found in Section 3: Buying and Selling an ETF.

Arbitrage APs can create or redeem ETF shares in order to take advantage of potential arbitrage opportunities in the market. For example, if shares of ETF XYZ are trading at $55.00 in the secondary market and the value of the underlying securities is $54.95 per share, there is an inherent arbitrage opportunity. In order to realize this opportunity, the AP would sell ETF shares at $55 and hedge their position by buying the corresponding underlying basket of securities for $54.95, thus locking in the $0.05 profit. The AP can deliver the underlying securities to the fund sponsor in return for ETF shares in order to flatten out their short position in the ETF. This hypothetical example results in a $0.05 profit for the AP. The key takeaway for investors is that this process keeps the ETF market price in line with the value of its underlying securities due to the consistent arbitrage opportunity for APs and institutional trading desks.

Figure 1
ETF Creation/ Redemption



Bid/Ask Spreads

The ask is the price at which an investor can buy ETF shares, and the bid is the price at which they can sell. The difference between the bid and the ask is the spread, which indicates the overall cost of transacting in any security (plus any applicable brokerage commission costs).

What Does The Bid/Ask Spread Represent?

ETF bid/ask spreads reflect execution costs, market risk and the bid/ask spreads of the underlying securities in the ETF basket. These variables are all considered when institutional trading desks make markets for investors. Like most businesses, the cost to the end consumer is highly correlated to input costs. In this respect, ETF trading is no different from any other business. Therefore, ETF traders need to account for different categories of cost when facilitating ETF trades:

Creation/Redemption Fee This is a fixed cost that the ETF sponsor charges an AP to create or redeem ETF shares. The fee varies amongst funds and is a cost per order, not per creation or redemption unit. Fees generally range from several hundred dollars to several thousand dollars, depending on the ETF and its asset class.

Spread of the Underlying Securities in an ETF Basket Bid/ask spreads of the underlying securities directly impact the costs to market makers to trade ETFs. These costs tend to be greater for less liquid, esoteric asset classes, such as emerging market equities or high-yield credit. If a market maker has to obtain a portion of the ETF constituents on the secondary market to then deliver into the fund as part of the basket process, the cost of acquiring those names should be reflected in the ETF's bid/ask spread — as costs are traditionally passed through to the end customer.

Risk At times, market risk can have a major impact on spreads, especially during periods of elevated market volatility. During these times, market makers are forced to widen their spreads in order to include a buffer for the additional market volatility. In order to hedge their risk and make orderly markets when trading, market makers will use an array of tools — underlying securities or correlated proxies, such as index futures or other ETFs. This hedging cost will included in an ETF's spread and also passed along to investors trading in the secondary market.

How Does An ETF's Spread Change Over Time?

Although there are certainly a number of factors that contribute to the spread of an ETF, we believe there is one major factor that tends to compress spreads — secondary market trading volume in the ETF. Over time, as secondary market trading volume increases, there is a high correlation with tightening spreads. As volume in an ETF rises, competition among market participants may compress spreads and allow investors to transact in a more cost-efficient manner in the secondary market. As ETFs mature, they may trade within an "arbitrage band" determined by the costs incurred by APs when creating and redeeming ETF shares.

Premiums/Discounts And Why They Occur

In some cases, ETFs can trade above or below their intraday Net Asset Value (iNAV). This discrepancy is known as a premium or discount in the fund. ETFs may trade at premiums or discounts to their iNAVs due to several factors, including the bid/ask spread of their underlying securities, execution costs, investor sentiment and market risk.

With respect to ETFs with international equity underlyings, we tend to see greater premiums/discounts due to higher transaction costs and additional market risk. Furthermore, when analyzing these premiums and discounts, investors should keep in mind the difference between trading hours of the underlying securities and of the US-listed ETFs.

ETFs with fixed income underlying securities generally trade at a premium to NAV under normal market conditions. The main reason for this phenomena is that fixed income ETFs trade at the midpoint (between the bid and the ask) of their underlying securities, while their NAVs are priced using bid side — causing the differential as the midpoint will be greater than the bid price.

However, during fear-driven market environments (taper tantrum, debt ceiling debate, oil selloff), fixed income ETFs may see their premiums diminish and trade at a discount to NAV. In this case, the discount conveys market sentiment, as investors use the ETF as a price discovery tool. It also reflects the risk market makers face to sell the underlying cash bonds as during bouts of volatility, as some of the more illiquid fixed income securities may not be actively priced/traded.

Buying & Selling An ETF

There are two layers of liquidity within an ETF — available liquidity in the secondary market and liquidity of the underlying securities. In order to access all available pools of ETF liquidity, it is important to understand the various ways investors can buy and sell ETFs.

What Is The Secondary Market?

The majority of ETF orders are entered electronically and match orders placed by natural buyers and sellers in the secondary market, where participants post bid and offer quotes at price levels that they are willing to buy or sell a particular number of shares at for a given ETF. There are a number of different order types that can be used in the secondary market. Many investors utilize limit orders, which are orders to buy or sell a stated amount of a security at a specified price or better. In order to get a better sense of why investors should utilize limit orders when buying or selling an ETF, let's run through an example using the following hypothetical secondary market for ETF XYZ:

XYZ Bid		XYZ Ask	
Shares	**Price ($)**	**Price ($)**	**Shares**
1,000	36.11	36.25	1,000
1,000	36.10	36.30	3,000
10,000	35.96	36.35	12,000
3,000	35.95	36.39	4,000

If an investor placed a market order for 20,000 shares of XYZ, their average execution price would be $36.35, or $0.10 above the best offer at the time of execution. This is due to the fact that only 1,000 shares are offered at the best offer price of $36.25. The remainder of the trade is then executed at subsequent price levels until it has been fully executed. As a result, a market order for 20,000 shares would sweep through the available liquidity — in this case, at all four levels shown. On the other hand, the investor could place a limit order at the best offer of $36.25, which would immediately execute 1,000 shares at that price. The remaining 19,000 shares would be bid in the secondary market at the same level until the order is filled.

