

ETF trading guidance and best practices: A framework for approaching execution

Vanguard Research

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- When trading exchange-traded funds (ETFs), there are multiple execution options available to investors.
- We provide an overview of the ETF ecosystem as well as the key players within it. We also set out a decision framework to help investors choose the most cost-effective way to execute their ETF trades.
- In all cases, the Vanguard Global ETF Capital Markets team is available to provide investors with ETF trading guidance and consultative services in order to assist them in receiving the best execution on their ETF trades.

Introduction

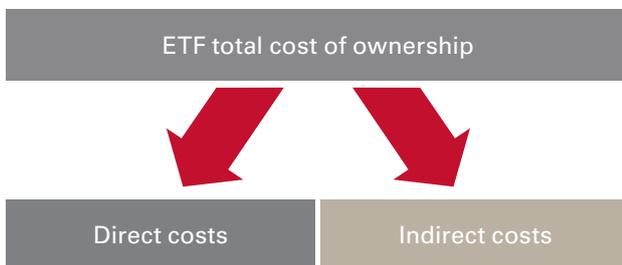
As ETFs continue to gain popularity globally, a wider range of investors are choosing to adopt them as part of their investment strategies. On the Vanguard Global ETF Capital Markets team, we receive many questions about ETF trading, most commonly related to trading costs and best practices during execution.

ETFs combine the features of traditional open-ended mutual funds with those of closed-ended funds.

They are open-ended in the sense that—like mutual funds—they do not have a fixed number of shares outstanding and they are priced based on a diversified basket of securities. However, as their name suggests, they are traded on-exchange throughout the course of the trading day, as would a closed-ended fund or a stock.

Because they possess characteristics of both open- and closed-ended fund structures, the total cost of ownership for an ETF is composed of both direct and indirect costs which are incurred during execution.

Figure 1. Total cost of ownership for an ETF



Source: Vanguard

In order to control indirect costs, investors should consider a number of factors prior to placing a trade.

In this paper, we highlight the key components of ETF trading, including:

- The main players involved in trading ETFs
- The venues where ETFs are traded
- The various order types that can be used
- The best way to approach the market
- General trading best practices

Overview of the ETF ecosystem

The provision of ETF liquidity typically involves the participation of multiple firms together with the ETF issuer (firms such as Vanguard), who interact to ensure the primary and secondary ETF markets operate in an orderly way. The number and type of firms involved depends on how the trade is executed.

The key players

Authorized participants (APs) – These are firms that have contracts with ETF issuers allowing them to create and redeem ETF shares in the primary market.

ETF market makers – These are trading firms that post bid and offer (also known as ask) quotes on exchange (the secondary market) for ETF shares throughout the day. These quotes are what determine the ETF's spread. Market makers have no obligation to continually post bids and offers and are free to step in and out of the market.

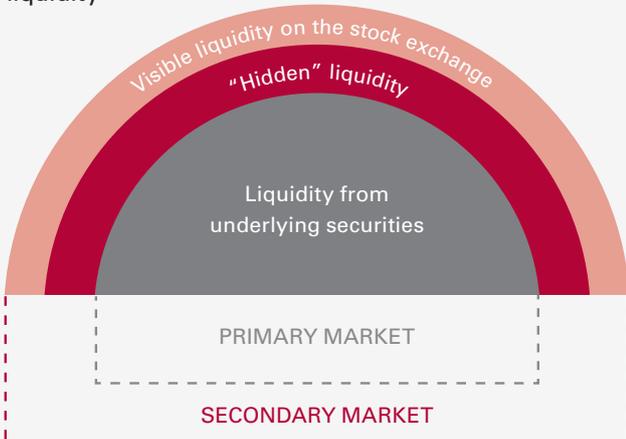
Lead/designated market makers – In certain regions, some market makers are also chosen by the issuer to be the lead market maker for an ETF. In Canada, these firms enter into agreements with ETF issuers and are generally appointed by the exchange as the Registered Trader in the ETF, a role which includes liquidity provision requirements such as minimum quote size and maximum spread.

Once an ETF trade is placed, these firms have several options as to where they execute the trade; these different options are described in more detail below.

