Chapter 4 Mutual Funds and Other Investment Companies

Chapter Objectives

- Cite advantages and disadvantages of investing with an investment company rather than buying securities directly.
- Contrast open-end mutual funds with closed-end funds, unit investment trusts, hedge funds, and exchange-traded funds.
- Define net asset value and measure the rate of return on a mutual fund.
- Classify mutual funds according to investment style.
- Demonstrate the impact of expenses and turnover on mutual fund investment performance.

4.1 INVESTMENT COMPANIES

- **Investment companies** are financial intermediaries that collect funds from individual investors and invest those funds in a potentially wide range of securities or other assets.
  - Pooling of assets is the key idea behind investment companies.
  - Each investor has a claim to the portfolio established by the investment company in proportion to the amount invested.
  - These companies thus provide a mechanism for small investors to "team up" to obtain the benefits of large-scale investing.
- Investment companies perform several important functions for their investors:
  - *Record keeping and administration*
    - ✓ Investment companies issue periodic status reports, keeping track of capital gains distributions, dividends, investments, and redemptions, and they may reinvest dividend and interest income for shareholders.

- *Diversification and divisibility*
  - ✓ By pooling their money, investment companies enable investors to hold fractional shares of many different securities. They can act as large investors even if any individual shareholder cannot.
- *Professional management*
  - ✓ Most, but not all, investment companies have full-time staffs of security analysts and portfolio managers who attempt to achieve superior investment results for their investors.
- *Lower transaction costs*
  - ✓ Because they trade large blocks of securities, investment companies can achieve substantial savings on brokerage fees and commissions.

■ While all investment companies pool the assets of individual investors, they also need to divide claims to those assets among those investors.

- Investors buy shares in investment companies, and ownership is proportional to the number of shares purchased.
  - The value of each share is called the **net asset value,** or **NAV.**
  - Net asset value equals assets minus liabilities expressed on a per share basis:

$$\text{Net asset value} = \frac{\text{Market value of assets minus liabilities}}{\text{Shares outstanding}}$$

- Consider a mutual fund that manages a portfolio of securities worth $120 million.
  - Suppose the fund owes $4 million to its investment advisers and owes another $1 million for rent, wages due, and miscellaneous expenses.
  - The fund has 5 million shareholders.
  - Then

$$\text{Net asset value} = \frac{\$120 \text{ million} - \$5 \text{ million}}{5 \text{ million shares}} = \$23 \text{ per share}$$

4.2 TYPES OF INVESTMENT COMPANIES

- In the United States, investment companies are classified by the Investment Company Act of 1940 as either unit investment trusts or managed investment companies.
  - The portfolios of unit investment trusts are essentially fixed and thus are called "unmanaged."
  - In contrast, managed companies are so named because securities in their investment portfolios continually are bought and sold: The portfolios are managed.
    - ✓ Managed companies are further classified as either closed-end or open-end. Open-end companies are what we commonly call *mutual funds*.

Unit Investment Trusts

- **Unit investment trusts** are pools of money invested in a portfolio that is fixed for the life of the fund.
- To form a unit investment trust, a sponsor, typically a brokerage firm, buys a portfolio of securities which are deposited into a trust.
  - It then sells to the public shares, or "units," in the trust, called *redeemable trust certificates*.

- ◆ All income and payments of principal from the portfolio are paid out by the fund's trustees (a bank or trust company) to the shareholders.

- There is little active management of a unit investment trust because once established, the portfolio composition is fixed
  - ◆ Hence these trusts are referred to as *unmanaged*.
- Trusts tend to invest in relatively uniform types of assets.
  - ◆ For example, one trust may invest in municipal bonds, another in corporate bonds.
  - ◆ The uniformity of the portfolio is consistent with the lack of active management.
    - ✓ The lack of active management of the portfolio implies that management fees can be lower than those of managed funds.
- The trusts provide investors a vehicle to purchase a pool of one particular type of asset, which can be included in an overall portfolio as desired.
- The lack of active management of the portfolio implies that management fees can be lower than those of managed funds.

- Sponsors of unit investment trusts earn their profit by selling shares in the trust at a premium to the cost of acquiring the underlying assets.
  - For example, a trust that has purchased $5 million of assets may sell 5,000 shares to the public at a price of $1,030 per share, which (assuming the trust has no liabilities) represents a 3% premium over the net asset value of the securities held by the trust.
    - ✓ The 3% premium is the trustee's fee for establishing the trust.
- Investors who wish to liquidate their holdings of a unit investment trust may sell the shares back to the trustee for net asset value.
  - The trustees can either sell enough securities from the asset portfolio to obtain the cash necessary to pay the investor, or they may instead sell the shares to a new investor (again at a slight premium to net asset value).
- Unit investment trusts have steadily lost market share to mutual funds in recent years.
  - Assets in such trusts declined from $105 billion in 1990 to only $87 billion in 2013.

Managed Investment Companies

- There are two types of managed companies: closed-end and open-end.
  - In both cases, the fund's board of directors, which is elected by shareholders, hires a management company to manage the portfolio for an annual fee that typically ranges from .2% to 1.5% of assets.
  - In many cases the management company is the firm that organized the fund.
    - ✓ For example, Fidelity Management and Research Corporation sponsors many Fidelity mutual funds and is responsible for managing the portfolios. It assesses a management fee on each Fidelity fund.
  - In other cases, a mutual fund will hire an outside portfolio manager.
    - ✓ For example, Vanguard has hired Wellington Management as the investment adviser for its Wellington Fund.
  - Most management companies have contracts to manage several funds.

- **Open-end funds** stand ready to redeem or issue shares at their net asset value (although both purchases and redemptions may involve sales charges).
  - When investors in open-end funds wish to "cash out" their shares, they sell them back to the fund at NAV.
- In contrast, **closed-end funds** do not redeem or issue shares.
  - Investors in closed-end funds who wish to cash out must sell their shares to other investors.
  - Shares of closed-end funds are traded on organized exchanges and can be purchased through brokers just like other common stock; their prices therefore can differ from NAV.
- Figure 4.1 is a listing of closed-end funds from the online edition of *The Wall Street Journal Online*.
  - The first column gives the fund's name and ticker symbol.
  - The next two columns give the fund's most recent net asset value and closing share price.

