AN INVESTOR'S GUIDE TO ANALYZING EXCHANGE-TRADED FUNDS

By Albert J. Fredman

Tradable funds require greater investor sophistication than ordinary mutual funds because you're dealing with a fund that trades like a stock. The stock dimension may also ignite latent speculative tendencies that might otherwise lie dormant.

One of last year's hot investing stories—index-based exchange-traded funds—continues to attract attention.

Unlike traditional mutual funds, these funds trade throughout the day at varying prices. Virtually all are listed on the American Stock Exchange (Amex). Because these vehicles are unique and still relatively new, many investors do not fully understand their nuances. This column takes an in-depth look at the subtleties of tradable funds and explains how to analyze them using information provided by several Web sites.

INDEX TRACKERS

As regulated investment companies, exchange-traded funds are designed to track an underlying index of security prices. They resemble open-end funds because professional investors can create and redeem shares daily by rapidly transferring baskets of underlying stocks into or out of the portfolio. More than 75 funds now change hands daily, and about 60 of these were listed on the Amex just last year. Barclays Global Investors, currently the world's largest index-fund manager, introduced funds called "iShares," while State Street Global Advisors, the sponsor of S&P 500 SPDRs (or "spiders"), brought out an assortment of "StreetTracks" funds.

Introduced last May, iShares S&P 500 has proven to be the most popular of last year's offerings. Most new funds focus on specific sectors or parts of the world. You can find funds tracking a wide assortment of Dow Jones, S&P, Russell, Fortune, and Morgan Stanley Capital International (MSCI) indexes.

The first exchange-traded fund offered on the New York Stock Exchange debuted last December. Named iShares S&P Global 100 Index (ticker IOO), the fund tracks large-cap global businesses around the world, as represented by the S&P Global 100 index.

Assets in exchange-traded funds amounted to $65.3 billion on December 31, 2000. The bulk of assets and trading volume are concentrated in a handful of portfolios. With daily volume averaging nearly 30 million shares, the Nasdaq-100 Index Tracking Stock—also known as "Qubes," a name derived from its ticker (QQQ)—is by far the most actively traded of the funds. Qubes tracks the 100 largest non-financial companies in the Nasdaq, of which technology stocks amount to about 76%. Together, Qubes and SPDRs accounted for 75% of exchange-traded fund assets at year-end 2000. This concentration may be due to the newness of the product, as well as the highly specialized nature of many portfolios. Some of the newer funds may be benchmarked to indexes too obscure to generate sufficient liquidity.

Benchmarks tracked by exchange-traded funds fall into three general categories:

- **Broad-based indexes**. A wide cross-section of equities from a broad range of industries is included in these benchmarks. Examples are the S&P 500,

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Dow Jones U.S. Total Market, the Russell 3000, and Fortune 500 (which tracks the 500 largest U.S. companies ranked by revenue). Style-specific "growth" and "value" options exist on certain benchmarks—and you can choose between small, mid-sized, large, or giant companies.

- **Sector indexes**. A specific industry or stock group such as real estate or telecommunications is the focus here. Some benchmarks are relatively broad, such as consumer services, while many others are highly defined, such as Internet companies.
- **International indexes**. Formerly known as WEBS, iShares MSCI track a benchmark on a specific stock market, such as Germany or Taiwan, or a region, such as Europe. More than 20 international portfolios exist and more are expected.

ON-LINE RESOURCES

Plenty of user-friendly information on tradable funds is now available on-line.

The Amex Web site (www.amex.com) is an excellent place to begin your analysis. Click "Exchange-Traded Funds" and navigate to the fund "Fact Sheet," which contains a variety of useful data. The net assets and shares outstanding of each fund are updated daily. As with a traditional open-end fund, changes in these variables reflect shareholder demand.

Similar to the Amex Web site, the Nasdaq site (www.nasdaq.com) is a comprehensive resource. The Nasdaq site also allows you to compare the price performances of all exchange-traded funds over a time period you select.

