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EXCHANGE-TRADED FUNDS (ETFs): NOW INDIVIDUALS CAN INVEST LIKE THE BIG PLAYERS

Exchange-traded funds (ETFs) are one of the fastest-growing investments in the United States. Their rapid growth is all the more remarkable because, unlike mutual funds, ETFs do not pay sales loads to financial intermediaries. Advisors who recommend ETFs rarely have financial incentive to do so.

ETFs are a powerful investment tool. However, before you use them, you should understand how they work and what makes them different from other mutual funds. This chapter introduces you to ETFs but only begins to discuss why you should use them. Chapter 2, “The Multifaceted Stock Market,” completes the presentation of the background necessary for you to fully appreciate the evidence in Chapter 3, “A One-Step Strategy for Selecting Superior Investments: Indexing,” showing that ETFs have outperformed and are likely to continue to outperform a majority of comparable mutual funds.¹

ETFs Are a Special Type of Mutual Fund

ETFs hold a basket of individual stocks, just as mutual funds do. Each ETF share represents a proportional piece of the portfolio of stocks, as with mutual funds. Therefore, many of the advantages of mutual funds also characterize ETFs:

- Ability to diversify with a single investment
- Ability to gain exposure to a particular investment style (small versus large company stocks, for example) or to a specific industry (utilities, technology, etc.) with a single investment, without having to select individual companies

Saving the effort needed to select individual stocks can be helpful because the selection of individual stocks has been a less important determinant of investment performance than the selection of particular industries. For example, the steep rise in oil prices that started in 2003 has lifted shares in a wide variety of energy companies. During the same period, U.S. automotive stocks have faced great difficulties. As a result, even relatively uninformed energy investors are far more likely to have nice gains to show for the 2003–2006 period because any stock they picked is likely to have done well. On the other hand, even the most astute automotive analyst would have had a rough time making money by holding stocks in that sector. This is not to say that competition between two companies has never resulted in gains for one stock and losses for the other. Rather, industry-wide developments that move stocks across an entire sector have had a larger impact on the stock market than have company-specific events. (Even a takeover bid for a particular company often leads other companies in that sector to move.)

ETFs Avoid the Expense of Fund Managers

Most open-end mutual funds (which will be referred to simply as *mutual funds* throughout the rest of the book) are actively managed. This means that most funds have managers who pick which stocks to

buy and sell, and when, according to their own judgments. Active managers generally keep their stock selections secret until they have finished making transactions for their own funds. In this way, they avoid having to compete in the market when placing transactions against free riders, who might want to copy the managers' ideas.

In contrast, ETFs are passively managed. Passive management means that a predetermined set of rules is used to select the individual stocks that are held in each ETF. An ETF sponsor can update the selection of stocks in a passively managed portfolio, but only on dates that it specified in advance. Anybody who knows what the rules are can anticipate the changes that an ETF will be making to its portfolio on the dates specified for portfolio update. Because the rules for selecting a passively managed portfolio are available to everyone, it is unnecessary to hire a manager.

The fund sponsor for each passively managed ETF selects a set of rules that govern which stocks the ETF will hold. After these rules are in place, the ETF does not deviate. So, unlike the case with an actively managed fund, investors in a passively managed fund or ETF know at any time exactly which stocks are in the fund and when that portfolio is scheduled to change. (Although some actively managed ETFs are in development, passively managed ETFs are likely to dominate the landscape for the foreseeable future.) The accurate knowledge by individual fund investors of their funds' holdings is called *investment transparency*. For many investors, this transparency is considered an advantage, because when you buy an ETF, you know exactly what you are getting.²

Another term used to describe passive investment management is indexing. The connotation of a market index, in addition to being passively managed and enjoying the attendant advantages of low cost and transparency, is that it usually aims to represent the performance of a particular market sector. Broadly based indexes can represent the entire universe of publicly traded shares in the United States, or even in the world (such as the MSCI World Index). At the other end of the spectrum, a number of market indexes have been designed to represent the behavior of fairly narrow industry sectors, such as the S&P Select Homebuilders Industry Index. (The latter is tracked by an ETF, the SPDR Homebuilders ETF, whose ticker symbol is XHB.)

ETFs Are Traded on Exchanges

The big difference between ETFs and regular mutual funds is that as an individual investor, you buy ETFs on a stock exchange. You do not deal directly with the sponsoring mutual fund company, and you bear the full costs of every transaction you make. Whether this is an advantage to you depends on how you are using ETFs.

For example, when you purchase shares of a regular mutual fund, such as Vanguard's S&P 500 Index Fund (VFINX), you send your money to Vanguard, and it creates new shares of its fund for you. The price per share is based on the value at the market close of the fund's holdings on the date of your purchase. Conversely, if you want to redeem from a Vanguard fund, Vanguard eliminates your shares and sends you the cash value, again based on the value of the assets in the fund at the market close on that day.

