Trading and the true **liquidity of an ETF**

- ETFs are at least as liquid as the underlying securities they hold
- Even an ETF with low traded volume is liquid if its bid-ask spread is tight

An ETF's underlying liquidity can be assessed by the difference between the buy (ask) price and sell (bid) price, or the "bid-ask spread", resulting from the two-way traded flows in an ETF. A tighter bid-ask spread on an ETF generally indicates that the underlying securities also have tight bid-ask spreads and are therefore more liquid. The "market depth", as seen on the Exchange's order book of an ETF (list of all the quotes and trade sizes for an ETF) also provides an indication of the liquidity for an ETF. The higher the number of buy and sell orders at each price, the greater the depth of the market.

The average daily volume is not necessarily indicative of ETF liquidity; even an ETF with low traded volume is liquid if its underlying holdings are liquid and its bid-ask spread is tight.

Key risks

Past performance is not a guide to future performance. Stock market and currency movements mean the value of investments and the income from them can go down as well as up and investors may not get back the original amount invested.

Shares purchased on the secondary market cannot usually be sold directly back to the Fund. Secondary market investors must buy and sell ETF Shares with the assistance of an intermediary (e.g. a stockbroker) and may incur fees for doing so. In addition, investors may pay more than the current Net Asset Value per Share when buying ETF Shares and may receive less than the current Net Asset Value per Share when selling them.

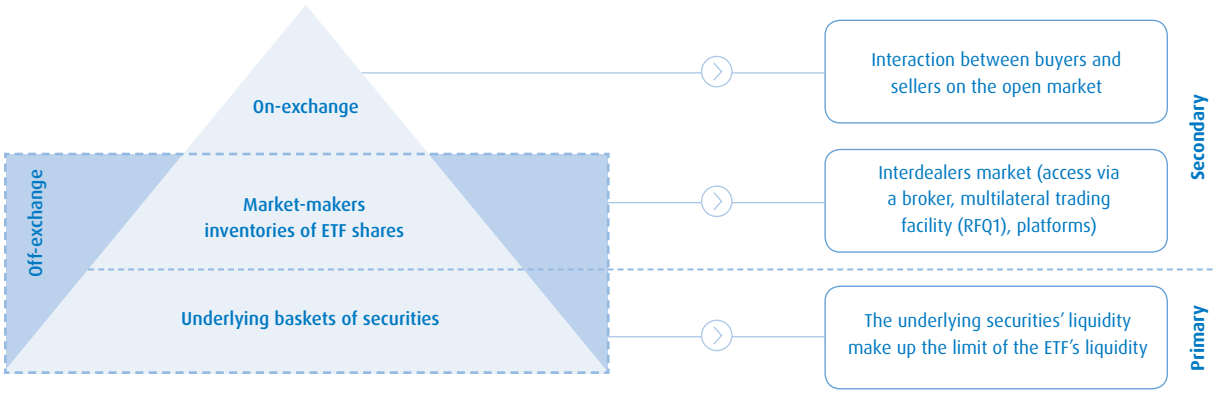
How does ETF liquidity work?

In a nutshell, ETFs are at least as liquid as the underlying securities they hold.

There are three main parties involved with creating ETF liquidity:

- **ETF issuer**: the firm that creates and manages the ETF
- **Market makers**: contracted to maintain bid and offer quotes to investors on exchanges
- **Authorised Participants (APs)**: create and redeem units from the ETF issuer

Three layers of liquidity



1 First level of liquidity
The Exchange

The interaction between buyers and sellers creates the first level of liquidity for an ETF. This natural liquidity is established when buyers and sellers match up on the exchange.

Popular and established ETFs with high transaction volumes can develop even greater liquidity than their underlying holdings.

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2 Second level of liquidity
Market makers serve as liquidity providers

Market makers quote two-way prices and hold inventories of ETF shares that can be sold on exchange to investors. The competition between market makers enhances liquidity and allows a buyer or seller to transact with minimal trading costs.

Secondary market volume, or on-exchange liquidity, is not always a good indication of the trade size that can be executed without impacting the market prices. Large ETF trades can still be executed without moving the market or deviating from the net asset value (NAV) of the fund.

A popular misconception:
if the size of the ETF is too small, or the volume of the ETF is low, a large trade will move the ETF's market price.

Remember:
ETFs trade like stocks but they are open ended funds, meaning they have access to the liquidity of the underlying portfolio. Thus, large ETF trades source numerous underlying names without affecting the ETF price.

3 Third level of liquidity
Unit creations/redemptions based on underlying securities[1]

While all market participants can buy or sell ETF shares on the secondary exchange market at the ETF price, only APs can create or redeem shares directly with the ETF issuer at the NAV of the fund. Because ETFs are open-end structures, the APs can correct supply imbalances by creating or redeeming units. This is essential as the APs can offset an increase/decrease in demand for the units by creating/redeeming more units.

