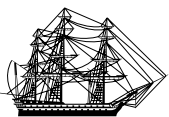


Learn about exchange-traded funds

Investor education



Vanguard[®]



Become a more knowledgeable exchange-traded funds investor

In this education guide, you'll get answers to common questions about exchange-traded funds, commonly known as ETFs. You'll also learn how ETFs and conventional mutual funds compare, and you'll gain a better understanding of why your financial advisor may be using ETFs in your investment portfolio.

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What is an ETF?

Simply put, ETFs are like mutual funds that trade like individual securities. They offer the advantages of traditional mutual funds with the trading flexibility of individual stocks and bonds.



ETFs offer the advantages of mutual funds

Like mutual funds, most ETFs are registered investment companies that offer investors a proportionate share in a professionally managed portfolio of securities, such as stocks or bonds. Virtually all ETFs are index portfolios, meaning they seek to closely track the performance of specific market indexes. ETF investors enjoy the traditional advantages of indexing:

- Very low costs.
- The opportunity to track a market.
- Relative diversification within a market segment.
- Potential for tax efficiency.
- Consistent management strategy.

Remember that diversification does not ensure a profit or protect against a loss. Also, investors cannot invest directly in an index.

ETFs offer trading flexibility

ETFs are traded on an exchange and can be bought and sold through a brokerage account anytime during exchange hours, at up-to-the-minute prices. Traditional mutual funds, on the other hand, take orders during Wall Street's trading hours, but the transactions are actually completed when the markets close.

With ETFs, investors can use trading techniques such as limit orders, margin buying, and short selling.

Of course, like individual securities, ETFs are subject to traditional stock and bond market risks and rewards. The value of ETF shares will rise and fall as markets fluctuate, causing an ETF to gain or lose value over short or long periods of time.

ETFs offer a wide variety of investment choices

You and your financial advisor can choose from a wide variety of ETFs that reflect virtually every segment of the domestic and international equity and fixed income markets.

Equity ETFs

Size and style

Large-cap (value, growth)

Mid-cap (value, growth)

Small-cap (value, growth)

Market segment

Consumer discretionary

Consumer staples

Energy

Financials

Health care

Industrials

Information technology

Materials

Telecommunication services

Utilities

Specialty

Real estate

Commodities

Dividends

International

International developed markets

International emerging markets

International regions

Fixed income ETFs

Domestic

Short-term corporate and government

Intermediate-term corporate and government

Long-term corporate and government

Mortgage-backed

International

Corporate

Government

Emerging markets

A growing number of hybrid ETFs are also available that offer a range of management styles and asset classes.



How do ETFs work?

Despite their similarities, mutual funds and ETFs work quite differently. First and foremost is the way ETFs are bought and sold. Investors must trade ETF shares through a brokerage firm. Shares can be bought and sold at the current market price anytime the exchange is open.

How mutual funds work

Conventional mutual fund shares are purchased or redeemed directly with the fund or through a broker, and the price is the shares' net asset value (NAV) determined at the market close.

In a mutual fund, most transactions are conducted in cash. With rare exceptions, investors purchasing fund shares pay

cash to the fund, while those redeeming shares receive cash from the fund, possibly requiring the fund manager to buy or sell securities for the portfolio.

When the fund trades securities, it incurs transaction costs, such as brokerage commissions, and in some cases realizes capital gains, on which shareholders may owe taxes.

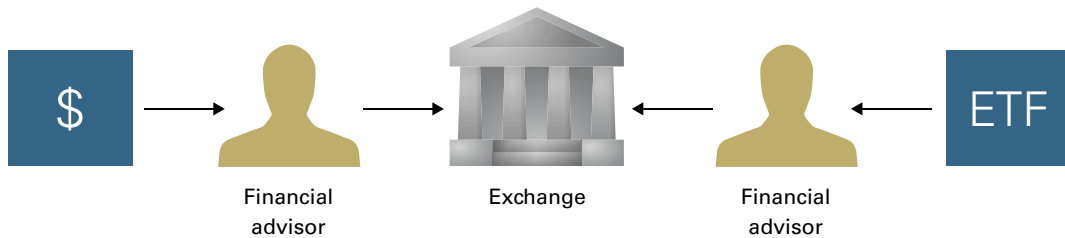
The ETF difference

Unlike mutual funds, ETFs do not generally experience cash flows into or out of the fund. Only certain sophisticated institutional investors, called authorized participants, are allowed to purchase or redeem shares directly, and they do so almost exclusively with securities.