This example highlights why market orders should generally be avoided when trading ETFs, especially with those that are more thinly traded. Although market orders provide faster execution of the entire order, the lack of control over the price can lead to unintended trading slippage. With limited orders, the tradeoff is less immediate execution, but greater control over price. One risk with limit orders is that the entire order may not be filled. In order to increase the probability that the entire trade will be filled, investors can enter more aggressive limit orders, at price points higher than the best offer in the secondary market.

How To Handle Large Trades

Despite the efficiencies of the secondary market, investors may face situations where their trades imply outsize the available liquidity in the secondary market. In these circumstances, it may make sense to execute through an institutional trading desk. There are two common ways to execute large ETF orders with trading desks:

Risk Trade One way that investors can interact with an institutional trading desk is through a risk trade. With a risk trade, the trading desk will quote a market for a given ETF at a given size. For instance, for a client looking to buy 125,000 shares of ETF XYZ, the desk will calculate its risk and offer a price at which it is willing to sell the 125,000 shares to the client. If the client finds the price agreeable, then the trade is executed OTC (over-the-counter), and the liquidity provider must print the trade to the consolidated tape. The reason this is referred to as a risk trade is because once the trade is executed, the trading desk assumes the market risk (ability to hedge the position and limit capital loss on the trade from market) of the position. In the event that the trade is large enough, they may create or redeem shares to unwind their risk. This may be advantageous to clients looking to execute their orders quickly at one price.

Creation/Redemption Investors can also work with a trading desk or AP to place a creation order on their behalf with the fund sponsor. In this scenario, the price the client pays for the shares is based upon the closing NAV, as well as any implicit costs that the AP incurs in the process of creating shares. As previously discussed, these costs include executing the underlying securities and the creation fee charged by the ETF sponsor.

Each of these scenarios allows investors to access deeper pools of liquidity than offered by the ETF itself in the secondary market. The main difference between the two is that the investors transfers market risk to the authorized participant and receives an immediate execution price in a risk trade, in comparison to creating ETF shares and taking on market risk until the end of day. The reason for using one over the other depends on the goals of the investor.

	Pros	Cons
Market Order	Order is usually filled quickly	No control over execution price
Limit Order	Control over execution price	Chance order will not be filled

Making Trading More Efficient

ETF usage continues to accelerate as intermediary and institutional investors embrace ETFs for their inherent benefits, such as low cost, tax efficiency, intraday liquidity and transparency.[1] Understanding the unique structure of ETFs allows investors to buy and sell them more efficiently.

The SPDR Capital Markets Group builds relationships with SPDR ETF authorized participants, market makers, liquidity providers, execution trading desks/platforms and stock exchanges. We play an active role in prompting competitive markets and maintain the SPDR ETF liquidity ecosystem. Given our insight into primary and secondary market activity — as well as our access to a wide variety of pre-trade liquidity analytics tools — our team of sales professionals is dedicated to working closely with clients to help educate them about the nuances of ETF execution and ultimately ensure that they are equipped with the knowledge necessary to most effectively trade SPDR ETFs.

In Summary

ETFs Trade Like Equity Securities Investors and advisors should remember that ETFs are purchased, sold and settled like an equity security. When buying or selling an ETF, investors should consider all of the factors they would consider when buying or selling a stock, as well as additional factors, such as the total overall liquidity of the ETF.

Extreme Volatility Means Information Flow Can Be Less Efficient Under the efficient markets hypothesis, the stock market is viewed to be efficient and to reflect all publicly available information on securities. In periods of distress, the markets typically become less efficient. As a result of uncertainty in the broader markets, one may see bid/ask spreads or premiums/discounts to ETF NAVs widen for periods of time. Typically, these are temporary events. The extent to which the spreads widen is typically directly related to the perceived risk or volatility ofthe asset class.

ETFs Trade Effectively Even in Volatile Environments In the wake of periods of volatility, ETF trading volumes increased sharply as investors looked to ETFs for their key attributes of transparency and liquidity. ETFs also can function as price discovery tools, providing insights into the market's view on correct market pricing, even during periods when the underlying liquidity for an asset class is diminished.

Endnotes

1 Passive management and the creation/redemption process can help minimize capital gains distribution.

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Glossary

Bid/Ask Spread The difference in price between the highest price that a buyer is willing to pay for an asset and the lowest price for a which a seller is willing to sell it.

Creation and Redemption Process The process whereby and ETF issuer takes in and disburses baskets of assets in exchange for the issuance or removal of new ETF shares.

Limit Order An order placed with a brokerage to buy or sell a set number of shares at a specified price or better.

Liquidity The degree to which an asset or security can be bought or sold in the market without affecting the asset's price. Liquidity is characterized by a high level of trading activity.

Market Order An order that an investor makes through a broker or brokerage service to buy or sell an investment immediately at the best available current price.

Net Asset Value (NAV) The calculated assets minus liabilities divided by shares outstanding. NAV is the straightforward account of the actual assets in the fund.

Primary Market The market where shares of an ETF are created or redeemed.

Secondary Market A market where investors purchase or sell securities or assets from or to other investors, rather than from issuing companies themselves. The New York Stock Exchange and the NASDAQ are secondary markets.

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