Barclays Global Investors (www.ishares.com) and State Street Global Advisors (www.streettracks.com) provide information on their respective offerings.

Morningstar Quicktake Reports on individual tradable funds are available at Morningstar.com (www.morningstar.com). Morningstar.com also provides exchange-traded fund news, articles, a discussion board, and links to other sites.

Indexfunds.com (www.indexfunds.com) provides extensive coverage of the arena including research articles and interviews. In addition, Indexfunds.com offers easy-to-use data on traditional index funds to assist you in your comparison shopping.

Because tradable funds are stocks, you need to know their trading characteristics. The historical quotes available on Yahoo! Finance provide a good gauge of a fund's daily volatility and trading activity. Go to quote.yahoo.com (note: no "www"), key in a fund's ticker, and click "Get Quotes" and then "Chart." Go to the bottom of the chart and click "daily" next to Historical Quotes. A tabulation then appears with your fund's daily open, high, low, and closing prices, plus volume. A fund's dividend history is also available.

TABLE 1. TRACKING ERROR ILLUSTRATED

	Annual NAV Performance (%)			
Funds and Benchmarks	**1997**	**1998**	**1999**	**2000**
iShares MSCI Canada (EWC):				
Fund—EWC	10.91	–6.47	46.13	5.24
Benchmark—MSCI Canada Index	12.80	–6.14	53.74	5.34
Tracking error	–1.89	–0.33	–7.61	–0.10
iShares MSCI Sweden (EWD):				
Fund—EWD	11.00	11.06	63.93	–23.74
Benchmark—MSCI Sweden Index	12.92	13.96	79.74	–21.29
Tracking error	–1.92	–2.90	–15.81	–2.45
S&P MidCap 400 SPDRs (MDY):				
Fund—MDY	31.92	18.58	14.30	17.08
Benchmark—S&P MidCap 400 Index	32.25	19.12	14.72	17.51
Tracking error	–0.33	–0.54	–0.42	–0.43
S&P 500 SPDRs (SPY):				
Fund—SPY	33.06	28.35	20.86	–9.14
Benchmark—S&P 500 Index	33.36	28.58	21.04	–9.11
Tracking error	–0.30	–0.23	–0.18	–0.03

Source: American Stock Exchange.

TRACKING ERROR

Tracking error refers to the fact that an index fund's returns can sometimes fall short of (or exceed) the benchmark returns. Most index-based tradable funds track their benchmarks closely, as do low-cost traditional index funds. The data needed to calculate a fund's yearly tracking errors is found in the fund fact sheets on the Amex site.

Table 1 illustrates tracking error by comparing the tracking errors of iShares MSCI Canada and Sweden with the tracking errors of S&P MidCap 400 SPDRs and S&P 500 SPDRs. Due to their inherent nature, some iShares MSCI portfolios may exhibit large tracking errors. Such discrepancies are not necessarily a drawback for investors, especially if limited alternatives exist for gaining exposure to a tiny stock market. Yet it's important to understand why these deviations exist.

Three primary factors account for

tracking errors:

- **Sampling**. A fund may sample the universe tracked by the index rather than employ full replication. This is true of iShare MSCI portfolios, which use sampling because of their inability to buy all the stocks in their respective country indexes.
- **SEC- and IRS-mandated diversification requirements.** Investment company regulations state that a single company may account for no more than 25% of a fund's total assets. Thus, if a company makes up more than 25% of a market's index, that stock would be underweighted by the fund. A good example of this is Nortel Networks, which makes up about of half of the Canadian market's value. To optimize an iShares MSCI portfolio, the manager may increase weightings of other portfolio components or even go outside the index.
- **Expenses.** Even if a fund identically weights all the stocks in its benchmark, performance will be reduced by the expense ratio (i.e., net return equals gross return of index less expenses). For instance, an iShares MSCI fund with an 84 basis point expense ratio should lag its benchmark by 84 basis points if its before cost return matches the index return. Expense ratios are found on the Amex Web site. Broad-based funds tend to have the lowest costs. The rock bottom 9.45 basis point (0.0945%) expense ratio of iShares S&P 500 is a big draw. A bit more expensive, S&P 500 SPDRs charges 12 basis points. The iShare MSCI single-country funds have the highest costs of the group—the majority are 84 basis points—but the funds targeting Brazil, South Korea, and Taiwan charge 99 basis points.