With regular (open-end) mutual funds, buyers and sellers receive the same price for their shares on any given day, regardless of how the market behaved, and regardless of how many other shareholders in the fund might be buying or selling on that day. If you buy new shares, the mutual fund manager might be unable to put your money to work until the next day, when the fund will have the chance to purchase additional shares. If you redeem mutual fund shares, the fund manager might have to raise the cash you have requested by selling some of the fund's holdings the next day. The necessity of engaging in such transactions to accommodate shareholder additions or redemptions might hurt the performance of the mutual fund, but it does not affect the price per share you pay or receive.

In contrast, when you purchase an ETF, you call or e-mail your stockbroker just as you would to buy stock in an individual company. When you purchase an ETF, you must pay a broker's commission, similar to the charge you would incur to buy an individual stock. Note the difference between the likely size of a commission on the purchase of ETF shares and the sales charge on the purchase of a mutual fund with a sales load. Competition among brokers has driven the

cost of buying ETF shares to low levels at many brokerage firms (including online brokerages and discount brokerages). However, the sales loads on mutual funds remain far larger than the cost of buying shares through a discount broker. Sales loads are generally as high as 5 percent of the assets you are investing.

You pay this sales charge either as a lump sum up front or over a period of years. When the sales charge is collected over a period of years (for example, 0.75 percent of assets per year for seven years in a typical class B load mutual fund share), you pay a “deferred sales charge” if you try to exit the fund before the full sales charge has been paid to the broker.³

When you purchase shares of an open-end mutual fund, the number of outstanding fund shares increases because the fund company takes your cash and creates new shares that are delivered to your account. The mutual fund generally puts the cash it received from you to work by using it to buy stock. Similarly, when you redeem shares of an open-end mutual fund, the fund company takes your shares and eliminates them, thereby decreasing the number of outstanding shares. In return for your shares, the fund company places cash in your account. The mutual fund generally sells shares of stock it owns to raise the cash it has to give to you.

Unlike mutual funds, which need to create new shares to meet your purchases and to eliminate existing shares to meet your redemptions, when you buy or sell ETF shares, you conduct the transaction with another investor. You and the other investor exchange ETF shares for cash, but the number of outstanding ETF shares does not change as a result of your transaction. Only the list of shareholders changes.

As an example, let us compare what happens when an investor purchases 100 SPY at \$127/share to what happens if the same investor instead purchases shares in an open-end S&P 500 Index Fund (ticker ABCDX) that sells for \$50/share. The outline that follows compares the purchase of ETF shares to the purchase of shares in an open-end mutual fund.

Case 1

Investor A has \$12,700 that he wants to invest in the ETF that tracks the S&P 500 Index (ticker SPY). Investor B has 100 shares of SPY that she wants to sell at \$127.00/share.

Before purchase by Investor A:

- Investor A has \$12,700 cash.
- Investor B has 100 SPY.
- Total SPY outstanding = 100 shares.

After purchase by Investor A:

- Investor A has 100 SPY.
- Investor B has \$12,700 cash.
- Total SPY outstanding = 100 shares. (No change from before the purchase by Investor A.)

Case 2

Investor A has \$12,700 to invest in an open-end mutual fund (ticker ABCDX) that tracks the S&P 500 Index. The share price of ABCDX is \$50/share.

Before purchase by Investor A:

- Investor A has \$12,700 cash.
- Fund ABCDX has 2,000 shares outstanding at \$50/each, for total assets of \$100,000. This \$100,000 in fund assets is entirely invested in the basket of stocks that tracks the S&P 500 Index.

After purchase by Investor A:

- Investor A has 254 shares of fund ABCDX.
- Fund ABCDX holds shares of stock worth \$100,000 plus \$12,700 cash, for total assets of \$112,700 (an increase from before the purchase by Investor A). The new cash in the fund will be used to purchase more shares during the next trading day.
- Total number of ABCDX shares outstanding has increased from 2,000 to 2,254, but each share is still worth \$50.

Every transaction in an open-end fund for the entire day receives the same price. An order placed with a fund at 9:00 a.m. gets the same closing price for the day as one placed at 3:59 p.m. That closing price is set based on data from the market close at 4:00 p.m. Any order received at a mutual fund after 4:00 p.m.—even 4:01 p.m.—receives the next day's closing price.

With ETFs, as with stocks, the price you get for your order can change throughout the day. Suppose that you buy an ETF early in the trading day (say, at 10:00 a.m.), and then at 11:00 a.m. some news comes out that drives the market higher. In this case, you will profit from the timing of your order. However, mutual fund purchasers will

not. Of course, the reverse can also be true—namely, that the timing of your order can result in your getting a less favorable price than would have been the case if you had waited until the end of the trading day.