FUND	NAV	MKT PRICE	PREM/ DISC %	52 WEEK MARKET RETURN %	FUND	NAV	MKT PRICE	PREM/ DISC %	52 WEEK MARKET RETURN %
Central Securities Corp (CET)	27.97	23.12	−17.34	15.42	Gabelli Div & Inc Tr (GDV)	24.03	21.89	−8.91	14.43
Cohen & Steers CE Oppty (FOF)[a]	14.89	13.52	−9.20	18.98	Gabelli Equity Trust (GAB)	7.06	6.85	−2.97	10.92
Cornerstone Prog Return (CFP)	4.18	4.31	+2.99	4.99	General Amer Investors (GAM)	44.15	37.78	−14.43	15.35
Cornerstone Strat Value (CLM)	5.38	6.03	+12.08	3.52	Guggenheim Enh Eq Inc (GPM)	9.56	9.24	−3.35	22.08

Source: Compiled from data obtained from *The Wall Street Journal Online*, September 22, 2014

- The premium or discount is the percentage difference between price and NAV: (Price – NAV)/NAV.
  - ✓ Notice that there are more funds selling at discounts to NAV (indicated by negative differences) than premiums.
- Finally, the 52-week return based on the percentage change in share price plus dividend income is presented in the last column.

- The common divergence of price from net asset value, often by wide margins, is a puzzle that has yet to be fully explained.

- To see why this is a puzzle, consider a closed-end fund that is selling at a discount from net asset value.
  - ✓ If the fund were to sell all the assets in the portfolio, it would realize proceeds equal to net asset value.
  - ✓ The difference between the market price of the fund and the fund's NAV would represent the per-share increase in the wealth of the fund's investors.
  - ✓ Despite this apparent profit opportunity, sizable discounts seem to persist for long periods of time.
- Interestingly, while many closed-end funds sell at a discount from net asset value, the prices of these funds when originally issued are often above NAV.
  - This is a further puzzle, as it is hard to explain why investors would purchase these newly issued funds at a premium to NAV when the shares tend to fall to a discount shortly after issue.
- In contrast to closed-end funds, the price of open-end funds cannot fall below NAV, because these funds stand ready to redeem shares at NAV.

- The offering price of open-end funds will exceed NAV, however, if the fund carries a **load.** 佣金
  - A load is, in effect, a sales charge (or a sales commission), which is paid to the seller.
  - Load funds are sold by securities brokers and directly by mutual fund groups.
- Unlike closed-end funds, open-end mutual funds do not trade on organized exchanges.
  - Instead, investors simply buy shares from and liquidate through the investment company at net asset value.
    - ✓ Thus, the number of outstanding shares of these funds changes daily.

Other Investment Organizations

- Some intermediaries are not formally organized or regulated as investment companies but nevertheless serve similar functions. Among the more important are commingled funds, real estate investment trusts, and hedge funds.
- ***COMMINGLED FUNDS***
  - Commingled funds are partnerships of investors that pool their funds.
  - The management firm that organizes the partnership, for example, a bank or insurance company, manages the funds for a fee.

- Typical partners in a commingled fund might be trust or retirement accounts that have portfolios much larger than those of most individual investors but are still too small to warrant managing on a separate basis.
- Commingled funds are similar in form to open-end mutual funds.
  - ✓ Instead of shares, though, the fund offers *units*, which are bought and sold at net asset value.
- A bank or insurance company may offer an array of different commingled funds, for example, a money market fund, a bond fund, and a common stock fund.

REAL ESTATE INVESTMENT TRUSTS (REITs)

- A REIT is similar to a closed-end fund.
  - ✓ REITs invest in real estate or loans secured by real estate.
  - ✓ Besides issuing shares, REITs raise capital by borrowing from banks and issuing bonds or mortgages.
    - ➢ Most of them are highly leveraged, with a typical debt ratio of 70%.

- There are two principal kinds of REITs.
  - ✓ *Equity trusts* invest in real estate directly.
  - ✓ *Mortgage trusts* invest primarily in mortgage and construction loans.
- REITs generally are established by banks, insurance companies, or mortgage companies, which then serve as investment managers to earn a fee.

HEDGE FUNDS

- Like mutual funds, **hedge funds** are vehicles that allow private investors (usually wealthy or institutional investors) to pool assets to be invested by a fund manager.
- Unlike mutual funds, however, hedge funds are commonly structured as private partnerships and thus are not subject to many SEC regulations.
- Typically hedge funds are open only to wealthy or institutional investors.
- Many hedge funds require investors to agree to initial "lock-ups," that is, periods as long as several years in which investments cannot be withdrawn.
  - ✓ Lock-ups allow hedge funds to invest in illiquid assets without worrying about meeting demands for redemption of funds.

- Moreover, since hedge funds are only lightly regulated, their managers can pursue other investment strategies that are not open to mutual fund managers, for example, heavy use of derivatives, short sales, and leverage.
- Hedge funds by design are empowered to invest in a wide range of investments, with various funds focusing on derivatives, distressed firms, currency speculation, convertible bonds, emerging markets, merger arbitrage, and so on.
- Other funds may jump from one asset class to another as perceived investment opportunities shift.

4.3 MUTUAL FUNDS

- *Mutual fund* is the common name for an open-end investment company.
  - This is the dominant investment company in the U.S. today, accounting for more than 90% of investment company assets.

Investment Policies

- Each mutual fund has a specified investment policy, which is described in the fund's prospectus.
  - For example, money market mutual funds hold the short-term, low-risk instruments of the money market (see Chapter 2 for a review of these securities), while bond funds hold fixed income securities.
  - Some funds have even more narrowly defined mandates.
    - ✓ For example, some bond funds will hold primarily Treasury bonds, others primarily mortgage-backed securities.

- Management companies manage a family, or “complex,” of mutual funds.
  - ✓ They organize an entire collection of funds and then collect a management fee for operating them.
  - ✓ By managing a collection of funds under one umbrella, these companies make it easy for investors to allocate assets across market sectors and to switch assets across funds while still benefiting from centralized record keeping.

MONEY MARKET FUNDS

- These funds invest in money market securities such as commercial paper, repurchase agreements, or certificates of deposit.
- The average maturity of these assets tends to be a bit more than one month.
  - ✓ They usually offer check-writing features, and net asset value is fixed at $1 per share, so that there are no tax implications such as capital gains or losses associated with redemption of shares.

