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ETF trading and liquidity: A deeper dive

It's frequently heard that exchange traded funds (ETFs) trade "just like" stocks. While it's true that both ETFs and stocks trade on exchanges during trading hours, there are key differences between the two when it comes to trading, liquidity and pricing.

Liquidity is broadly defined as the relative ease with which a security can be bought or sold without impacting its price: The more liquid a security, the easier and more cost-effective it is to trade; conversely, lower liquidity often translates into difficulties entering and exiting positions as well as higher trading costs. With stocks, investors can generally look to trading volume to assess liquidity. But with ETFs, trading volume isn't the only—or even primary—indicator of liquidity; due to their unique structure, uncovering the "true" liquidity of an ETF requires a deeper dive.

Sources of ETF liquidity

To understand the factors impacting the liquidity of an ETF, it is helpful to compare it to a stock; the key distinction relates to the availability of shares in the marketplace. With stocks, a finite number of shares are issued and available in the market at any one time, so any significant change in the number of buyers or sellers will result in the share price rising or falling. For this reason, for stocks, average daily trading volume is generally a clear indicator of liquidity.[1]

An ETF that has a low average daily trading volume, however, does not necessarily indicate limited liquidity. That's because ETFs offer *two* sources of liquidity: traditional liquidity, which is measured by trading volume in what's known as the "secondary market"—where previously issued securities, including ETF shares, are bought and sold—and liquidity provided by the "creation and redemption" process, unique to ETFs, in which the number of ETF shares available in the market is adjusted to meet market demand.

The link to portfolio holdings

The majority of ETFs are structured as open-end funds that generally invest in equities, bonds, futures, physical commodities or currencies—or a combination thereof. An ETF that tracks highly liquid securities, such as large-cap domestic stocks or U.S. Treasuries, will tend to be more liquid than one that tracks less-liquid securities, such as small-cap or emerging markets stocks or high-yield bonds. Because ETF issuers are required to publish their holdings daily, investors can evaluate one source of an ETF's liquidity by looking at the liquidity of the ETF's portfolio holdings.

[1] For stocks, there are other indicators of liquidity, including median volume and average quote size (the number of shares currently being offered for purchase or sale, expressed in terms of hundreds of shares).

Sources of ETF liquidity (continued)

Let's take a closer look at how liquidity of an ETF is linked to that of its portfolio holdings. Imagine a scenario in which there are 1,000 willing buyers of a particular stock but only one seller. With demand overwhelming the finite supply of the stock, the price will rise. Now, picture the same scenario, but with an ETF replacing the stock. Just because demand for the ETF shares is high, the share price may not necessarily rise; in fact, if the prices of the ETF's underlying securities are falling, the value of the ETF may fall as well—even with rising demand. Supply and demand, then, while still factors in overall ETF market pricing and trading, are less important for ETFs than for stocks. The reason: the creation and redemption process, which allows the number of ETF shares outstanding to adjust based on supply and demand.

Creation and redemption: Another layer of liquidity

Here's how the creation/redemption process works: When their supply of ETF shares runs out, Authorized Participants (APs)—typically large institutional organizations such as market makers or clearing firms that transact directly with the ETF provider in the"primary market"—may create new blocks of ETF shares in what's known as a "creation unit." Conversely, when their inventory becomes too large, APs can redeem ETF shares in a "redemption unit." The process involves the exchange of securities underlying the ETF and/or cash. The size of these transactions is quite large, typically involving a minimum of 50,000 ETF shares. This AP function, unique to ETFs, also tends to ensure that the majority of trades in ETFs on the secondary market take place at a market price[2] near the ETF's intrinsic fair value (IFV).[3]

An ETF that is thinly traded does not necessarily indicate limited liquidity. That's because ETFs offer *two* sources of liquidity.

How is it that ETFs generally trade close to their IFV? It's all about arbitrage—which drives APs to minimize the differences between an ETF's market price and the IFV via the creation/redemption process. When an ETF's market price moves above its IFV, market makers step in, selling ETF shares until the supply is exhausted. If, during this process, a market maker sells more shares than it owned, it takes a "short" position in the ETF. To balance that short position, the market maker can simultaneously purchase the ETF's underlying securities in the secondary market, creating a long position in those securities. Those long securities can then be exchanged in an in-kind transaction, the creation unit, to create ETF shares—*ETF creation*. The market maker then delivers those acquired securities, reducing its long position, in exchange for ETF shares to cover its short position. The newly created ETF shares increase the supply in the marketplace, as well as the ETF's total assets under management (AUM). The result of this trading activity is that the market price of the ETF closely approximates its IFV.

The opposite (*ETF redemption*) can also occur: If an ETF is trading at a market price below its IFV, or if an excess supply of ETF shares develops as a result of shareholders selling their shares, the market maker can purchase ETF shares until the supply is eliminated, and sell (short) the ETF's underlying securities.[4] The market maker would then deliver the acquired ETF shares, the redemption unit, to the ETF Provider in exchange for the corresponding securities and/or cash. The net result: The market maker has redeemed its long position in the ETF and covered its short position in the securities, reducing the ETF's overall AUM. As with ETF creation, the ETF price remains close to its IFV.