The ETF portfolio holdings are transparent to APs to encourage arbitrage between the prices of the ETF and the underlying securities. The creation and redemption of ETF shares in the ETF arbitrage mechanism helps keep the secondary market price of ETF shares closely aligned to the expected fair value of the fund's NAV. If an ETF trades at a premium (i.e. the price of the ETF is trading above its NAV), APs can arbitrage by buying the underlying assets that compose the ETF's basket and create new shares with the ETF issuer, before selling the ETF units on the secondary market for a profit. On the other hand, if an ETF trades at a discount (i.e. the price of the ETF is trading below its NAV), APs can arbitrage by redeeming ETF shares in-kind to obtain the underlying basket and selling the underlying assets at a higher price on the open market.

[1] Generally, ETFs are referenced as shares on the secondary market and units on the primary market.

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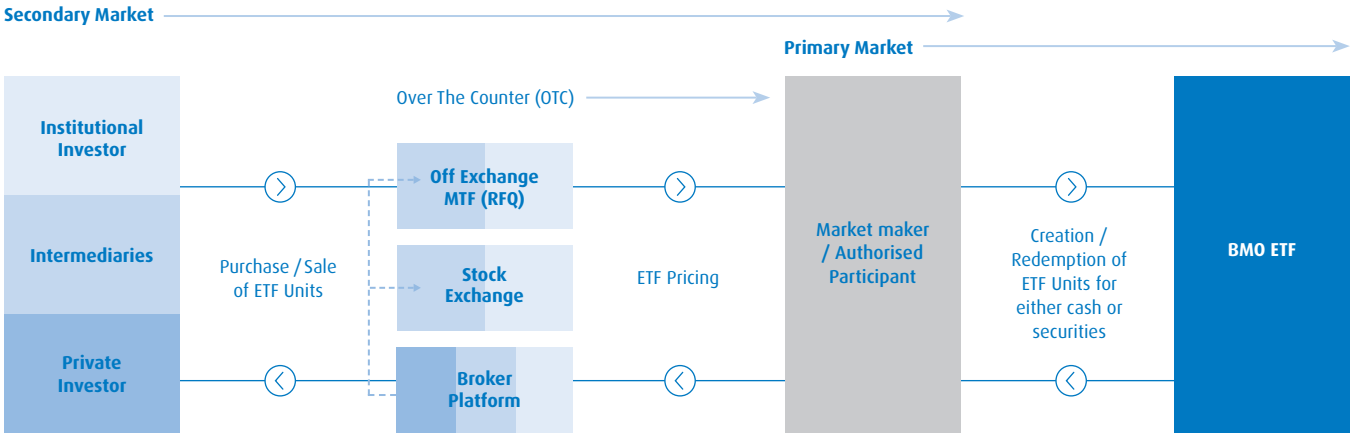
Trading notes

Private investors generally trade relatively small numbers of ETF units through a broker or a platform which typically accesses liquidity on exchange or off-exchange.

On the other hand, institutional investors usually trade larger numbers of ETF shares. In this case, it may be more efficient to trade through a trading desk instead of executing the trade directly on the secondary market. A trading desk will take sufficient steps to execute the trade without moving the market, most likely through a request-for-quote (RFQ)[2] trading venue, which may involve the creation/redemption process as illustrated below.

Regardless of the trading venue, all ETF trades have post-trade transparency reporting obligations under MiFID II regulations.



Off-exchange vs Exchange (EMEA)

A popular misconception: Most European trading volumes for ETFs are executed on exchange.

Remember: The majority of ETF trading volumes in fact take place off exchange in Europe. Large transactions tend to trade over-the-counter with the purchaser/seller jointly agreeing a price with the aim to execute at a more competitive price than on-exchange.

[2] The sellers or buyers of an ETF invite market makers to a bidding process with the aim to execute a trade at the best possible price.

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Best trading practices

An ETF can be traded at the end of each trading day for its NAV or intraday at prices that can vary from its NAV. Intraday NAVs (iNAVs) are published as fair value estimates of the NAV.

Transparency is greater outside open and close of the market

- The ETF's bid-ask spread tends to quote tighter whilst the underlying portfolio is continuously trading, that is outside markets' opening and closing.

Liquidity is greater when the underlying local markets are open

- Similarly, international ETFs' bid-ask spreads are tighter when all the local underlying markets are continuously trading. For example, a global ETF listed in Europe with an exposure to US stocks will adjust the price at the US open whilst the US stocks commence trading.

ETFs trade on-exchange through various order types, like stocks, including:

- **Market order:** buy or sell order to be executed immediately at the current market prices (not guaranteed).
- **Limit order:** buy or sell order to be executed at a specified price.
- **Stop-loss order:** buy or sell order once the price of the ETF reaches a specified price, known as the stop price.
- **Stop-limit order:** buy or sell order that combines the features of a stop-order and a limit-order.

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