If you are a day trader, the ability to trade ETFs throughout the day makes them useful to you in a way that other mutual funds are not. Indeed, many hedge funds use ETFs specifically to be able to day-trade. If you trade more slowly, holding positions for days or weeks or longer, or if you are a long-term investor, the ability to trade during the day will probably not affect your investment performance one way or the other, on average.

For investors who utilize end-of-day trading strategies, ETFs have a big advantage that does not apply to individual stocks or mutual funds: Many ETFs trade until 4:15 p.m.—15 minutes after the regular market closes at 4:00 p.m. This allows you to wait until the market close to collect data and then use that data to decide which trades to execute on the same day.

In my experience, any trading model that utilizes daily data from the market close is likely to perform more poorly if trades are not executed on that same day. Investors who use mutual funds that allow unlimited trading (such as those offered by Rydex, Profunds, and Direxion that are designed to accommodate active trading) must submit their buy or sell orders to the mutual fund before the market closes. There is a chance that some trading decisions made before the close will turn out to be different from the decisions that would have been made if the final closing data had been known earlier.

ETF Investors Have Hidden Costs Through the Bid-Ask Spread

From the earlier discussion, you can infer that the price you pay for your ETF depends on the balance of supply and demand for that ETF at the time your order hits the trading floor. An ETF's share price is usually slightly different from the market value of the fund's underlying holdings. Moreover, the price a buyer pays is generally higher than the price a seller receives.

Selling a used car is a useful analogy. If you know how much you want for your car, you can sell it yourself. If a willing buyer sees your advertisement, he may take the car off your hands at a price you both feel is fair. However, you might not be able to locate a buyer.

If that is the case, you might decide to sell your car to a dealer. The dealer then pays a price low enough for him to expect to turn a profit when he resells your car. The dealer's knowledge of the car's value comes from observing the used-car market. Ideally (for the dealer), he would like to offer you as little as possible, but if the offer is too low for your liking, you will simply look for another dealer. On the other hand, if your demands are too high to leave room to profit, the dealer will let you walk.

If you accept the dealer's offer on your car, he will try to resell it at a higher price. Suppose the dealer is extremely lucky—the second after you leave the lot, a buyer enters, looking for exactly the car you just sold. Naturally, the dealer will sell it at a profit. The same car on the same day was worth less to you, the seller, than it was to the buyer.

Trading ETFs on exchanges works much the same way. If you as an ETF buyer are offering the same price that a different seller is demanding, the stock exchange is supposed to match up the two of you so that each of your orders can be filled. (However, exchanges have not always functioned this way, giving rise to periodic scandals and investigations. As a result, you should pay attention to the quality of your trade execution.)

However, suppose you want to buy an ETF at a time when a willing seller is not around. In that case, a dealer or specialist in a stock exchange offers to fill your order. Just as with a car dealer, a stock dealer transacts with you only at a price that allows him to make a profit. With the advent of electronic trading, you (through your broker) can look for the best price available for the ETF you want on more than one exchange. This is analogous to shopping around for the best price at multiple car dealerships.

If the dealer sells you the shares you want, he immediately tries to repurchase them from someone else at a lower price. If you turn around and try to resell your shares to a dealer (or specialist, or market maker), you receive less than you paid, even if the market has not moved one iota in the interim.

The price you pay to buy shares at the lowest available price is called the asking price, or *ask*. The price you receive when you sell shares at the highest available price is the *bid*. As with cars, stock dealers stand ready at any time to sell you shares at the ask price or to buy shares from you at the bid price.

The difference between the price you have to pay to buy shares and what a seller would receive to sell shares is called the *bid-ask spread*. The bid-ask spread is no less a cost to you than a broker's commission, despite being less visible. But to the unwary investor, the bid-ask spread is a hidden cost. Before you decide to buy an ETF, you should ask your broker for both the bid and ask so that you can get a feel for the cost per trade.

TABLE 1.1 Bid-Ask Spreads as a Percentage of the Share Price for Selected U.S. Equity ETFs During Normal Midday Market Conditions in the Fall of 2005*

ETF Name	ETF Ticker Symbol	Investment Objective	Bid Price (\$)	Ask Price (\$)	Bid-Ask Spread as % of Midpoint	Size of Market (Shares in 100s, Bid×Ask)
S&P 500 Depository Receipts	SPY	Large cap	123.81	123.83	.02%	750×400
iShares Russell 100 Index Fund	IWB	Large cap	67.08	67.16	.12%	100×132
Vanguard Large Cap Vipers	VV	Large cap	54.77	54.84	.13%	500×600
Diamonds Trust	DIA	Large cap	107.06	107.08	.02%	600×300
iShares Russell 1000 Growth Index Fund	IWF	Large growth	50.62	50.69	.14%	100×600