When these institutional investors purchase shares of an ETF, they give the ETF specific quantities of securities that are part of the index the ETF tracks. Similarly, when these institutions redeem their ETF shares, the ETF provides them with securities, not cash. These cashless transactions benefit the ETF in two ways: The ETF does not incur transaction costs or realize capital gains.

Institutional investors sell their ETF shares to individual investors on the open market, who may then sell their shares to other investors for cash. These market trades, however, have no effect on the ETF itself; there are no cash flows into or out of the ETF that would require it to purchase or sell portfolio securities, pay brokerage commissions, or realize capital gains. As a result, the ETF is largely able to hold down its operating costs and limit the distribution of taxable gains to shareholders.

How ETFs are traded



Investor buys ETF through financial advisor who completes transaction via an exchange.

Investor sells ETF through financial advisor who completes transaction via the market.

ETFs offer added trading options

Because ETFs trade like individual securities anytime during regular exchange hours, your financial advisor has the ability to execute specific portfolio strategies to help you achieve your investment objectives.

Here are a couple of ways that ETFs offer more flexibility than conventional mutual funds:

Stop or limit orders

A stop order is an order to buy or sell a stock once it reaches a certain share price, known as the stop price, whereas a limit order is an order to buy or sell a security at a specified share price. Stop orders may be triggered by temporary market movements or may be executed at prices several points higher or lower than the stop price because of market orders placed ahead of them. Additionally, because of market fluctuations, a limit order may not be executed immediately, only partially, or not at all. Stop and limit orders can help protect you from trading a security at a lower or higher price than you want.

Short selling

This investment technique involves essentially borrowing a security and then selling it with the intent to buy it back at a lower price. Short sellers hope to make money when the market goes down. With short sales, you risk paying more for a security than you received from its sale and there is no limit to the amount of money you can lose.

In some cases, your financial advisor can sell ETF shares that you have borrowed short to hedge the risk of other investments you hold. Your financial advisor can also shift assets out of and back into an ETF on a short-term basis to realize capital losses to better manage

your tax liability. Your financial advisor can help determine if these strategies are appropriate for your individual situation.

ETFs are potentially tax-efficient

ETFs can be tax-efficient investment vehicles when you follow a buy-and-hold strategy.

Nearly all ETFs enjoy the low portfolio turnover inherent with indexing, so they typically pass on a small amount of capital gains to investors.

Each person should consult an independent tax advisor about his or her individual situation.

ETFs can be inexpensive

As with any investment, operating costs vary among ETFs. Generally though, ETFs cost much less to operate than conventional mutual funds. Because ETF investors place transactions through brokerage firms, the ETFs do not always incur the administrative costs that mutual funds do for such things as correspondence, customer service, and account recordkeeping.

Even though ETFs have very low operating expenses, they can incur

transaction costs. Whenever your financial advisor buys or sells ETF shares in your portfolio, you may incur brokerage commissions.

ETF market prices are also affected by bid-ask spreads. This is the difference between what the dealer pays for a security he or she buys from an investor and the somewhat higher price at which the dealer sells the same security. Like any other investment costs, these expenses are borne by the individual investor and can affect investment returns.