As with regular mutual funds, expenses accrue daily. Essentially, the prices at which you buy and sell a fund reflect your accrued expenses. For instance, Qubes have an 18 basis point yearly expense ratio. Dividing that number by 365 days equals the daily charge, which is worked into the closing net asset value. Thus, you will automatically be paying your pro rata share of the expense ratio based upon the length of time you own a fund—be it 10 days or 10 years.

PORTFOLIO CHARACTERISTICS

Exchange-traded funds provide a quarterly updated list of holdings on the Amex and Nasdaq Web sites. Barclays Global Investors and State Street Global Advisors update the holdings of their respective funds monthly at their sites.

A listing of a fund's top 10 holdings provides a good indication of its flavor. Some funds are heavily concentrated in a few names, which translates into greater company-specific risk and higher volatility. This is mainly true of country-specific and sector offerings. For instance, iShares South Korea recently had 50% of its portfolio in three companies: Samsung Electronics (21%), SK Telecom (18%), and Korea Electric Power (11%). Such concentration can also result in higher capital gains distributions if a large stock position must be cut back to satisfy SEC- and IRS-mandated diversification requirements.

The arena now offers three Internet funds: Fortune e-50 Index Tracking Stock, iShares Dow Jones U.S. Internet Sector Fund, and StreetTracks Morgan Stanley Internet Index Fund. Their respective expense ratios are 0.20%, 0.60%, and 0.50%. The iShares fund is the most concentrated, with 71% in its top 10 holdings versus 41% for the StreetTracks offering. The former has 10% each in its two top positions, whereas the latter invests less than 5% in all holdings. Also less concentrated than the iShares fund, Fortune e-50 has 58% in its top 10 holdings. The largest of the three, with $58 million in assets, it tracks companies in E-business, Internet communications, Internet hardware, and Internet services sectors. The Amex-traded HOLDRS also offer Internet portfolios, but they are structured differently and do not replicate a market benchmark [for more on HOLDRS, see "A Look at HOLDRS: Stock Bundles Offering Unique Characteristics," by Albert J. Fredman in the October 2000 *AAII Journal*, available on our Web site].

You'll also find the fund's economic sector breakdown on the Amex and sponsor sites. It's important to know the proportion of a broad-based fund's assets in certain sectors such as technology. For instance, iShares Russell 3000 Growth contains 49% technology, whereas Russell 3000 Value focuses heavily on financial services and utilities, with just 5% in technology. Highly focused funds can be extremely volatile. StreetTracks Morgan Stanley Internet Index closed at 65.875 when it went public on September 29, 2000, but hovered near 17 in mid-April, down 74%.

With so many narrowly focused funds available, it's tempting to bet on industry or country cycles. However, don't count on succeeding at sector or country rotation—it's basically another form of market timing. Sectors often are fads, like stylish clothing. To have any hope of succeeding with these funds, you need an in-depth understanding of the sector or country, as well as knowledge of what's in the portfolio. Even then, highly focused funds should account for no more than 10% of your total equity allocation.

ANALYZING DISTRIBUTIONS

Index funds are known for their tax efficiency because they use a buy-and-hold strategy. But some exchange-traded as well as traditional index funds have higher turnover. This is true of funds tracking small companies, as well as those targeting world markets. Selling stocks to rebalance a portfolio triggers turnover and resultant

distributions.

You can analyze a fund's distribution history by consulting the Amex Web site. Table 2 contains a few examples. Due to the nature of their portfolios, some iShares MSCI funds make return of capital distributions, which should be applied to reduce the cost basis of the investor's shares. Return of capital is less common with domestic funds.

