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The Exchange- Traded Funds **Manual**

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Gary L. Gastineau

The Exchange-Traded Funds Manual

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GARY L. GASTINEAU



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Preface

Authors try to accomplish a variety of things in prefaces. My objective here is to help you get what you want to get from this book. Of course, you are free to chart your own path.

The individual chapters cover specific topics and they are roughly in the order someone new to exchange-traded funds might approach the topic, but there is no need to read all of them or to read them in order. In most chapters you will find footnotes and text references to other spots in the book and to other publications and Internet material that will give you more detail on the subject covered in the chapter or in a section of the chapter. If you are looking for detailed coverage of a particular topic you will probably choose a chapter and follow it where it leads you. A reader looking for an overview will probably read straight through with little attention to footnotes and citations.

If none of the chapter headings seems specific enough, I suggest you look for your topic in the index. The index has an unusually large number of cross-references by design. When you look up terms and topics in the index they will frequently lead you to other references that may help you explore more efficiently.

There are plenty of footnotes. I hope they provide supplementary information at the right time and suggest new paths—always at your option. Also, an interest in one topic will often be linked to an interest in a related topic. The bibliography is confined to works mentioned in the text or in footnotes. Many of these references are worth your attention if you want to go deeper into a topic.

Some ETF topics that are subjects of extensive current discussion are (1) actively managed and other non-transparent exchange-traded funds, (2) securities structures similar to open-end exchange-traded notes that can eliminate most counterparty credit risk and (3) ways to reduce the cost of trading exchange-traded products. The next few years will also see major changes in leveraged ETFs, currency and commodity products, improved fixed income portfolios, and greatly improved equity index funds.

I have no illusions that the present volume will *completely* satisfy any reader's need for information about ETFs, but I hope this explanation of what I have tried to do will help you navigate these pages.

Acknowledgments

No one can write a book of this nature and complexity without a great deal of help and support. I have had a lot of both from a number of terrific people. Conversations with and suggestions from a large number of friends have contributed directly to the current volume and to my understanding of ETFs over the years.

I owe special thanks to Seth Varnhagen and Edward Hynes for extensive comments on the manuscript from their viewpoint as advisors who examine ETFs as possible candidates for their clients' portfolios. Ron DeLegge, Dan Dolan, Matt Hougan, Todd Brooms, Richard Keary, Jim Wiandt, and Michael Dickerson also gave me useful comments and suggestions from a number of perspectives. Richard Shapiro has shared his insights into the U.S. tax code with me for many years, first on options and now on ETFs. His analysis has always been well-reasoned and his comments have always been sound.

A large number of friends contributed information and understanding on one or more key topics. Among these are Jim Angel, Heather Bell, Rebecca Cameron, Don Cassidy, Don Chance, Roger Edelen, Gary Eisenreich, Frank Fabozzi, Ben Fulton, Debra Fuhr, Martin Gruber, Richard Harper, John Haslem, Dodd Kittsley, Mark Kritzman, Craig Lazarra, Michael Lipper, Steven Lotz, Burton Malkiel, Albert Mandansky, Dan McCabe, Kevin McNally, Richard Michaud, Kathleen Moriarty, Nathan Most, James Novakoff, Antti Petajisto, Jim Ross, Vijay Singal, Robert Tull, Wayne Wagner, and Clifford Weber.

My daughters, Gayle and Nicole, provided invaluable research assistance at various times and my wife Nancy has been more patient than I had a right to expect as this book occupied *our* time.

I owe a particular debt of gratitude to my assistant, Rosemary Wieszt. Without her extensive and intensive efforts, this book would not have happened.

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An Introduction to Exchange-Traded Funds

EXCHANGE-TRADED FUNDS WERE INTRODUCED AS "SOMETHING TO TRADE"

Many of mankind's great innovations owe at least some of their success to serendipity. A popular legend suggests that serendipity helped mankind learn the usefulness of fire. As the story goes, one of our ancestors came upon the site of a fire that had been started by lightning. This early human discovered that the fire had burned an animal's carcass. The "cooked" meat tasted better than raw meat, and men soon learned that cooking enabled humans to obtain nutrition more efficiently, freeing up time and providing energy for other pursuits.¹ This kind of serendipity has been a common theme in many of mankind's endeavors.