■ *EQUITY FUNDS*

- ◆ Equity funds invest primarily in stock, although they may, at the portfolio manager's discretion, also hold fixed-income or other types of securities.
- ◆ Funds commonly will hold about 5% of total assets in money market securities to provide the liquidity necessary to meet potential redemption of shares.
- ◆ Stock funds are traditionally classified by their emphasis on capital appreciate versus current income.
  - ✓ *Income funds* tend to hold shares of firms with high dividend yields that provide high current income.
  - ✓ *Growth funds* are willing to forgo current income, focusing instead on prospects for capital gains.
  - ✓ Growth stocks—and therefore growth funds—are typically riskier and respond far more dramatically to changes in economic conditions than do income funds.

- ***SPECIALIZED SECTOR FUNDS***
  - Some equity funds, called *sector funds*, concentrate on a particular industry.
    - ✓ For example, Fidelity markets dozens of "select funds," each of which invests in a specific industry such as biotechnology, utilities, precious metals, or telecommunications.
  - Other funds specialize in securities of particular countries.
- ***BOND FUNDS***
  - As the name suggests, these funds specialize in the fixed-income sector.
  - Within that sector, however, there is considerable room for specialization.
    - ✓ For example, various funds will concentrate on corporate bonds, Treasury bonds, mortgage-backed securities, or municipal (tax-free) bonds.
    - ✓ Many funds also will specialize by the maturity of the securities, ranging from short-term to intermediate to long-term, or by the credit risk of the issuer, ranging from very safe to high yield or "junk" bonds.

INTERNATIONAL FUNDS

- Many funds have international focus.
  - ✓ *Global funds* invest in securities worldwide, including the United States.
  - ✓ *International funds* invest in securities of firms located outside the U.S.
  - ✓ *Regional funds* concentrate on a particular part of the world.
  - ✓ *Emerging market funds* invest in companies of developing nations.

BALANCED FUNDS

- Some funds are designed to be candidates for an individual's entire investment portfolio. These *Balanced funds* hold both equities and fixed-income securities in relatively stable proportions.
  - ✓ *Life-cycle funds* are balanced funds in which the asset mix can range from aggressive (primarily marketed to younger investors) to conservative (directed at older investors).
  - ✓ Static allocation life-cycle funds maintain a stable mix across stocks and bonds, while *targeted-maturity funds* gradually become more conservative as the investor ages.

- Many balanced funds are in fact **funds of funds.**
  - ✓ These are mutual funds that primarily invest in shares of other mutual funds.
  - ✓ Balanced funds of funds invest in equity and bond funds in proportions suited to their investment goals.

ASSET ALLOCATION AND FLEXIBLE FUNDS

- These funds are similar to balanced funds in that they hold both stocks and bonds.
- However, asset allocation funds may dramatically vary the proportions allocated to each market in accord with the portfolio manager's forecast of the relative performance of each sector.
  - ✓ Hence, these funds are engaged in market timing and are not designed to be low-risk investment vehicles.

INDEX FUNDS

- An index fund tries to match the performance of a broad market index.
- The fund buys shares in securities included in a particular index in proportion to the security's representation in that index.

- ✓ For example, the Vanguard 500 Index Fund is a mutual fund that replicates the composition of the Standard & Poor's 500 stock price index.
  - ➢ Because the S&P 500 is a value-weighted index, the fund buys shares in each S&P 500 company in proportion to the market value of that company's outstanding equity.
- ◆ Investment in an index fund is a low-cost way for small investors to pursue a passive investment strategy—that is, to invest without engaging in security analysis.
- ◆ Index funds can be tied to non-equity indexes as well.
  - ✓ For example, Vanguard offers a bond index fund and a real estate index fund.

● How Funds Are Sold

- ■ Mutual funds are generally marketed to the public either directly by the fund underwriter or indirectly through brokers acting on behalf of the underwriter.
  - ◆ Direct-marketed funds are sold through the mail, various offices of the fund, over the phone, and, increasingly, over the Internet.
  - ◆ Investors contact the fund directly to purchase shares.

- About half of fund sales today are distributed through a sales force.
  - Brokers or financial advisers receive a commission for selling shares to investors. (Ultimately, the commission is paid by the investor. More on this shortly.)
  - Investors who rely on their broker's advice to select their mutual funds should be aware that brokers may have a conflict of interest with regard to fund selection.
    - ✓ This can arise from a practice called *revenue sharing*, in which fund companies pay the brokerage firm for preferential treatment when making investment recommendations.
- Many funds also are sold through "financial supermarkets" that can sell shares in funds of many complexes.
  - These programs allow customers to buy funds from many different fund groups.
  - Instead of charging customers a sales commission, the supermarket splits management fees with the mutual fund company.
  - Another advantage is unified record keeping for all funds purchased from the supermarket, even if the funds are offered by different complexes.

- On the other hand, many contend that these supermarkets result in higher expense ratios because mutual funds pass along the costs of participating in these programs in the form of higher management fees.

4.4 COSTS OF INVESTING IN MUTUAL FUNDS

Fee Structure

- An individual investor choosing a mutual fund should consider not only the fund's stated investment policy and past performance, but also its management fees and other expenses.
- Investors should be aware of four general classes of fees:
  - Operating expenses
  - Front-end load
  - Back-end load
  - 12b-1 charges
- ***OPERATING EXPENSES***
  - Operating expenses are the costs incurred by the mutual fund in operating the portfolio, including administrative expenses and advisory fees paid to the investment manager.
  - These expenses, usually expressed as a percentage of total assets under management, may range from 0.2% to 2%.

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- Shareholders do not receive an explicit bill for these operating expenses; however, the expenses periodically are deducted from the assets of the fund.
  - ✓ Shareholders pay for these expenses through the reduced value of the portfolio.
- In addition to operating expenses, most funds assess fees to pay for marketing and distribution costs.
  - ✓ These charges are used primarily to pay the brokers or financial advisors who sell the funds to the public.
  - ✓ Investors can avoid these expenses by buying shares directly from the fund sponsor, but many investors are willing to incur these distribution fees in return for the advice they may receive from their broker.

FRONTED-END LOAD

- A front-end load is a commission or sales charge paid when you purchase the shares.
  - ✓ These charges, which are used primarily to pay the brokers who sell the funds, may not exceed 8.5%, but in practice they are rarely higher than 6%.
  - ✓ *Low-load funds* have loads that range up to 3% of invested funds.
  - ✓ *No-load funds* have no front-end sales charges.

- ✓ Loads effectively reduce the amount of money invested.
  - ➢ For example, each $l,000 paid for a fund with a 6% load results in a sales charge of $60 and fund investment of only $940.
  - ➢ You need cumulative returns of 6.4% of your net investment (60/940 = .064) just to break even.