The MSCI portfolios are very different in character than the domestic portfolios. As explained, all are optimized both to keep them on target with their country benchmarks and within IRS and SEC diversification guidelines. Concentration issues can cause a fund to peel back a large position and distribute a resultant gain. Last year, MSCI Canada and MSCI Sweden were required to trim large positions in Nortel and Ericsson, respectively.

In sharp contrast, S&P 500 SPDRs have only made one capital gains distribution since their January 1993 inception—a nine-cent payment in 1996. Comparing total distributions among funds is more meaningful if they are expressed as "yields" by dividing distributions of the past 12 months by a fund's recent price. Because of their relatively high per-share prices, the roughly 1% yields of S&P MidCap 400 SPDRs and S&P 500 SPDRs are far lower than those of the lower priced MSCI Canada and Sweden.

PRICING CONSIDERATIONS

Exchange-traded funds have pricing symbols for three different variables:

- **A stock price**—the price at which trading occurs.
- **An official closing net asset value**—with a few exceptions, this quantity is computed at 4:00 p.m. Eastern time each business day.
- **An estimated intraday net asset value**—this number is updated every 15 seconds based on real-time prices of each of a fund's underlying holdings. It is called "intraday value" for the domestic funds and "indicative optimized portfolio value" for the non-U.S. portfolios. The latter number also reflects changes in foreign-exchange rates. Thus, the value can fluctuate on the basis of currency movements if the home market is closed when an iShares MSCI fund trades in New York.

These symbols can be found on the Amex Web site by clicking on "Spec Sheet" after you have selected a fund. While premiums and discounts are generally not a major issue, they may occur in special instances. End-of-day discounts and premiums are readily available. The Closed-End Fund Association's Web site (www.cefa.com) posts daily discounts and premiums for all exchange-traded funds. In addition, Barclays' Web site provides this information daily for all iShares. Finally, Morningstar.com provides historical discount/premium charts as a part of its Morningstar Quicktake Report.

MISMATCHED DATA

End-of-day discounts and premiums may not be meaningful if the data points are mismatched. For some thinly traded funds, there can still be a significant difference between the portfolio's end-of-day net asset value and the fund's last trade of the day. Suppose the fund last traded at noon Eastern time in a volatile market. Then the market moved sharply up or down prior to the close. In this case, you would

TABLE 2. TRACKING DISTRIBUTIONS

	Distribution History ($ Per Share)			
Funds	**1997**	**1998**	**1999**	**2000**
iShares MSCI Canada (EWC):				
Ordinary income	0.03	0.15	0.08	0.55
Short-term capital gains	0.14	0.00	0.02	0.62
Long-term capital gains	0.07	0.55	0.48	4.07
Return of capital	0.00	0.00	0.00	0.12
Totals	0.24	0.70	0.58	5.36
iShares MSCI Sweden (EWD):				
Ordinary income	0.00	0.09	0.10	0.14
Short-term capital gains	0.18	0.01	0.00	0.53
Long-term capital gains	0.62	0.89	1.58	4.69
Return of capital	0.00	0.02	0.01	0.04
Totals	0.80	1.01	1.69	5.40
S&P MidCap 400 SPDRs (MDY):				
Ordinary income	0.61	0.60	0.71	0.78
Short-term capital gains	0.32	0.61	1.63	0.00
Long-term capital gains	0.17	0.87	0.37	0.00
Return of capital	0.01	0.02	0.00	0.00
Totals	1.11	2.10	2.71	0.78
S&P 500 SPDRs (SPY):				
Ordinary income	1.38	1.42	1.44	1.51
Short-term capital gains	0.00	0.00	0.00	0.00
Long-term capital gains	0.00	0.00	0.00	0.00
Return of capital	0.00	0.00	0.00	0.00
Totals	1.38	1.42	1.44	1.51

Source: American Stock Exchange.

expect to see a wide spread between the fund's noon trading price and its 4 p.m. net asset value—but it wouldn't necessarily imply a mispricing.