One of the best examples of serendipity in the financial markets—from several angles—is the early development of exchange-traded funds (ETFs). In attributing some features of exchange-traded funds to serendipity, we certainly do not mean to minimize the role of the developers of the early exchange-traded funds. They deserve full credit for the wisdom they displayed in designing the early ETFs introduced in Canada and the United States. Although it is not fashionable to credit regulators with a positive role in financial product development, regulators were almost certainly responsible for some of the shareholder protection features of ETFs. Human efforts

¹The precise circumstances under which mankind first encountered and controlled fire—and then began cooking—are likely to remain obscure. Some archaeologists and anthropologists embrace the idea that the first controlled fire became available when men made sparks by hitting stones together while making tools. For a very concise (if conjectural) history see Dreifus (2009). For more details, see Wrangham (2009), especially pp. 190–194.

notwithstanding, however, some key features became part of the ETF by accident. The features of early ETFs were so important that they are now serving as the basis for some revolutionary financial engineering that promises to reshape the fund industry in the United States and around the world.

We will look at the early history of ETFs in some detail in Chapter 2, so these background comments will be brief. The first viable open-end exchange-traded portfolio basket was introduced in Canada and began trading in 1989 as the Toronto Stock Exchange Index Participations (TIPs). It took nearly four more years for the American Stock Exchange to obtain approval from the Securities and Exchange Commission (SEC) to launch the Standard & Poor's 500 SPDR fund product in the United States. In both cases, the principal purpose of the product launch was to provide something for exchange members to trade.

The labels "exchange-traded fund" and "ETF" are applied to a number of financial instruments. The fact that investors can trade most of the products called ETFs throughout the day at market-determined prices that are close to the intraday value of an underlying portfolio or index is one common feature of these securities. Many so-called "ETFs" are neither funds nor investment companies, as defined by the Investment Company Act of 1940. The ETF label has been attached to some open-end structured notes and to a number of grantor trusts, including HOLDERS and various currency- and commodity-based instruments. Vanguard offers exchange-traded share classes of a number of its mutual funds. Vanguard calls these shares ETFs, but these share classes do not have some important features that characterize the ETFs descended from the original SPDR. While the structure of the product does not matter in every case, shareholder protection, tax treatment, and credit risk can vary significantly among the products casually referred to as ETFs. Some observers have called the nonfund instruments exchange-traded products (ETPs) or exchange-traded vehicles (ETVs), but these names have not caught on. "Exchange-traded fund" or the acronym "ETF" is the almost universal generic label for *all* exchange-traded portfolios, open-end structured notes, and securitized commodity products.

While we will discuss all the financial instruments commonly called ETFs, the most significant and useful of these are and will continue to be the true funds. We begin by focusing on two important characteristics of the investment company ETF that are, in some respects, serendipitous. These characteristics have helped attract investors and they have been important in the early success of ETFs. These characteristics also provide a basis for growth in the true fund ETF model well beyond its impressive beginnings. Not everyone attaches as much significance as I do to these two features, but I am convinced that they hold the key to developing better funds. The two key features of these ETFs are *shareholder protection* and *tax efficiency*.

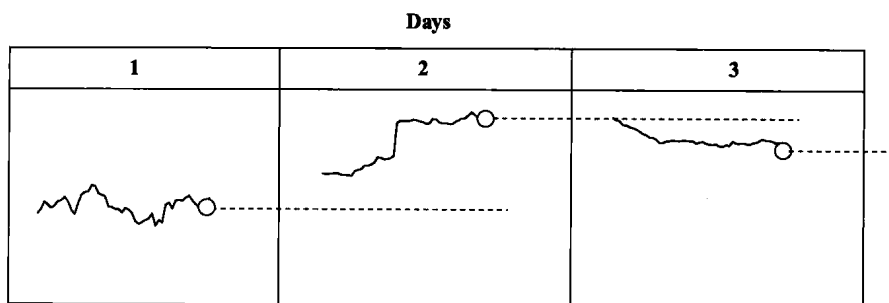


EXHIBIT 1.1 Pre-1968: Buying and Selling Mutual Fund Shares at Yesterday's Net Asset Value

SHAREHOLDER PROTECTION

Four exhibits will help illustrate the value of shareholder protection² and how it is provided by most true fund ETFs. Exhibit 1.1 shows how mutual funds were priced for sales and redemptions prior to 1968. This diagram shows the pattern of fund intraday portfolio values during market trading hours for three consecutive trading days. At the end of each day, a mutual fund calculates its net asset value (NAV) per share based on the end-of-day value of the portfolio. Prior to 1968, the price at which investors invested in the shares of a fund or redeemed their shares was the net asset value *as of the previous day's close*.³