■ *BACK-END LOAD*

- ◆ A back-end load is a redemption, or "exit," fee incurred when you sell your shares.
  - ✓ Typically, funds that impose back-end loads start them at 5% or 6% and reduce them by one percentage point for every year the funds are left invested.
    - ➢ Thus, an exit fee that starts at 6% would fall to 4% by the start of your third year.
  - ✓ These charges are known more formally as "contingent deferred sales charges."

■ *12b-1 CHARGES*

- ◆ The Securities and Exchange Commission allows the managers of so-called 12b-1 funds to use fund assets to pay for distribution costs such as advertising, promotional literature including annual reports and prospectuses, and, most important, commissions paid to brokers who sell the fund to investors.
  - ✓ These **12b-1 fees** are named after the SEC rule that permits use of these plans.
- ◆ Funds may use annual 12b-1 charges instead of, or in addition to, front-end loads to generate the fees with which to pay brokers.
  - ✓ As with operating expenses, investors are not explicitly billed for 12b-1 charges. Instead, the fees are deducted from the assets of the fund.
  - ✓ Therefore, 12b-1 fees (if any) must be added to operating expenses to obtain the true annual expense ratio of the fund.
- ◆ The SEC now requires that all funds include in the prospectus a consolidated expense table that summarizes all relevant fees.
- ◆ The 12b-l fees are limited to l% of a fund's average net assets per year.

- Many funds offer “classes” which represent ownership in the same portfolio of securities, but with different combinations of fees.
  - Typical Class A shares have front-end loads and a small 12b-1 fee, often around .25%.
  - Class C shares rely on larger 12b-1 fees, commonly 1%, and often charge a modest back-end load.
  - Class C shares generally rely on 12b-1 fees and back-end loads.
    - ✓ These shares usually will not convert to Class A shares.
  - Class I shares are sold to institutional investors.
    - ✓ These are sometimes called Class Y shares and carry no loads or 12b-1 fees.
- Each investor must choose the best combination of fees.
  - Obviously, pure no-load no-fee funds distributed directly by the mutual fund group are the cheapest alternative, and these will often make the most sense for knowledgeable investors.

- ◆ But as we noted earlier, many investors are willing to pay for financial advice, and the commissions paid to advisers who sell these funds are the most common form of payment.
- ◆ Alternatively, investors may choose to hire a fee-only financial manager who charges directly for services and does not accept commissions.
  - ✓ These advisers can help investors select portfolios of low- or no-load funds (as well as provide other financial advice).
  - ✓ Independent financial planners have become increasingly important distribution channels for funds in recent years.

■ If you do buy a fund through a broker, the choice between paying a load and paying 12b-l fees will depend primarily on your expected time horizon.

- ◆ Loads are paid only once for each purchase, whereas 12b-1 fees are paid annually.
- ◆ Thus, if you plan to hold your fund for a long time, a one-time load may be preferable to recurring 12b-1 charges.

- Example 4.1: *Fees for Various Classes (Dreyfus Equity Growth Fund)*

	Class A	Class C	Class I
Front-end load	5.75%[a]	0	0
Back-end load	0	1%	0[b]
12b-1 fees[c]	0.25%	1.0	0
Expense ratio	1.1%	1.1%	1.1%

Notes:

[a]Depending on size of investment.

[b]Depending on years until holdings are sold.

[c]Including service fee of .25%.

Fees and Mutual Fund Returns

- The rate of return on an investment in a mutual fund is measured as the increase or decrease in net asset value plus income distributions such as dividends or distributions of capital gains expressed as a fraction of net asset value at the beginning of the investment period.

- If we denote the net asset value at the start and end of the period as NAV_0 and NAV_1, respectively, then

$$\text{Rate of return} = \frac{NAV_1 - NAV_0 + \text{Income and capital gain distributions}}{NAV_0}$$

  - For example, if a fund has an initial NAV of $20 at the start of the month, makes income distributions of $.15 and capital gain distributions of $.05, and ends the month with NAV of $20.10, the monthly rate of return is computed as

$$\text{Rate of return} = \frac{\$20.10 - \$20.00 + \$.15 + \$.05}{\$20.00} = .015 \text{ or } 1.5\%$$

- Notice that this measure of the rate of return ignores any commissions such as front-end loads paid to purchase the fund.
- On the other hand, the rate of return is affected by the fund's expenses and 12b-1 fees.
  - This is because such charges are periodically deducted from the portfolio, which reduces net asset value.
  - Thus the rate of return on the fund equals the gross return on the underlying portfolio minus the total expense ratio.

- Example 4.2: *Expenses and Rates of Return*
  - To see how expenses can affect rate of return, consider a fund with $100 million in assets at the start of the year and with 10 million shares outstanding.
    - ✓ The fund invests in a portfolio of stocks that provides no income but increase in value by 10%.
    - ✓ The expense ratio, including 12b-1 fees, is 1%.
  - What is the rate of return for an investor in the fund?
  - The answer is as follows:
    - ✓ The initial NAV equals $100 million/10 million shares = $10 per share.
    - ✓ In the absence of expense, fund assets would grow to $110 million and NAV would grow to $11 per share, for a 10% rate of return.
    - ✓ However, the expense ratio of the fund is 1%.
      - ➢ Therefore, $1 million will be deducted from the fund to pay these fees, leaving the portfolio worth only $109 million, and NAV equal to $10.90.
    - ✓ The rate of return on the fund is only 9%, which equals the gross return on the underlying portfolio minus the total expense ratio.

- Fees can have a big effect on performance.
  - Table 4.2 considers an investor who starts with $10,000 and can choose between three funds that all earn an annual 12% return on investment before fees but have different fee structures.
    - ✓ The table shows the cumulative amount in each fund after several investment horizons.

TABLE 4.2 Impact of costs on investment performance

	Cumulative Proceeds (all dividends reinvested)		
	Fund A	**Fund B**	**Fund C**
Initial investment*	$10,000	$10,000	$ 9,200
5 years	17,234	16,474	15,502
10 years	29,699	27,141	26,123
15 years	51,183	44,713	44,018
20 years	88,206	73,662	74,173

Notes: Fund A is no-load with .5% expense ratio, Fund B is no-load with 1.5% total expense ratio, and Fund C has an 8% load on purchases and a 1% expense ratio. Gross return on all funds is 12% per year before expenses.

*After front-end load, if any.