Premiums and discounts may also occur with broad-based funds that trade until 4:15 p.m. Eastern time. While exchange trading of stocks normally ceases at 4:00 p.m., broad-based funds continue trading for an additional 15 minutes until the 4:15 close of the options and futures markets. The reason is that certain investors use funds such as SPDRs and Qubes as an alternative to indexed derivatives like futures contracts. Thus, funds that trade past the time when their net asset value is calculated could record premiums or discounts if a major shift in sentiment occurs between 4:00 and 4:15 p.m.

Country funds may display significant premiums and discounts resulting from non-concurrent trading in two markets. For instance, all the Asian markets are closed when the Asian-based iShares MSCI trade in New York. Their net asset values are stale because they are derived from yesterday's close. At 4:00 New York time, a net asset value is determined for MSCI Japan based on closing Tokyo market prices about 16 hours ago. Thus, the Japan fund can develop a premium or discount during the New York trading day based on investors' anticipation of how the home market will react to a high-profile development such as an unanticipated Fed rate reduction or a major news story in Tokyo. The closing price will represent investors' best estimate of where the stocks will trade at the Tokyo opening, not where they were at yesterday's Tokyo close (when the now outdated net asset value was determined).

ARBITRAGE AT WORK

In real-time, however, you would expect far smaller discounts and premiums, as evidenced with the broad-based and sector funds. The passive nature of these funds is a prerequisite to keeping their market prices in line. Professional investors—often Amex specialists—earn arbitrage profits by erasing temporary premiums and discounts.

Here's a simplified explanation of how arbitrage works with SPDRs.

- **Creations erase premiums:** Arbitrageurs create SPDR shares by depositing to the trustee baskets of stocks matching those in the S&P 500 index in exchange for new SPDR shares priced at a premium. The arbitrageur sells the latter, capturing a profit.
- **Redemptions close discounts:** SPDR shares are bought at a discount and the arbitrageur takes delivery of the underlying stocks, selling the latter at a profit. (In contrast to a traditional open-end fund, the arbitrageur—not the fund—sells the shares, so redemptions are unlikely to trigger taxable gains for shareholders. In fact, offloading gains onto institutional investors allows a fund to be more tax-efficient.)
- **Creations and redemptions occur in large block transactions:** Creation units range in size from 25,000 to 600,000 index shares. The 50,000-share SPDR creation unit would be worth $7 million if SPDRs were quoted at $140.

It's not difficult to determine how efficiently a fund is being priced at any given time. The Amex updates intraday values and indicative optimized portfolio values of each fund at 15-second intervals during the trading day. As explained, you can track these updated values by using a special symbol provided on the Amex site. For instance, "SPY" is the regular stock symbol for S&P 500 SPDRs and "SXV" is the intraday value symbol. By comparing the intraday value with a fund's price, you can determine whether a discount or premium exists at any given moment. You would expect to see the intraday value lying between the stock's bid and asked if the fund is properly priced at the moment.

A study done by the Salomon Smith Barney Closed-End Funds Research Group concluded that the arbitrage mechanism works effectively for funds focusing on domestic equities. Using data for the month of September 2000, the study concluded that intraday values were between the bid and asked in 91% of the sample of U.S. stock funds.

LIQUIDITY AND TRADING

Liquidity is the ease with which an investment can be bought or sold for a price at or very close to the recent quote. Investors in individual stocks and closed-end funds frequently equate liquidity of the investment with its average daily volume. However, the liquidity of an exchange-traded fund is not so much a function of its volume as it is of the liquidity of the stocks held by the fund. A large order to buy or sell a thinly traded stock could easily drive its price up or down dramatically. In this case, the market maker has to deal with enormous company-specific risk. That's not true with exchange-traded funds because the specialist is just repackaging individual securities to meet demand. New shares can readily be created to meet a surge in demand if the underlying stocks are liquid. Nonetheless, some newer funds being trotted out by eager sponsors are based on highly specialized indexes and thus may not appeal to enough investors to gain adequate liquidity. It's very difficult for market makers to trade shares of illiquid funds. Wide spreads and low volume often plague such funds.