In Exhibit 1.1, the fund publishes its net asset value at the end of Day 1. That value is indicated by the circle at the end of the squiggly price line showing the pattern of intraday values for Day 1. Prior to 1968, that net asset value was the basis for fund share transactions until the following day's market close—and the calculation of a new net asset value. The share price for an order received on Day 2 is indicated by the dotted line extending to the right of the circle through the end of Day 2. Clearly, buying shares of the fund at Day 1's net asset value as the market rose on Day 2 was a great opportunity for trading profit—and for abuse of the fund's established shareholders by opportunistic investors. Correspondingly, if someone wanted to redeem shares in the fund, they would know from the intraday behavior of market

²Some of the material in the balance of this chapter first appeared in Broms and Gastineau (2006; 2007).

³The material described in this and the next few paragraphs is widely known, but not frequently discussed. A recent comprehensive description of mutual fund pricing over the years is available in Swenson(2005), pp. 270–294.

indexes on Day 2 that they could probably redeem at a higher fund share price by waiting until after the determination of net asset value on Day 2. As it became clear that the market was going to close lower on Day 3, redeeming fund shares at the net asset value from Day 2 would have seemed like a better idea than waiting for calculation of Day 3's lower net asset value. It would also be clear during the trading session on Day 3 that the price of buying shares would be lower if the purchase were deferred until Day 4. Backward pricing led to abuses by dealers and by traders who could avoid the fund sales charges or "loads" that were more common in that period than they are today.

In 1968, the fund pricing rules changed. The SEC implemented its Rule 22(c)(1), which required fund share transactions to be priced at the net asset value *next determined* by the fund after the order was received. This meant that anyone entering an order after the close of business on Day 1 would purchase or sell fund shares at the net asset value determined at the close on Day 2. Correspondingly, someone entering an order to purchase or sell shares after the close on Day 2 would be accommodated at the net asset value determined at the close on Day 3. This process is illustrated in Exhibit 1.2.

While any mutual fund share *trader* might have preferred the pre-1968 system, most *investors* would agree that the basic idea behind Rule 22(c)(1) was a sound one. Allowing traders to decide today to buy or sell shares at yesterday's price is unfair to established investors in the fund's shares. However, there is still a transaction fairness problem for fund investors with Rule 22(c)(1) in place. That problem is illustrated in Exhibit 1.3.

By pricing all transactions in the mutual fund's shares *at the net asset value next determined*, as required by Rule 22(c)(1), the fund still provides *free liquidity* to investors entering and leaving the fund. As Exhibit 1.3 shows, anyone purchasing mutual fund shares for cash gets a share of the securities positions already held by the fund and priced at net asset value.

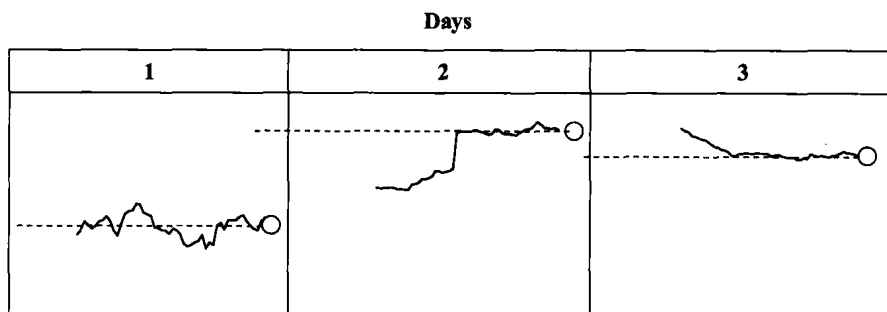
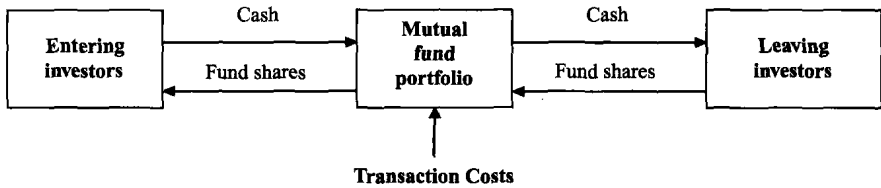


EXHIBIT 1.2 Since 1968: Buying and Selling Mutual Fund Shares at the Net Asset Value Next Determined