- Fund A has total operating expenses of .5%, no load, and no 12b-1 charges.
- Fund B has no load but has 1% management expenses and .5% in 12b-1 fees.
  - ✧ This level of charges is fairly typical of actively managed equity funds.
- Finally, Fund C has 1% in management expenses, no 12b-1 charges, but assesses an 8% front-end load on purchases.
- Note that substantial return advantage of low-cost Fund A. Moreover, that differential is greater for longer investment horizons.

■ Although expenses can have a big impact on net investment performance, it is sometimes difficult for the investor in a mutual fund to measure true expenses accurately. This is because of the common practice of paying for some expenses in **soft dollars.**

◆ A portfolio manager earns soft-dollar credits with a brokerage firm by directing the fund's trades to that broker.

✓ Based on these credits the broker will pay for some of the mutual fund's expenses, such as databases, computer hardware, or stock-quotation systems.

Soft dollars are a means of paying brokerage firms for their services through commission revenue, as opposed to through normal direct payments (hard-dollar fees).

- The soft-dollar arrangement means that the stockbroker effectively returns part of the trading commission to the fund.
  - ✓ Purchases made with soft dollars are not included in the fund's expenses, so funds with extensive soft-dollar arrangements may report artificially low expense ratios to the public.
- However, the fund will have paid its brokers needlessly high commissions to obtain its soft-dollar "rebates." 回扣
  - ✓ The impact of the higher trading commissions shows up in net investment performance rather than the reported expense ratio.

4.5 TAXATION OF MUTUAL FUND INCOME

- Investment returns of mutual funds are granted “pass-through status” under the U.S. tax code, meaning that taxes are paid only by the investor in the mutual fund, not by the fund itself.
  - The income is treated as passed through to the investor as long as the fund meets several requirements, most notably that the fund be sufficiently diversified and that virtually all income is distributed to shareholders.
- A fund’s short-term capital gains, long-term capital gains, and dividends are passed through to investors as though the investor earned the income directly.
- The pass-through of investment income has one important disadvantage for individual investors.
  - If you manage your own portfolio, you decide when to realize capital gains and losses on any security; therefore, you can time those realizations to efficiently manage your tax liabilities.

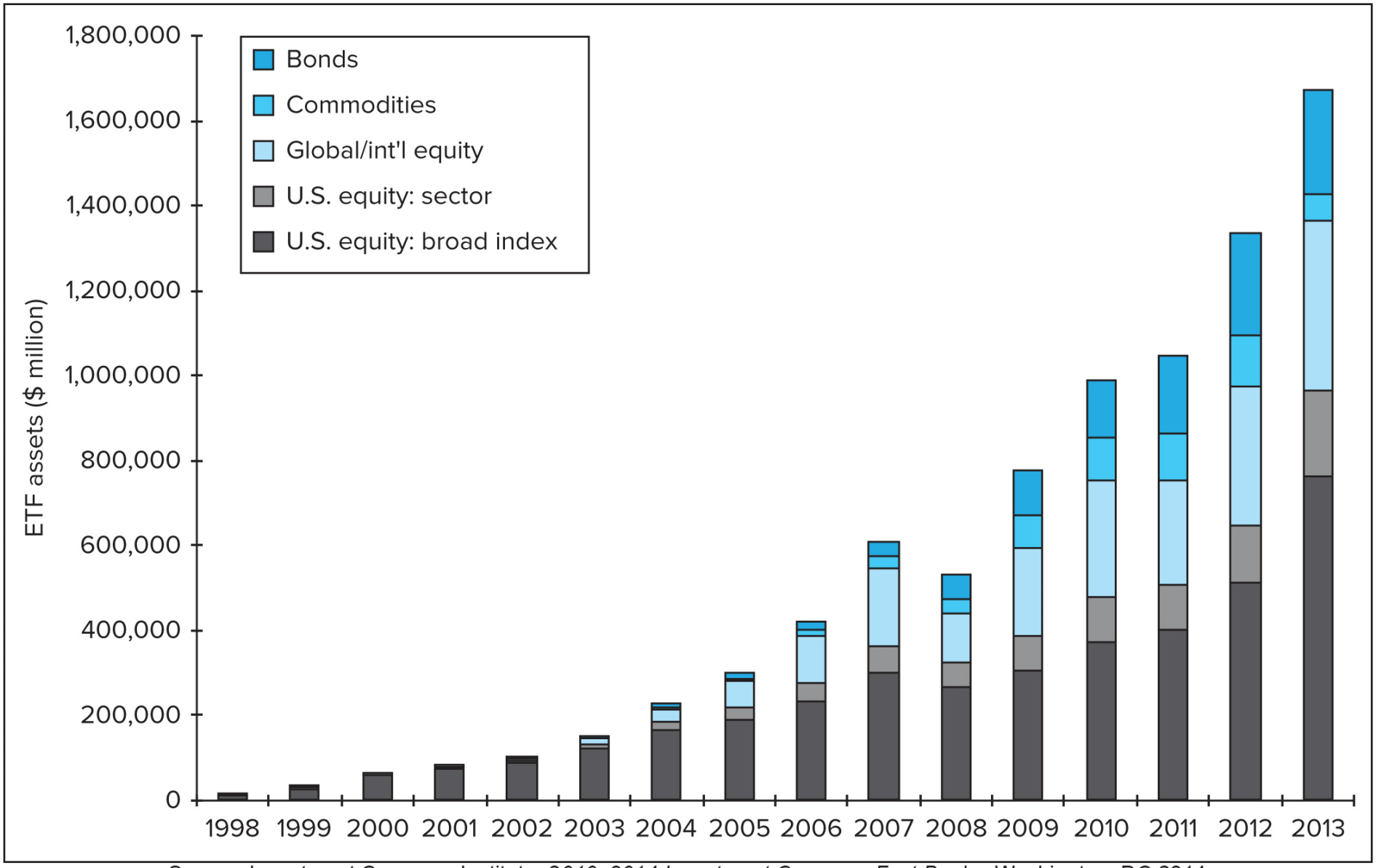
- When you invest through a mutual fund, however, the timing of the sale of securities from the portfolio is out of your control, which reduces your ability to engage in tax management.

- A fund with a high portfolio turnover rate can be particularly "tax inefficient."
  - **Turnover** is the ratio of the trading activity of a portfolio to the assets of the portfolio.
    - ✓ It measures the fraction of the portfolio that is "replaced" each year.
      - ➢ For example, a $100 million portfolio with $50 million in sales of some securities with purchases of other securities would have a turnover rate of 50%.
  - High turnover means that capital gains or losses are being realized constantly.
    - ✓ Therefore, the investor cannot time the realizations to manage his or her overall tax obligation.
  - Turnover rates in equity funds in the last decade have typically been around 60% when weighted by assets under management.
  - By contrast, a low-turnover fund such as an index fund may have turnover as low as 2%, which is both tax efficient and economical with respect to trading costs.