TABLE 1.1 (continued)

ETF Name	ETF Ticker Symbol	Investment Objective	Bid Price (\$)	Ask Price (\$)	Bid-Ask Spread as % of Midpoint	Size of Market (Shares in 100s, Bid×Ask)
iShares S&P 500 Growth Index Fund	IVW	Large growth	58.71	58.81	.17%	600×900
Vanguard Growth Vipers	VUG	Large growth	53.06	53.11	.09%	300×379
iShares Russell 1000 Value Index Fund	IWD	Large value	68.40	68.49	.13%	600×620
iShares S&P 500 Value Index Fund	IVE	Large value	64.40	64.51	.17%	300×600
Vanguard Value Vipers	VTV	Large value	56.39	56.44	.09%	491×94
iShares S&P 400 Midcap Index Fund	IJH	Midcap	72.12	72.16	.06%	30×30
S&P Midcap SPDR	MDY	Midcap	131.46	131.49	.02%	300×125
Vanguard Extended Market Index Vipers	VXF	Midcap	89.13	89.25	.13%	600×600
iShares Russell Midcap Index Fund	IWR	Midcap	85.83	85.91	.09%	490×1000
iShares Russell Midcap Growth Index Fund	IWP	Midcap growth	90.99	91.10	.12%	300×900

TABLE 1.1 (continued)

ETF Name	ETF Ticker Symbol	Investment Objective	Bid Price (\$)	Ask Price (\$)	Bid-Ask Spread as % of Midpoint	Size of Market (Shares in 100s, Bid×Ask)
iShares S&P 400 Midcap Growth Index Fund	IJK	Midcap growth	73.33	73.43	.14%	300×300
iShares Russell Midcap Value Index Fund	IWS	Midcap value	122.22	122.28	.05%	10×74
iShares S&P 400 Midcap Value Index Fund	IJJ	Midcap value	69.34	69.45	.16%	300×300
iShares S&P 600 Index Fund	IJR	Small cap	57.42	57.47	.09%	50×50
iShares Russell 2000 Index Fund	IWM	Small cap	66.21	66.22	.02%	500×32
iShares Russell Microcap Index Fund	IWC	Small cap	50.51	50.59	.16%	200×300
Vanguard Small Cap Vipers	VB	Small cap	58.93	59.02	.15%	300×300
Vanguard Small Cap Growth Vipers	VBK	Small cap growth	56.99	57.15	.28%	500×500
StreetTracks Small Cap Growth	DSC	Small cap growth	79.71	79.87	.20%	50×50

TABLE 1.1 (continued)

ETF Name	ETF Ticker Symbol	Investment Objective	Bid Price (\$)	Ask Price (\$)	Bid-Ask Spread as % of Midpoint	Size of Market (Shares in 100s, Bid×Ask)
iShares S&P 600 Small Cap Growth	IJT	Small cap growth	114.60	114.70	.09%	3×25
iShares Russell 2000 Growth	IWO	Small cap growth	68.55	68.59	.06%	130×60
Vanguard Small Cap Value Vipers	VBR	Small cap value	61	61.11	.18%	900×600
StreetTracks Small Cap Value	DSV	Small cap value	62.01	62.17	.26%	50×100
iShares S&P 600 Small Cap Value	IJS	Small cap value	63.89	63.98	.14%	300×300
iShares Russell 2000 Value	IWN	Small cap value	65.88	65.92	.06%	95×40
Select Energy Sector SPDR	XLE	Sector energy	47.6	47.65	.10%	200×315
iShares Dow Jones U.S. Financial Index Fund	IYF	Sector financial	100.77	100.91	.14%	300×900
iShares Dow Jones U.S. Financial Services Index Fund	IYG	Sector financial	113.54	113.68	.12%	300×900

TABLE 1.1 (continued)

ETF Name	ETF Ticker Symbol	Investment Objective	Bid Price (\$)	Ask Price (\$)	Bid-Ask Spread as % of Midpoint	Size of Market (Shares in 100s, Bid×Ask)
Select Financial Sector SPDR	XLF	Sector financial	31.58	31.59	.03%	600×1000
Vanguard Financial Vipers	VFH	Sector financial	55.78	55.87	.16%	300×300
Vanguard Health Care Vipers	VHT	Sector health care	53.07	53.16	.17%	300×600
Select Health Care Sector SPDR	XLV	Sector health care	30.96	30.98	.06%	900×100
iShares Dow Jones U.S. Healthcare Index Fund	IYH	Sector health care	61.76	61.85	.15%	300×600
iShares Cohen & Steers Realty Majors Fund	ICF	Sector REITs	73.28	73.37	.12%	110×120
iShares Dow Jones U.S. Real Estate Index Fund	IYR	Sector REITs	64	64.02	.03%	56×130
Vanguard REIT Vipers	VNQ	Sector REITs	59.79	60.04	.42%	100×100
iShares Dow Jones U.S. Technology Index Fund	IYW	Sector technology	49.55	49.62	.14%	900×100
Select Technology Sector SPDR	XLK	Sector technology	21.10	21.12	.09%	330×1400
iShares Goldman Sachs Technology Index Fund	IGM	Sector technology	46.97	47.04	.15%	101×230