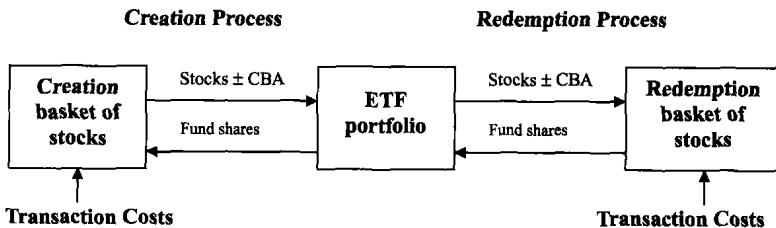


Note: Share purchases and redemptions are priced at the next net asset value calculated by the fund.

EXHIBIT 1.3 Cash Moves In and Out of a Mutual Fund: The Fund Trades Securities to Invest Incoming Cash or to Raise Cash for Redemptions

The new investor typically pays no transaction costs. All the shareholders of the fund share any transaction costs associated with investing the new investor's cash in portfolio securities. Similarly, when an investor departs the mutual fund, that investor receives cash equal to the net asset value of the shares when the NAV is next calculated. All the remaining shareholders in the fund bear the cost of selling portfolio securities to provide this liquidity. To the entering or leaving shareholder, liquidity is essentially free. To the ongoing shareholders of the fund, the liquidity given transacting shareholders is costly. Over time, the cost of providing this free liquidity to entering and leaving shareholders is a significant and a perennial drag on the fund's performance. The cost of this free liquidity is increased by the fact that the purchase or sale is usually deemed to occur when the investor's order is delivered to an agent of the fund. The order entry time is often hours or even days before the fund manager actually receives the order and can act on it to buy or sell securities in the fund.

Exhibit 1.4 shows that exchange-traded funds work differently from mutual funds. For most exchange-traded funds, creations and redemptions



Note: All securities transfers are priced at net asset value.
CBA = Cash Balancing Amount

EXHIBIT 1.4 ETF Creation and Redemption Is In-Kind: Transaction Costs Are Paid by Entering and Leaving Investors

of ETF shares are typically made *in kind*. In a creation, a basket of portfolio securities is deposited with the fund in exchange for fund shares. In a redemption, fund shares are turned in to the fund in exchange for a basket of portfolio securities. We will describe the ETF creation and redemption process in more detail in Chapter 3; but the key feature of this process for the protection of the ETF's ongoing shareholders is that the creating or redeeming entity—in most cases, the portfolio trading desk of a major investment firm acting for a market maker in the ETF shares—is responsible for the costs of investing in the portfolio securities for deposit and the costs of disposing of portfolio securities received in the redemption of outstanding fund shares.⁴ Market makers expect to pass these transaction costs on to investors when the market maker trades fund shares with investors. The cost of entering and leaving a fund varies, depending on the level of fund share trading activity and the nature of the securities in the fund's portfolio. For example, the cost of trading in small-cap stocks can be much greater than the cost of trading in large-cap stocks.

ETFs are different from mutual funds in the way they accommodate shareholder entry and exit in at least two ways: (1) The trading costs associated with ETF shareholder entry and exit are ultimately borne by the entering and exiting investors, not by the fund. (2) An exchange-traded fund does not have to hold cash balances to provide for cash redemptions. An ETF can stay fully invested at all times.⁵ *As a result of these differences, the performance experienced by ongoing shareholders in an ETF should, over time, handily surpass the performance experienced by ongoing shareholders of a conventional mutual fund using the same index or active management investment process.* Ironically, even though the exchange-traded fund was designed to be traded throughout the trading day on an exchange, the ETF is a much better product than a conventional fund for the shareholder *who does not want to trade*. On the other hand, as any mutual fund market timer will tell you, a mutual fund is a better product to trade than an ETF because the shareholders of the mutual fund have traditionally paid the market timer's trading costs.

The conventional mutual fund structure that provides this free liquidity to investors who enter and leave the fund was behind the problems of late trading and market timing that provoked the mutual fund scandals of 2003 and 2004. The SEC has spent a great deal of time and effort trying to

⁴The market makers, or dealers acting on behalf of market makers, even pay a modest creation or redemption fee to cover the fund's administrative expenses associated with creation and redemption of the ETF shares.