- SEC rules require funds to disclose the tax impact of portfolio turnover.
  - Funds must include in their prospectus after tax returns for the past 1-, 5-, and 10-year periods.
  - Marketing literature that includes performance data also must include after-tax results.
    - ✓ The after-tax returns are computed accounting for the impact of the taxable distributions of income and capital gains passed through to the investor, assuming the investor is in the maximum federal tax bracket.

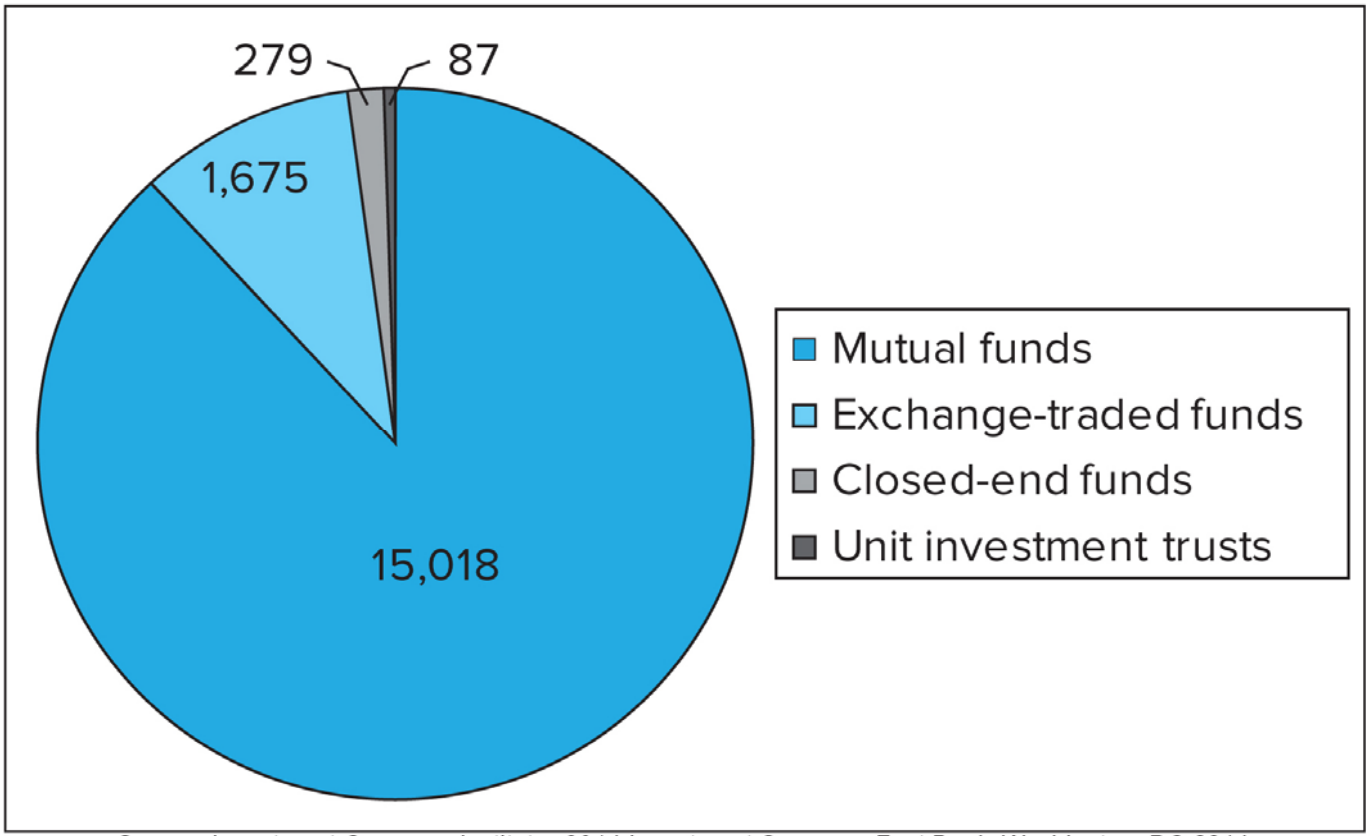
4.6 EXCHANGE-TRADED FUNDS 分枝

- **Exchange-traded funds** (ETFs) are offshoots of mutual funds first introduced in 1993 that allow investors to trade index portfolios just as they do shares of stock.
  - The first ETF was the "Spider," a nickname for SPDR or Standard & Poor's Depository Receipt, which is a unit investment trust holding a portfolio matching the S&P 500 index.
- Unlike mutual funds, which can be bought or sold only at the end of the day when NAV is calculated, investors could trade Spiders throughout the day, just like any other share of stock.
- Spiders gave rise to many similar products such as "Diamonds" (based on the Dow Jones Industrial Average, ticker DIA), Qubes (pronounced "cubes", based on the NASDAQ 100 index, ticker QQQ), and WEBS (World Equity Benchmark Shares, which are shares in portfolios of foreign stock market indexes).
- Figure 4.2 shows the rapid growth in the ETF market since 1998.
  - Until 2008, most ETFs were required to track specified indexes, and ETFs trading broad indexes still dominate the industry.



Source: Investment Company Institute, *2010–2014 Investment Company Fact Books*. Washington, DC 2014

- However, there are dozens of industry-sector ETFs, and as Figure 4.2 makes clear, commodity, bond, and international ETFs have grown especially dramatically in recent years.
- Figure 4.3 shows that ETFs have captured a significant portion of the assets under management in the investment company universe.



Source: Investment Company Institute, *2014 Investment Company Fact Book*. Washington, DC 2014

- Barclay's Global Investors was long the market leader in the ETF market, using the product name iShares.
  - Since Barclay's 2009 merger with BlackRock, iShares have operated under the BlackRock name.
  - The firm sponsors ETFs for several dozen equity index funds, including many broad U.S. equity indexes, broad international and single-country funds, and U.S. and global industry sector funds.
  - BlackRock also offers several bond ETFs and a few commodity funds such as ones for gold and silver.
- More recently, a variety of new ETF products have been devised.
  - Among these are leveraged ETFs, with daily returns that are a targeted *multiple* of the returns on an index, and inverse ETFs, which move in the opposite direction to an index.