TABLE 1.1 (continued)

ETF Name	ETF Ticker Symbol	Investment Objective	Bid Price (\$)	Ask Price (\$)	Bid-Ask Spread as % of Midpoint	Size of Market (Shares in 100s, Bid×Ask)
Vanguard Information Technology Vipers	VGT	Sector technology	48.03	48.12	.19%	600×600
Utilities HOLDERS	UTH	Sector utilities	109.22	109.30	.07%	100×65
Select Utilities Sector SPDR	XLU	Sector utilities	30.45	30.48	.10%	1200×800
Vanguard Utilities Vipers	VPU	Sector utilities	63.34	63.46	.19%	900×600
iShares Russell 3000 Index Fund	IWV	Total market	74.32	74.42	.13%	100×100
iShares Dow Jones Total Market Index Fund	IYY	Total market	62.51	62.59	.13%	100×100
Vanguard Total Market Vipers	VTI	Total market	121.95	122.07	.10%	100×900
iShares Lehman Aggregate Bond Index Fund	AGG	Bond	99.39	99.79	.40%	300×350
iShares Lehman 7-10 Year Treasury Note Fund	IEF	Bond	82.47	82.55	.10%	350×1000
iShares Lehman TIPS Fund	TIP	Bond	102.26	102.46	.20%	400×400

TABLE 1.1 (continued)

ETF Name	ETF Ticker Symbol	Investment Objective	Bid Price (\$)	Ask Price (\$)	Bid-Ask Spread as % of Midpoint	Size of Market (Shares in 100s, Bid×Ask)
iShares Goldman Sachs Investop Corp Bond Fund	LQD	Bond	106.09	106.76	.63%	300×250
iShares Lehman 20-Year Treasury Bond Fund	TLT	Bond	88.72	88.82	.11%	2500×2500
iShares 1–3 Year Treasury Note Fund	SHY	Bond	80.08	80.13	.06%	1000×1000

*The size of the market is the number of shares available to sell at the bid price by the number of shares available to buy at the ask price, in hundreds of shares. (So, for example, 100×50 means that 10,000 shares are available to sell at the bid and that 5,000 are available to buy at the ask.) Note that the bid-ask spreads and the size of the market on any ETF can vary from minute to minute. The data in Table 1.1 is only a snapshot of the market at a particular time in the past. Future conditions might differ.

Bid-ask spreads and brokers' commissions are disadvantages of ETFs compared to regular mutual funds, which you can purchase without incurring either expense. However, mutual fund investors also bear these costs, albeit in a less visible way.

If the mutual fund must make transactions as a result of share purchases or redemptions from any shareholder or on the basis of investment decisions that the portfolio manager makes, the fund bears the costs of a bid-ask spread in addition to the brokerage commissions for whatever stocks it trades. These expenses of the fund are not reported as part of its expense ratio. The typical equity mutual fund turns over 100 percent of its portfolio each year.

Because ETFs are passively managed, the underlying stock portfolios turn over slowly compared to most mutual funds. Therefore, ETF performance is far less impaired by transactions in the underlying

stocks than is the case with most mutual funds. (This advantage somewhat offsets the burden that an ETF investor has of paying for his own transaction costs.) The extent to which mutual funds suffer from transaction costs in their stock portfolios varies widely, depending on the manager's investment style, the type of stocks in which the fund invests, and the level of shareholder additions and redemptions. Information about how much a regular mutual fund spends on brokerage commissions and adverse market impact is difficult to uncover and is not included in the mutual fund's expense ratio.

As you might expect, dealers respond to changes in the balance between supply and demand. If everyone wants to sell at the same time but no one wants to buy, the price falls. That is to say, the bid price drops. Again, all this is independent of the actual market value of the underlying stocks that the ETF holds.

The question then arises, what is to stop ETFs from trading well above or below the market value of the underlying stocks? The next section discusses the unique feature of ETFs that keeps them in line with fair market values.

The Creation/Redemption Process Keeps ETF Share Prices Close to the Market Value of the Underlying Shares

The unique feature of ETFs compared to mutual funds is that shares can be created or redeemed in exchange for the basket of underlying stocks. You and I cannot do this, but a number of large financial firms called *authorized participants* can by transacting with the ETF custodian, as explained next.