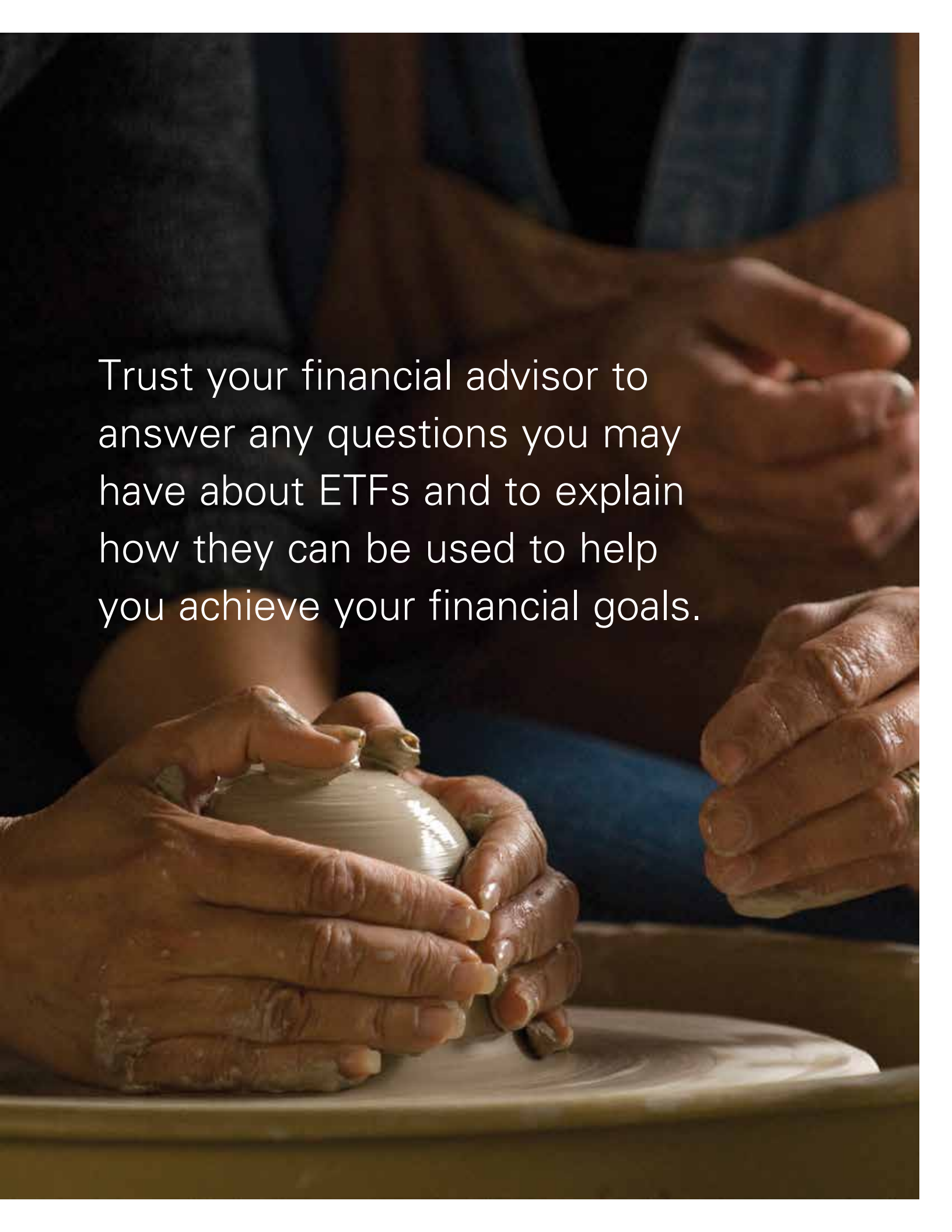
How do ETFs compare with index mutual funds?

	ETFs	Index mutual funds
Buying and selling shares	Through a brokerage firm	Directly from the fund company or through a broker
Share price and frequency of pricing	Market prices fluctuate throughout the trading day	NAVs are determined once per day after financial markets close
Average annual expense ratio	0.52% *	0.70% **
Transaction costs	Commission and bid-ask spread on each direct purchase and sale (Some brokerages waive trading commissions.)	None for no-load funds when purchased from or redeemed directly with the fund
Automatic dividend reinvestment	Availability depends on the broker, who may charge for the service	Generally available at no charge
Client services	Provided by the broker	Provided by the fund sponsor or a broker
Cost-basis statement	Available from the broker	Generally available from the fund sponsor
Automatic investing option	Not available	Move money from a bank, savings and loan, or credit union into your funds on a schedule you choose

*For all ETFs. Source: Lipper, a Thomson Reuters Company, as of December 31, 2016.

**For all index funds. Source: Lipper, a Thomson Reuters Company, as of December 31, 2016.

Investors must buy and sell ETF shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.



Trust your financial advisor to answer any questions you may have about ETFs and to explain how they can be used to help you achieve your financial goals.



Vanguard Financial
Advisor Services™

P.O. Box 2900
Valley Forge, PA 19482-2900

Financial advisors: Visit advisors.vanguard.com
or call 800-997-2798.

For more information about Vanguard funds and Vanguard ETF Shares, contact your financial advisor to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.

Vanguard ETF Shares are not redeemable with the issuing Fund other than in very large aggregations worth millions of dollars. Instead, investors must buy and sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.

Diversification does not ensure a profit or protect against a loss.

All investments are subject to risk.