- A more recent innovation is actively managed ETFs that, like actively managed mutual funds, attempt to outperform passive indexes.
  - ✓ However, until recently, these funds have had to report portfolio holdings on a daily basis, which makes it easy for competitors to take advantage of their buying and selling programs. This requirement has severely limited the growth of this segment of the market.
  - ✓ In 2014, however, the SEC gave permission to Eaton Vance to offer an actively managed "nontransparent" ETF that is required to report its portfolio composition only once each quarter, the same frequency at which mutual funds disclose their portfolio holdings.
- Other even more exotic variations are so-called synthetic ETFs such as exchanged-traded notes (ETNs) or exchange-traded vehicles (ETVs).
  - These are nominally debt securities, but with payoffs linked to the performance of an index. Often that index measures the performance of an illiquid and thinly traded asset class, so the ETFs gives the investor the opportunity to add that asset class to his or her portfolio

- However, rather than invest in those assets directly, the ETF achieves this exposure by entering a “total return swap” with an investment bank in which the bank agrees to pay the ETF the return on the index in exchange for a relatively fixed fee.
- These have become controversial, as the ETF is then exposed to risk that in a period of financial stress, the investment bank will be unable to fulfill its obligation, leaving investors without the returns they were promised.

■ ETFs offer several advantages over conventional mutual funds.

- First, ETFs trade continuously.
  - ✓ As we just noted, a mutual fund’s net asset value is quoted—and therefore, investors can buy or sell their shares in the fund—only once a day.
  - ✓ Like other shares, but unlike mutual funds, ETFs can be sold short or purchased on margin.

- ETFs also offer a potential tax advantage over mutual funds.
  - ✓ When large numbers of mutual fund investors redeem their shares, the fund must sell securities to meet the redemptions.
    - ➢ The sale can trigger capital gains taxes, which are passed through to and must be paid by the remaining shareholders.
  - ✓ In contrast, when small investors wish to redeem their position in an ETF they simply sell their shares to other traders, with no need for the fund to sell any of the underlying portfolio.
  - ✓ Moreover, when large traders wish to redeem their position in the ETF, redemptions are satisfied with shares of stock in the underlying portfolio.
    - ➢ Again, a redemption does not trigger a stock sale by the fund sponsor.

- The ability of large investors to redeem ETFs for a portfolio of stocks comprising the index, or to exchange a portfolio of stocks for shares in the corresponding ETF, ensures that the price of an ETF cannot depart significantly from the NAV of that portfolio.
  - ✓ Any meaningful discrepancy would offer arbitrage trading opportunities for these large traders, which would quickly eliminate the disparity.
- ETFs are also cheaper than mutual funds.
  - ✓ Investors who buy ETFs do so through brokers, rather than buying directly from the fund.
    - ➢ Therefore, the fund saves the cost of marketing itself directly to small investors.
    - ➢ This reduction in expenses translates into lower management fees.
    - ➢ For example, the expense ratio on Vanguard's Total Stock Market mutual fund, which tracks an index of the entire U.S. equity market, is .17%, whereas the ratio on its Total Stock Market ETF is only .05%.

- There are some disadvantages to ETFs, however.
  - First, while mutual funds can be bought for NAV with no expense from no-load funds, ETFs must be purchased from brokers for a fee. Investors also incur a bid-ask spread when purchasing an ETF.
  - In addition, because ETFs trade as securities, their prices can depart from NAV, at least for short periods, and these price discrepancies typically are quite small, they can spike unpredictably when markets are stressed.

4.7 MUTUAL FUND INVESTMENT PERFORMANCE: A FIRST LOOK

- We noted earlier that one of the benefits of mutual funds for the individual investor is the ability to delegate management of the portfolio to investment professionals.
- The investor retains control over the broad features of the overall portfolio through the asset allocation decision.
  - Each individual chooses the percentages of the portfolio to invest in bond funds versus equity funds versus money market funds, and so forth, but can leave the specific security selection decisions within each investment class to the managers of each fund.
  - Shareholders hope that these portfolio managers can achieve better investment performance than they could obtain on their own.
- What is the investment record of the mutual fund industry?
  - This seemingly straightforward question is deceptively difficult to answer because we need a standard against which to evaluate performance.

- For example, we clearly would not want to compare the investment performance of an equity fund to the rate of return available in the money market.
  - ✓ The vast differences in the risk of these two markets dictate that year-by-year as well as average performance will differ considerably.
  - ✓ We would expect to find that equity funds outperform money market funds (on average) as compensation to investors for the extra risk incurred in equity markets.
- How can we determine whether mutual fund portfolio managers are performing up to par *given* the level of risk they incur? In other words, what is the proper benchmark against which investment performance ought to be evaluated?
- Measuring portfolio risk properly and using such measures to choose an appropriate benchmark is far from straightforward.
  - In this chapter, we will satisfy ourselves with a first look at the question of fund performance by using only very simple performance benchmarks and ignoring the more subtle issues of risk differences across funds.