All shares of stocks in individual companies need to be housed somewhere. As individual investors, we rarely hold stock certificates for ourselves these days. Rather, a custodial bank or brokerage firm holds shares for us and keeps track of how much it is holding on our behalf. Because ETFs represent partial ownership of a metaphorical basket of stocks, the actual shares in the basket need to be held somewhere, just as our own individual stocks do.

For this purpose, each ETF has a custodian who holds the shares. However, rather than keeping track of which shares belong to which

individual investor, all the custodian has to do is make sure that the number of ETF shares in circulation is exactly the right amount for the custodian's holdings of underlying shares. In this regard, an ETF share (in the hands of an authorized participant) is like a claim check. Whoever submits the claim check can retrieve the stored item, which in this case is a basket of stocks. Because all investors know what goods the claim check represents, they can trade claim checks among themselves without needing to inspect the underlying merchandise for each transaction, while the custodian simply guards the merchandise until someone claims it.

Even though ETF shares are traded between investors far more frequently than they are exchanged for the underlying basket of stocks, authorized participants do have the option of switching between ETFs and the actual underlying shares in individual companies. If an authorized participant wants to create shares of an ETF, it can deliver the basket of stocks to the ETF custodian. Conversely, if the authorized participant wants to redeem shares of an ETF, it can deliver the ETF shares to the custodian, who transfers the underlying stocks' shares in exchange. Creation or redemption of ETFs usually occurs in lots of 50,000 ETF shares.

The ability of authorized participants to create or redeem ETF shares in exchange for the underlying stocks gives them a financial incentive to keep the price of ETFs close to the market value of the underlying shares. To see how this occurs, consider the example of an ETF facing a lot of selling pressure. As discussed earlier, an overabundance of sellers drives the ETF price down, regardless of what is happening to the underlying shares.

Let us consider the hypothetical (and unrealistically simple) case of an ETF that holds only one stock—say, shares in GE. The ETF is priced so that one share of GE-ETF equals one share of GE stock. Suppose that panic selling has driven the ETF price a full 1 percent below the market value of its underlying GE shares.

An authorized participant firm happens to own 50,000 shares of GE in its own capital account. This firm, when it perceives the disparity between the GE-ETF and the true price of GE stock, can buy 50,000 shares of GE-ETF at a 1 percent discount and simultaneously sell its 50,000 shares of GE.

At the end of the day, the authorized participant firm asks to redeem its 50,000 shares of GE-ETF. It receives 50,000 shares of GE. The firm started and ended the day with 50,000 shares of GE. But in the course of the day's trading, it locked in a profit of 1 percent.

Obviously, no ETF is created as a basket of one stock. However, authorized participants can achieve the same result with a basket of stocks. If strong selling drives the price of the ETF far enough below the market value of its underlying stocks, an authorized participant can step in and buy the discounted ETF while simultaneously selling (or selling short) the equivalent basket of stocks.

Conversely, if strong buying pushes the price of an ETF far enough above the fair value of its underlying stocks, the authorized participant can sell or short-sell shares of the ETF while simultaneously buying the basket of stocks in the open market.

The process of simultaneously buying and selling essentially identical baskets of stocks in different places at the same time to profit from price discrepancies is called *arbitrage*. Firms that practice arbitrage help maintain a narrow gap between the ETF's market price and the value of its underlying shares.

The size of the discrepancy between an ETF's price and its fair value depends on the character of the stocks in the ETF. An S&P 500 ETF holds stocks for which there are almost always willing buyers and sellers for a large number of shares. Such stocks are said to be very liquid. All else being equal, it is easier to be an investor in a liquid stock than the opposite—an illiquid stock. Suppose you want to buy \$1 million worth of shares in ExxonMobil, a company whose outstanding shares are worth a total of \$349 billion. Compared to the entire company, \$1 million is an insignificantly small amount, and it is usually easy to find someone with whom to transact. Most of the dollar value of the stocks in the S&P 500 consists of easy-to-trade stocks like XOM. As a result, the cost of arbitrage by an authorized participant is low, allowing S&P 500 ETFs to trade close to their fair values.

On the other hand, an ETF that holds only small company stocks imposes higher costs on arbitrageurs. If you want to buy \$1 million worth of stock in a company whose outstanding shares are worth

\$100 million in total, you have to locate a seller for fully 1 percent of the company's shares. Although in the case of ExxonMobil, it is not hard to find sellers for less than 1/3,000th of 1 percent of a company, it is a far more difficult undertaking to find someone who owns 1 percent of a small company and is willing to sell that much all at once to you. To attract that large a fraction of the outstanding shares, you might have to raise the price you are willing to pay. Conversely, if you want to sell 1 percent of a company's stock, you have to accept a fairly low price to attract that many buyers all at once. Although this is an extreme example, these considerations usually do cause the share price of a small-cap ETF to deviate further from its fair value before it becomes profitable to arbitrage, compared to the situation with large company stocks, which are almost always more liquid.