[2] Market price can fluctuate throughout the day and is the price on the secondary market at which investors buy and sell shares. Market price is different than–and may be substantially higher or lower than–an ETF's Net Asset Value (NAV), a per-share valuation of the securities of an ETF officially calculated once per day.

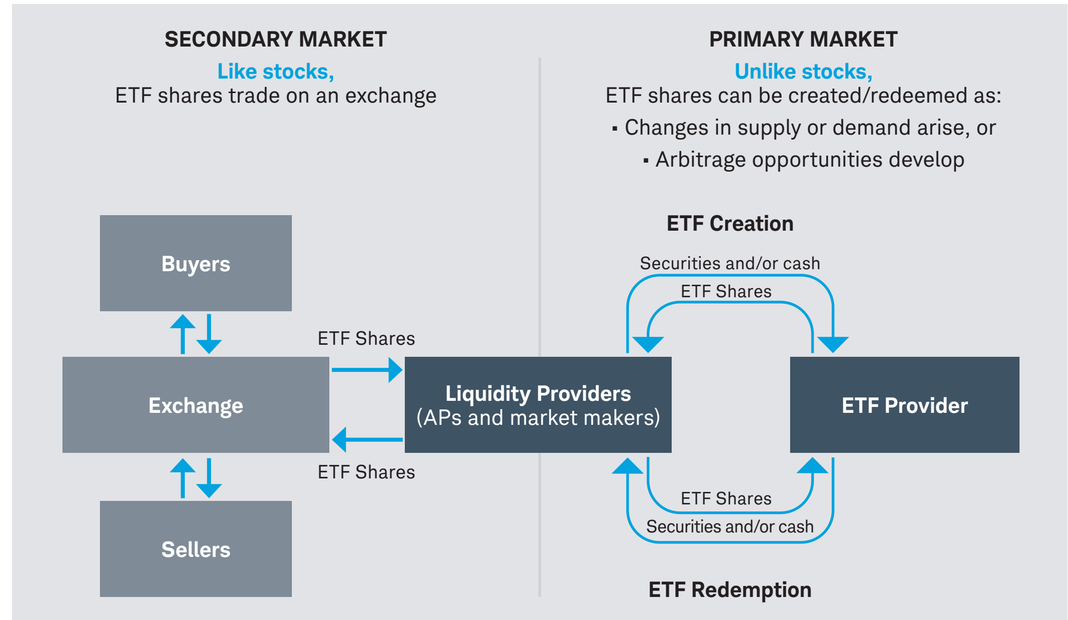
[3] Intrinsic Fair Value (IFV) is not the ETF's market price, but a proprietary valuation of what an ETF is worth, taking into account a number of factors such as value of the underlying securities, creation costs, market volatility and others. This value is not calculated or published by Charles Schwab Investment Management, Inc., or any of its affiliates but, rather, is calculated by professional market makers and/or APs, and may differ for each firm.

[4] In such a transaction, the market maker could also sell other securities short, such as futures or option contracts that are highly correlated to the underlying securities.

Sources of ETF liquidity (continued)

In both cases, even tiny variances between an ETF's market price and its IFV can be profitable for market makers because they are able to trade at low costs based on high volume transactions. At the same time, these market makers are supporting the equilibrium between an ETF's market price and its IFV.

ETFs: Two sources of liquidity



Other factors affecting ETF liquidity

There are other factors that can impact ETF liquidity. For one, much of the liquidity in the ETF marketplace does not appear on the trading screen. For example, market makers may offer 500 shares of an ETF (or equity), while keeping thousands of shares in reserve, essentially hidden from public view. Market makers may do this to hedge against a fast-moving market, allowing them the ability to avoid committing to delivering large numbers of shares that may differ from the market value in a dynamic market. As well, ETF market makers may buy shares of an ETF, sell the underlying securities, and never sell out of their inventory in the secondary market, instead redeeming those acquired ETF shares in the primary market. By so doing, they off-load their inventory and in return receive shares of the underlying securities to close out their short positions.

Other factors can influence the liquidity of an ETF, including creation/redemption fees, costs relating to the sponsor's service and support model, and the transparency and communication with the professional market-making community regarding the ETF sponsors' processes. The result of such increased costs have the potential to increase overall trading costs and impact liquidity.

The bottom line

To determine the liquidity of an ETF, investors must look beyond ETF-share trading volume and understand the unique creation/redemption mechanism of ETFs that allows shares to adjust to market demand. Because the trading of ETFs in the secondary market can be highly dynamic, Schwab's representatives are available to help investors navigate ETF liquidity as well as other trading-related ETF issues.

Remember, Schwab is here to help

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All other things being equal, ETFs that do not track large, well-established indices may not be as liquid as ETFs that follow more common indices such as the S&P 500.

Investment returns will fluctuate and are subject to market volatility, so that an investor's shares, when redeemed or sold, may be worth more or less than their original cost. Unlike mutual funds, shares of ETFs are not individually redeemable directly with the ETF. Shares are bought and sold at market price, which may be higher or lower than the net asset value (NAV).

Some specialized exchange-traded funds can be subject to additional market risks

With short sales, you risk paying more for a security than you received from its sale. Short sales losses are potentially unlimited and the expenses involved with the shorting strategy may negatively impact the performance of the fund.

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