The different layers of ETF liquidity

Since ETFs are open-ended funds where shares are created or redeemed based on an underlying basket of securities, they have multiple layers of liquidity. The first layer, known as the “lit” liquidity, is posted on the exchange and is visible to investors when viewing the bid and ask prices. The second layer, which is not displayed on the exchange order book, is the “hidden” liquidity. This liquidity is ready to be deployed on-exchange, on other multilateral trading facilities, or in some regions over the counter, when demand for the liquidity goes beyond what is displayed on the order book (described below). The third layer is the liquidity of the underlying basket of securities. This is illustrated in Figure 2.

Figure 2. Visualizing the different layers of ETF liquidity



Exchange – All ETFs are required to be listed on an exchange. There are currently over 50 primary listing exchanges for ETFs globally¹. On-exchange bid-ask quotes are reflective of the liquidity that market makers post in the on-exchange order book, which is visible to all market participants. Approximately 60%² of ETF trading volume globally occurs on-exchange, with the rest occurring off-exchange, or “over-the-counter” (OTC). However, owing to regional nuances, the percentage occurring on-exchange can vary quite significantly around the globe.

Over-the-counter (OTC)³ – OTC trading refers to firms buying and selling ETF shares by negotiating directly with one another. These trades are conducted off-exchange and generally use platforms such as multilateral trading facilities or alternative trading systems for the firms to connect to one another. This is where the “hidden” liquidity of ETFs is found.

Multilateral trading facilities (MTFs) or alternative trading systems (ATSS)³ – These venues are primarily used for matching large buy and sell orders. They are not regulated in the same way as exchanges, but account for much of the liquidity found in ETFs and their underlying assets. Request-for-quote (RFQ) platforms fall into this category.

In order to access these venues, investors have at least one, if not a combination of, the following options. The use of each varies globally.

- **Fund platforms:** Some fund platforms allow for ETF execution in a straight-through processing capacity. The platforms may offer different order types and access to multiple ETF liquidity providers.
- **Direct broker access:** Investors may also access ETF liquidity bilaterally by engaging directly with their broker.
- **Custodian execution service:** These offer investors efficiency in handling their investments by negotiating a bundled service agreement for managing settlements, custody of assets and execution needs. Usually, a custodian execution desk has access to a variety of liquidity providers as well.
- **Direct Access to MTF venues:** More sophisticated investors looking to execute larger trade sizes may have direct access to multilateral trading venues and RFQ platforms.

Overview of common order types

As discussed earlier, an ETF’s total cost of ownership is a function of direct and indirect costs.

As direct costs—such as expense ratios—continue to compress globally, one of the most effective ways to reduce total cost of ownership is by limiting indirect costs—such as transaction costs—when trading ETFs⁴. Whether an investor is purchasing 100 shares of a domestic equity ETF or selling \$500 million of an international fixed income ETF, choosing the appropriate order type for that ETF exposure can greatly reduce transaction costs.

While there are some general best practices that can be applied to ETF trading, each trade may require a customized strategy depending on both external factors and investor preferences.

Just as a carpenter has unique tools in their toolbox for specific jobs, an investor has different order types at their disposal for different transactions. Trades can essentially be classified into two main categories: low-touch and high-touch orders.

Low-touch orders involve little (or no) human interaction. These orders are typically used for trades that are small relative to the ETF’s average daily volume (ADV). ADV refers to the volume of an ETF that is traded on-exchange on a given day. While market orders are popular among

¹ Bloomberg data, as at June 30, 2020, based on the primary share class of all ETFs globally.

² ETF trading volume on-exchange varies greatly by region. The US is the largest ETF market, where 60% of ETF volume occurs on-exchange; however, this contrasts with Europe, where it is approximately 40%, and Canada, where 100% of ETF volume occurs on-exchange. Source: Bloomberg data.

³ Not available in all regions.

⁴ Autumn 2018 ETF Perspectives: Vanguard Insights for Financial Advisors, “Watch the news before trading ETFs”; Chuck Thomas, Adam DeSanctis.

individual investors who want to purchase or sell without delay, limit orders offer greater price control and can help investors protect themselves from unexpected market volatility. The most common low-touch order types take place intraday on-exchange and can be placed using market or limit order instructions.