The market provides two types of information throughout the trading day for you to consult when you are considering making a trade. First are the current bid and ask prices. (If you want to sell immediately "at the market," you should get the bid price. If you want to buy immediately "at the market," you should pay the ask price. In reality, delays in transmitting your order to the exchange might result in your getting a price different from the bid-ask quote you saw when you placed the order.)

The second bit of information is the Indicative Optimized Portfolio Value (IOPV), which in later chapters of this book is referred to by the more descriptive term *fair value*. IOPV is the fair market value of the underlying basket of stocks in the ETF. This is updated every 15 seconds. Normally, the bid price should be lower than the IOPV, and the ask price should be above it.

To understand why this is, we can turn back to the used car example. There is usually a true wholesale price at which a dealer knows she can buy or sell a car at auction. This price is analogous to the IOPV, which is what the basket of stocks in an ETF is worth in the absence of transaction costs. Generally speaking, a car dealer will not pay more than the auction price to buy a used car and will not sell one off the lot for less, because transacting with other dealers at a car auction remains an option. If a dealer did put up a car for sale for less than the auction price, another dealer could simply buy the car and

resell it at auction, pocketing a profit at no risk (again, neglecting transaction costs, which for cars are significant).

Similarly, the ask price on an ETF is what you would have to pay to purchase it. Insiders (authorized participants, specialists, etc.) ordinarily will not sell you an ETF for less than it would cost them to reassemble the underlying basket of stocks through purchases on the open market. If one authorized participant were to ask less for an ETF than the underlying basket of stocks was worth on the open market, which is the IOPV, another trader would snap up the shares at the too-low ask price and simultaneously sell short the underlying basket of stocks at the IOPV, locking in a profit. This actually does occur on rare occasions when one trader's attention might lapse. At such times, other traders swoop in like vultures to take advantage of the riskless profit opportunity. The trader who lets himself get taken advantage of is said to have been *picked off*, in the language of floor traders.

It is wise to check the IOPV before placing an order. If the bid-ask quote is very different from the IOPV, you might want to try to understand why before making the trade. In some cases, especially when the market is moving quickly, the 15-second delay in updating the IOPV can account entirely for discrepancies between it and the bid-ask quote.

IOPV is reported under a different ticker symbol than the ETF. Other ticker symbols exist for ETFs that report more arcane data, such as the number of shares outstanding, the prior day's closing fair market value, and the cash component of the ETF holdings. (Because the stocks in an ETF pay dividends at various dates, each ETF might have small cash holdings in addition to the basket of shares.)

Good sources of information on the ticker symbols for this additional ETF data are available online from Indexfunds.com⁴ and from www.amex.com⁵ (the American Stock Exchange Web site). Barclay's iShares Web site (www.ishares.com) also provides ticker symbols for price quotes and intra-day fair market values for all of its ETFs.

ETF Performance Is Not Weighed Down by Transaction Costs

As mentioned earlier, all mutual fund shareholders bear the costs incurred as a result of purchases or redemptions by every other shareholder. Such costs are typically modest for any transaction that an individual investor might request. However, if large numbers of shareholders request redemptions or make purchases at the same time, the fund might incur significant costs.

Many funds restrict the number of transactions that each investor can make in a given year to avoid these types of costs. However, the larger problem for mutual fund investors is what would happen if a large number of long-term shareholders decided to run for the exits at the same time. That could happen on a day of a significant market decline, such as occurred on October 19, 1987, when the S&P 500 Index lost more than 20 percent of its value during just that one day.

ETFs do not suffer from this risk because the only way for ETF shares to be redeemed is with a transfer of shares of individual stocks. No cost is involved in simply transferring stocks from one account to another, so the performance for remaining ETF shareholders is not adversely affected when ETF shares are redeemed. Those costs fall entirely on the authorized participant firms if they elect to liquidate shares they have received from a creation or redemption.

ETF Shares Are Often More Tax-Efficient Than Mutual Funds

The exchange of ETF shares for shares of stock also avoids realizing capital gains when many shareholders want to unload the fund. In a regular mutual fund, when shareholder redemptions force the fund to sell stock holdings to raise the cash needed to meet those redemptions, any profits on the stock sale generate capital gains that are passed on to the remaining shareholders of the fund at the time of its annual capital gains distribution. This means that long-term shareholders might have to pay capital gains taxes because some other shareholders sold out.