⁵We will see in Chapter 6 that lazy ETF portfolio managers don't always keep the fund's cash fully invested.

deal with the problem of market timing trades in mutual funds without eliminating the free liquidity which ongoing shareholders in mutual funds give entering and leaving shareholders. Some fund companies have made a variety of operational “patches” as they attempt to restrict market timing trades. In connection with implementing Rule 22(c)(2), the SEC created a complex and costly reporting structure with almost mandatory redemption fees on mutual fund purchases that are closed out within a week. In the final analysis, the elimination of free liquidity—most easily through the exchange-traded fund in-kind creation and redemption process—is the only way to eliminate market timing without imposing unnecessary costs on all fund investors. Even if there is no such thing as a market timer in the future, long-term investors will fare better in funds that protect them from the costs of other investors entering and leaving the fund.⁶

TAX EFFICIENCY

One of the most frequently discussed advantages of the investment company exchange-traded funds is tax efficiency. The tax efficiency most commonly associated with ETFs is essentially capital gains tax-deferral until the investor chooses to sell the fund shares. Tax deferral in an investment company ETF is a natural consequence of Subchapter M of the Internal Revenue Code which permits fund share redemptions in-kind (delivering portfolio securities to departing fund shareholders) without tax impact inside the fund. Subchapter M mandates that a redemption in-kind initiated by a shareholder does not give rise to a taxable capital gain that would have to be distributed to shareholders of the fund.⁷

This kind of tax efficiency is obviously most important in ETFs that hold common stocks and other securities that can appreciate in value, but some bond funds have capital gains at times. The ability to avoid capital gains distributions even benefits tax-exempt investors because it prevents the build-up of unrealized gains inside an ETF. The build-up of unrealized gains in a mutual fund portfolio can lead to portfolio management decisions that adversely affect tax-exempt shareholders. When the choice facing a portfolio manager is (1) to realize gains on appreciated portfolio securities and distribute taxable capital gains to the fund’s shareholders

⁶For a comprehensive discussion of the 2003–2004 scandals and the market structure behind them, see Gastineau (2004).

⁷For more details on ETF tax treatment, including opportunities for capital gains tax deferral, see the extended discussion of this topic in Chapter 4.

or (2) to hold overvalued securities and avoid realizing capital gains, the portfolio manager faces a conflict between the interests of tax-exempt and taxable investors. This conflict of interest between taxable and tax-exempt investors—invariably in a conventional mutual fund—disappears in an ETF. Even modest fluctuations in an ETF's shares outstanding from offsetting creations and redemptions give the fund portfolio manager opportunities to deliver the fund's lowest cost holdings of a security in redemptions and gradually increase the fund's average cost basis in each position.

With exchange-traded funds, the decision to change the portfolio can be based solely on investment considerations, not on the tax basis of portfolio securities. The conflict between taxable and tax-exempt shareholders disappears because the achievement of tax efficiency in ETFs is largely a matter of careful designation of tax lots so that the lowest cost lots of a security are distributed in-kind in redemptions and high cost lots are sold to realize losses for the fund when a sale is necessary or appropriate.

Exchange-traded funds grow by exchanging new fund shares for portfolio securities that are deposited with the fund. Redemptions are also largely in-kind. Investors sell their fund shares on the exchange. Dealers buy the fund shares and turn them in to the fund in exchange for portfolio securities. This process lets ETF managers take full advantage of the redemption in-kind provision of the Internal Revenue Code by delivering their lowest cost tax lots without realizing gains that must be distributed to the fund's shareholders. The rules for ETF redemption permit the fund manager to remove a high-cost tax lot from the redemption basket and sell it for cash to realize losses inside the fund.

The early developers of exchange-traded funds were aware of this tax treatment and its ability to defer capital gains taxes for fund investors, but the tax efficiency it gives ETFs was by no means a significant objective in the early development of exchange-traded funds. It is largely serendipitous that most well-managed investment company exchange-traded funds don't distribute taxable capital gains to their shareholders.⁸ Creation and redemption in-kind not only transfers the cost of entering and leaving the fund to the shareholders who enter and leave, it can also help defer capital gains taxes until a shareholder chooses to sell the fund shares.⁹

⁸Later chapters offer a few examples of ETFs that can be much less tax-efficient.

⁹Interestingly, tax deferral helps encourage "shareholder loyalty" to an ETF. An investor in a mutual fund will usually receive taxable gains distributions that, if reinvested, increase his basis in some of the fund shares as their value increases over time. When he sells the higher basis mutual fund shares, the higher basis reduces the capital gains tax on the sale. An investor in an investment company ETF with securities as its principal portfolio holdings should almost never receive a capital