Low-touch orders

- **Market order** - An order to buy or sell a security immediately at the best available current price. The priorities for this type of order are speed and execution, not price. These are popular among individual investors who want to buy or sell ETFs without delay. The primary risk associated with this order type is that in volatile markets, the price may move away from the investor.
- **Limit order** - An order to buy or sell a security at no more or less than a specified price, respectively. This gives the investor some control over the price at which the trade is executed and can protect against unexpected market volatility, but may prevent the order from being completed in full. With this type of order, the investor must weigh the likelihood that their trade will be fully completed versus achieving their desired price.

More information on these order types can be found in the Vanguard research paper *Choosing between ETFs and mutual funds: Strategy, then Structure*⁵.

Alternatively, high-touch orders are typically used when the trade size is large relative to an ETF's on-exchange ADV. These order types require more human interaction and often take place away from the main exchanges via OTC, MTFs or ATSS. These execution venues all provide the investor with a choice between intraday or market-close exposure.

High-touch orders

- **NAV (net asset value) trade** - An order type that provides execution based on the closing NAV of the ETF, providing the investor with end-of-day exposure. The execution price will usually include a premium or discount to NAV (quote in basis points) depending on market conditions and the type of ETF being traded.
- **Risk trade** - This is an alternative to NAV trading based on real-time price quotes throughout the day, which provides the investor with intraday exposure. In a risk trade, the market maker commits capital to facilitate the client's immediate trading needs, providing greater cost transparency. Generally, trades occur at a slight premium or discount to the quoted spread at the time of the trade.

The primary objective of a high-touch order is to minimise market impact on orders that could be large enough to influence the price of the security in the secondary market.

Another trading strategy not mentioned above is algorithmic trading ('algos'). The definition of which bucket this strategy sits in from an investor's perspective can vary across regions. Algorithmic trading is based on pre-programmed instructions to achieve specific execution outcomes. Generally, trades are executed over a period of time and intended to minimise price impact in the market. Examples include volume-weighted average price (VWAP), time-weighted average price (TWAP) and percent of volume (POV).

Decision framework to assess the approach to execution

Given the different order types available, investors have a decision to make when it comes to the execution of their trades. One of our key pillars of service as a Global ETF Capital Markets team is to serve investors with an optimal trading experience by helping them make the best-informed decisions possible with regard to their execution strategy. After completing the due diligence around product selection, the same level of discipline should be applied to consciously identify and evaluate execution needs. We encourage investors to consider two key questions:

- 1) What is the execution benchmark (i.e. market close or intraday)?
- 2) What execution options are available?

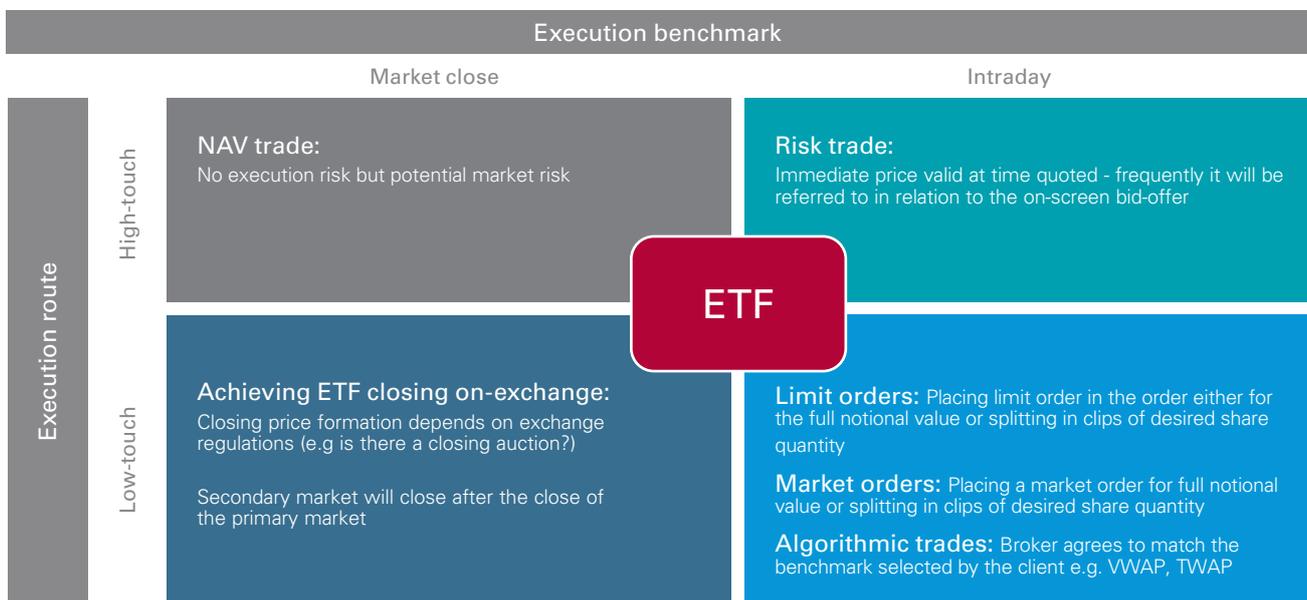
⁵ Vanguard Research, 'Choosing between ETFs and mutual funds: Strategy, then structure'; Joel M. Dickson, Ph.D., David T. Kwon, CFA, James J. Rowley Jr., CFA.