In some instances, fund managers might decide to realize the gains from one of their holdings. That, too, creates a taxable capital gain for the fund shareholders, whether or not they actually sell their shares. The extent to which this is an issue depends on how frequently a fund manager turns over his portfolio and whether the market has been in an uptrend. (At the tail end of a bear market, there might be no profits to tax, in which case portfolio turnover does not create tax liabilities for the shareholders.)

The exchange of ETF shares for shares of the underlying stocks does not create a taxable event. The only way for a long-term shareholder of an ETF to realize capital gains without selling his own shares is when a change in the basket of stocks forces the sale of some shares. Because all ETFs that are currently trading in the United States are passively managed and therefore have low portfolio turnover, the risk of a large capital gains distribution is minimal. In contrast, a regular mutual fund can generate a large taxable distribution in either of two situations: first, if the portfolio manager makes a big change in his holdings, or second, if a large number of shareholder redemptions force the fund to sell stock.

Special Risks of ETFs

As already discussed, ETF share prices are sensitive to the balance between supply and demand—a risk absent from regular mutual funds. ETF investors face the additional risk of relying on authorized participants to keep ETF prices in line with the underlying share values. During *fast markets*—periods marked by an overwhelming imbalance between supply and demand—authorized participant firms and specialists have been known to be slow to step up and fill the wave of orders. The result is that at the time you are most anxious to sell, you might not be able to get as fair a price (relative to the value of the underlying shares) as you thought you would. The bid-ask spreads illustrated in Table 1.1 were obtained during a normal market. If you buy or sell during a fast market, your bid-ask spread costs will be higher than normal.

Actually, if you like to trade against the crowd, ETF pricing can work in your favor. You might be able to buy the ETF you want at a discount to its fair value if panic selling is occurring. If you are looking to sell ETF shares, you might be able to get more than fair value if buyers are clamoring for what you are selling.

Conclusion

This chapter has described the ways in which ETFs possess characteristics of both traditional open-end mutual funds and shares in individual companies. Like mutual funds, ETF shares represent a proportional ownership in a portfolio of individual stocks or bonds. All the ETFs currently listed have investment transparency—you know exactly what you are buying. Although it is usually not important for an individual mutual fund investor to know precisely what stocks are in his fund's portfolio, in the past, some mutual funds deviated from their original objectives, leading investors to assume risks of which they were unaware when they selected the fund.

Like individual stocks and in contrast to open-end mutual funds, ETFs trade on exchanges. This means that your transaction costs are likely to be greater with an ETF than with a no-load mutual fund purchased directly from the fund company. For long-term shareholders, their transaction costs might ultimately be offset by an improvement in ETF performance compared to a comparable mutual fund because ETF shareholders do not bear transaction costs arising from buy and sell orders from other shareholders.

Another difference between ETFs and mutual funds is that ETF share prices are subject to shifts in the balance between supply and demand at the time you place your order. This represents an additional risk that is nonexistent with open-end funds.

The flexibility of ETFs has led a wide range of investors to utilize them. We have, however, just barely begun to discuss the advantages of ETFs. Specifically, we have referred to potentially greater tax efficiency compared to regular mutual funds and to the benefits to long-term shareholders of not having their long-term performance eroded if other shareholders effect large or frequent transactions.

The next two chapters teach you how to evaluate mutual fund and ETF performance and show you in which areas ETFs have outperformed a majority of their actively managed competition.

Endnotes

- 1 The past results presented in this book, either real or hypothetical, do not guarantee future investment performance.
- 2 During the 1990s, a number of ostensibly low-volatility equity mutual funds stretched their mandates to be able to participate in the boom in technology stocks. These funds did boost their gains by doing so for as long as the tech boom lasted, but then they delivered unexpectedly large losses during the ensuing bear market. Shareholders who thought they were diluting their risk from exposure to technology stocks by investing in nontechnology funds found out that they were not as protected as they had expected.
- 3 Many mutual funds that normally charge sales loads are also available through discount brokers with mutual fund supermarkets such as Schwab or T.D. Ameritrade. These discount brokerages frequently do not impose the normal brokerage sales load on mutual fund purchases, which is a big advantage compared to using a full-service broker. However, the discount brokers do impose a range of charges of their own. Many funds purchased through supermarkets are free of transaction costs, but others might carry prohibitive costs. Be careful about purchasing mutual funds through brokers.
- 4 The exact URL for Indexfunds.com is www.indexfunds.com/data/tickerzone.php.
- 5 On the home page for the American Stock Exchange, you can use its ETF screener to find the ticker symbol for the shares you want. For further information about each ETF, enter its ticker symbol into the dialog box as if requesting a quote. Finally, on the quote screen, select the “tear sheet,” which has all the secondary ticker symbols as well as other information.