The best measure of a fund's liquidity is the spread between its bid and asked prices, and the "size" in the quote (i.e., the number of shares bid for and offered). Real-time quotes—which provide this information—will help you gauge liquidity. For example, if a fund is quoted at 10.12 bid to 10.16 asked with a size of 100 by 48, that means 10,000 shares are being bid for at 10.12 and 4,800 offered at 10.16.

The four-cent spread is a transaction cost component for those investors who buy at the asked or sell at the bid.

Full decimalization became a reality at the New York and American stock exchanges on January 29. Quotes in increments of pennies should narrow spreads because the difference between bid and asked can now be as small as a penny. Prior to the conversion, the smallest increments were normally 1/16. Now 100 price points, rather than 16, exist between each dollar. Yet liquidity may appear lower because much of it is not visible in the size numbers. Investors are now free to spread their limit orders across a far greater number of price points.

Many feel that investors in traditional no-load mutual funds are better off because they avoid the spread. While logical on the surface, this argument is actually faulty because mutual fund investors are still impacted by spreads. The open-end fund manager is subject to the spread when the new investor money that flows in is ultimately invested. The spread can be a significant drag on the returns of actively managed funds with high turnover rates.

You can try to minimize or avoid the spread with a tradable fund. A price-conscious way to buy and sell shares is by placing a limit order to buy at or slightly below the bid and to sell at or slightly above the asked price. Prices fluctuate throughout the day and—as with any stock or closed-end fund—it's very difficult to time your trade so as to buy at the day's low or sell at the day's high. The limit order provides control.

STRUCTURAL ISSUES

Four of the exchange-traded funds are structured as unit investment trusts: S&P 500 SPDRs, S&P MidCap 400 SPDRs, DJIA Diamonds, and Qubes. All the rest are structured as open-end investment companies—a structure first adopted by Barclays iShares. Funds with an open-end structure have found increasing favor because they enjoy a slight edge over the unit investment trust format.

First, the open-end funds can reinvest the dividends as received on their portfolio holdings, whereas the unit investment trusts cannot. The latter accumulate the dividends and reinvest them quarterly, resulting in a so-called "dividend drag" during rising markets. The drag is not that significant with an S&P 500 index fund because the benchmark currently yields only about 1%. It would be more noticeable with higher yielding portfolios. The open-end structure also allows a fund to use stock index futures to equitize its dividend stream. However, traditional index funds, such as the Vanguard 500, probably use futures to a much greater extent because they can equitize a large influx of shareholder money, which could not occur with an exchange-traded fund.

In addition, stock loans can be made by open-end funds but not by unit investment trusts. The interest generated by such loans theoretically results in lower expenses. Stock lending is most significant for a fund that owns a lot of hard-to-borrow stock such as iShares Dow Jones U.S. Internet.

DISCIPLINE PAYS

For the most part, exchange-traded funds are wonderful investment vehicles. The real challenge investors face is understanding and using them properly.

Tradable funds require greater investor sophistication than ordinary mutual funds because you're dealing with a fund that trades like a stock. The stock dimension also may ignite latent speculative tendencies in an investor that might otherwise lie dormant.

In order to reap the real rewards of equity investing, positions must be held for years, or even decades. For disciplined, long-term investors, core holdings in low-cost, tax-efficient broad-based tradable funds certainly make sense. ✥

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- For current data on exchange-traded funds, go to the **Quotes and Research** area and **Morningstar Reports** under Tools.
- To read more about these products, link to the following past articles from the on-line version of this article:
  - —"Exchange-Traded Funds: A New Twist on Index Investing"
  - —"Index Stocks: An Introduction to SPDRs—S&P 500 Depositary Receipts"
  - —"A Closer Look at Funds that Focus on the Dow"
  - —"A Look at HOLDRS: Stock Bundles Offering Unique Characteristics"
- Discuss your experiences with exchange-traded funds or ask questions of other members at the **Mutual Funds Message Board**.