To draw a parallel, this is similar to the portfolio construction decision of selecting between an ETF and a mutual fund. Arguably, the most important decision is based on what the most appropriate portfolio-implementation tool is, rather than the choice of investment strategy⁶.

In this scenario, the important question is whether there is alignment between an investor’s execution benchmark (e.g. market close) and the execution strategy (e.g. NAV). To help answer this question, we have provided a basic framework to assess against these two components.

The table below highlights some of the most common execution benchmarks we see investors targeting, while providing corresponding execution routes that could be employed to achieve them.

Figure 3. ETF execution decision framework



Applying the framework

The following scenarios illustrate how the framework could be applied:

Scenario 1: NAV trade

An asset manager has decided to make a \$30 million allocation to the S&P 500 index through a UCITS ETF. They would like their execution to be aligned with the closing prices of the underlying index. Not fully understanding how to align their execution, the investor instructs their broker to execute at the ETF’s closing price on the London Stock Exchange. In this scenario, the investor encountered a four-and-a-half-hour mismatch between the London close relative to the US close.

To mitigate against this type of mismatch, the investor could have reviewed their strategy relative to their objective and identified a more appropriate course of action. In this case, the optimal strategy would have been

to place a NAV order with their chosen ETF liquidity provider. Using this execution strategy, it would have been possible to purchase their desired notional amount without taking on execution risk and in turn, execute in line with the NAV calculation, which is based on the closing prices of all the fund’s holdings. This would ensure that the performance of the investor’s position will track the index as closely as possible, net of costs.

Scenario 2: Risk trade

A wealth manager has decided to make a \$15 million allocation to a Canadian-domiciled FTSE Canada All-Cap Index ETF. Based on their observation of a rally in Canadian equities on the day of the trade, as well as the fact that the ETF’s 30-day ADV is around CAD \$10 million, the investor decides that their execution priority is immediacy of exposure for the entire notional value. On this basis, they decide to lock in a competitive risk price relative to the on-screen offer and execute with their liquidity provider of choice.

6 Vanguard Research, ‘Choosing between ETFs and mutual funds: Strategy, then structure’; Joel M. Dickson, David T. Kwon and James J. Rowley Jr.

While in this scenario the investor had several options available to them, they did not have the comfort of placing limit orders in the order book or entering a market order due to concerns surrounding the quality of the overall execution and potential market impact, respectively. These are valid concerns, but they are by no means insurmountable. This would have been an ideal opportunity for the investor to work with the Vanguard Global ETF Capital Markets team or their liquidity provider to better understand how they could access and benefit from the ETF's underlying liquidity.

Scenario 3: Switching between ETFs

When investors approach us about making an ETF switch—that is, selling one ETF and buying another simultaneously—they strive to limit information leakage. However, solely focusing on this objective can increase the cost of executing as it can translate to executing both the buy order and the sell order independently with different liquidity providers, thus incurring two sets of trading costs. By placing the entire ETF order with the same liquidity provider, this allows the investor to have more certainty about their objective and identify execution efficiencies, which should translate to a more competitive switch level and therefore lower cost.

Considering the decision framework in Figure 3, ETF-to-ETF switches are often executed on a NAV-to-NAV basis when there is considerable overlap between the underlying securities of the ETF being sold and the one being bought. Under these circumstances, this execution strategy can be effective since both ETFs follow the same NAV valuation methodology. This is not always the case. For example, when switching between ETFs which combine developed and emerging markets, the NAV may not be known for at least another 24 hours. Timing differences between when the NAV is known relative to when the order was placed can lead to sub-optimal execution, not to mention investor uncertainty. In this instance, executing the switch using a risk trade may be a more efficient strategy. NAV mismatches may still occur when one product is fairly valued and the other is not, even if they are providing the same exposure.

General trading best practices

As outlined above, a variety of trading strategies can be used to execute an order. After choosing the best execution strategy to deliver their intended objective, investors should also consider the following best practices to help minimise market impact and reduce transaction costs.

Low-touch orders: For on-exchange trades

- **Place limit orders.** Limit orders allow the investor to select a price limit at which they are comfortable to execute, offering increased price control and protection relative to a market order. The key consideration is where to set the limit, based on the balance of priorities between price and execution certainty.
- **Be mindful of the time of day.** Global ETFs typically trade with narrower bid-ask spreads when their underlying markets are open and overlap with US trading hours. In addition, avoid trading near the open or close as bid-ask spreads tend to be wider around these times.
- **Watch out for spikes in volatility.** Key earnings reports and economic releases (such as non-farm payrolls and central bank rate decisions) can cause heightened market volatility. It's best to avoid placing trades during these times.
- **Keep an eye on liquidity.** ETFs with substantial trading volume may appear to offer superior liquidity. However, an ETF's bid-ask spread may provide a much better indication of liquidity. This is because the spread reflects the liquidity in the underlying securities as well as the associated costs for authorized participants to engage in the creation and redemption process. Tighter ETF premiums and discounts can also provide an indication of greater liquidity.
- **Ask for help.** Rather than go it alone, investors should consider reaching out to the Vanguard Global ETF Capital Markets team for assistance. We can offer on-demand analysis of spreads, market liquidity and trading activity as well as pre-trade guidance and post-trade evaluations.

High-touch orders: For off-exchange trades

- **Conduct analysis of the most active market makers.** The market makers who are most active in an ETF are often the ones who can offer the most competitive price for the trade.
- **Encourage competition between liquidity providers.** Putting brokers in competition with each other can help to improve the competitiveness of the quote received.
- **Provide clear instructions.** Providing brokers with clear parameters up front (such as time frame for execution, valuation point and price ceilings or floors) can help to ensure the execution strategy achieves its objective.
- **Consider a post-trade evaluation.** This can help investors to understand the market impact of the trade and assess whether their chosen execution strategy delivered their objective.
- **Consider the market risk in global ETFs.** If an investor places a NAV trade in a global ETF, they may be exposed to price risk for more than 24 hours. For example, a global ETF traded on Wednesday morning UK time would receive Thursday's closing price with the NAV not published until Friday morning.
- **Ask for help.** Rather than go it alone, investors should consider reaching out to the Vanguard Global ETF Capital Markets team for assistance. We can offer on-demand analysis of spreads, market liquidity and trading activity as well as pre-trade guidance and post-trade evaluations.

Conclusion

As investors continue to adopt ETFs as an investment tool globally, they need to be aware of the factors that can impact execution as well as the different strategies—as outlined in this paper—that they can use to accomplish their investment objectives. Vanguard's Global ETF Capital Markets team is available to assist in trading and execution throughout the decision-making process, increasing the likelihood of a successful outcome.

Our experienced and knowledgeable global team can perform due diligence and provide support for investors in the following areas:

- Assessing the liquidity profile of a Vanguard ETF and identifying the most active liquidity providers
- Connecting investors with a competitive panel of ETF liquidity providers
- Engaging with a mix of asset-class specialists
- Performing due diligence on the costs and spreads associated with an order
- Guidance on time-sensitive, complex or high-value trades by simultaneously assessing real-time market conditions
- Pre- and post-ETF trade analysis.

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