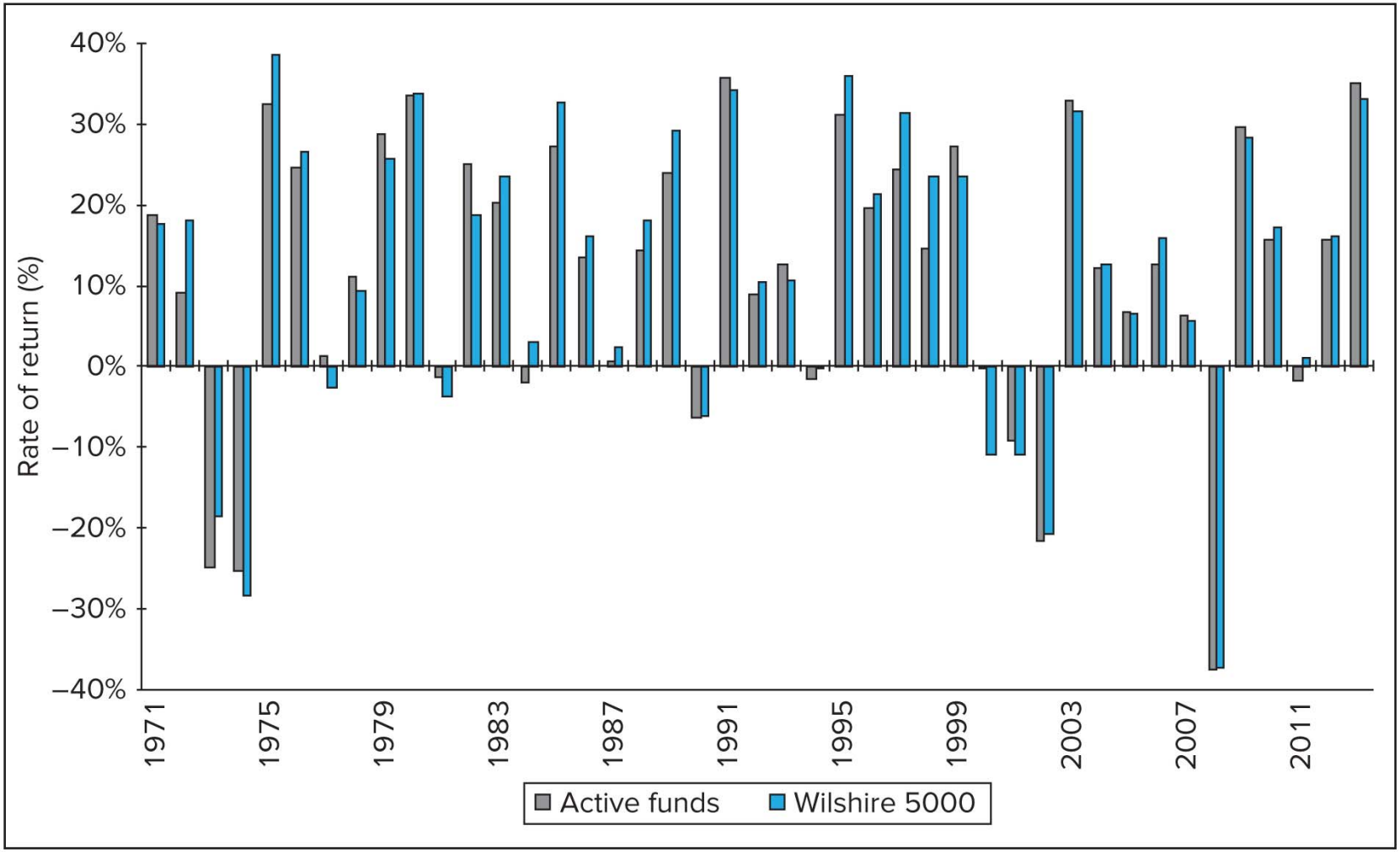
- However, we will return to this topic in Chapter 8, where we take a closer look at mutual fund performance after adjusting for differences in the exposure of portfolios to various sources of risk.

- Here, we will use as a benchmark for the performance of equity fund managers the rate of return on the Wilshire 5000 Index.
  - Recall from Chapter 2 that this is a value-weighted index of more than 5,000 stocks that trade on the NYSE, NASDAQ, and Amex stock markets. It is the most inclusive index of the performance of U.S. equities.
  - The performance of the Wilshire 5000 is a useful benchmark with which to evaluate professional managers because it corresponds to a simple passive investment strategy: buy all the shares in the index in proportion to their outstanding market value.
  - Moreover, this is a feasible strategy for even small investors, because the Vanguard Group offers an index fund (its Total Stock Market Index Fund) designed to replicate the performance of the Wilshire 5000 Index.

- Using the Wilshire 5000 Index as a benchmark, we may pose the problem of evaluating the performance of mutual fund portfolio managers this way:
  - ✓ How does the typical performance of actively managed equity mutual funds compare to the performance of a passively managed portfolio that simple replicates the composition of a broad index of the stock market?

- Casual comparisons of the performance of the Wilshire 5000 Index versus that of professionally managed mutual fund portfolios show disappointing results for most fund managers.
  - Figure 4.4 shows that the average return on diversified equity funds was below the return on the Wilshire 5000 Index in 26 of the 43 years from 1971 to 2013.
  - The average return on the index was 12.4%, which was .9% greater than that of the average mutual fund.
- This result may seem surprising.
  - After all, it would not seem unreasonable to expect that professional money managers should be able to outperform a very simple rule such as “hold an indexed portfolio.”

- As it turns out, however, there may be good reasons to expect such a result.
  - ✓ We will explore them in detail in Chapter 8, where we discuss the efficient market hypothesis



- Of course, one might argue that there are good managers and bad managers, and that good managers can, in fact, consistently outperform the index.
  - To test this notion, we examine whether managers with good performance in one year are likely to repeat that performance in a following year.
  - Is superior performance in any particular year due to luck, and therefore random, or due to skill, and therefore consistent from year to year?
- To answer this question, we can examine the performance of a large sample of equity mutual fund portfolios, divide the funds into two groups based on total investment return, and ask: “Do funds with investment returns in the top half of the sample in one period continue to perform well in the subsequent period?”
- Table 4.4 presents such an analysis from a study by Malkiel (1995).
  - The table shows the fraction of “winners” (i.e., top-half performers) in each year than turn out to be winners or losers in the following year.

TABLE 4.4 Consistency of investment results

	Successive Period Performance	
Initial Period Performance	**Top Half**	**Bottom Half**
A. 1970s		
Top half	65.1%	34.9%
Bottom half	35.5%	64.5%
B. 1980s		
Top half	51.7%	48.3%
Bottom half	47.5%	52.5%

Source: Burton G. Malkiel, "Returns from Investing in Equity Mutual Funds 1971–1991," *Journal of Finance* 50 (June 1995), pp. 549–72.

- If performance were purely random from one period to the next, there would be entries of 50% in each cell of the table, as top- or bottom-half performers would be equally likely to perform in either the top or bottom half of the sample in the following period.

- On the other hand, if performance were due entirely to skill, with no randomness, we would expect to see entries of 100% on the diagonals and entries of 0% on the off-diagonals:
  - ✓ Top-half performers would all remain in the top half while bottom-half performers similarly would all remain in the bottom half.
- In fact, Panel A shows that 65.1% of initial top-half performers in the 1970s fall in the top half of the sample in the following period, while 64.5% of initial bottom-half performers fall in the bottom half in the following period.
  - ✓ This evidence is consistent with the notion (概念) that at least part of a fund's performance is a function of skill as opposed to luck, so that relative performance tends to persist from one period to the next.
- On the other hand, this relationship does not seem stable across different sample periods.
  - ✓ While initial-year performance predicts subsequent-year performance in the 1970s (see Panel A), the pattern of persistence in performance virtually disappears in the 1980s (Panel B).

- Other studies suggest that there is little performance persistence among professional managers, and if anything, bad performance is more likely to persist than good performance.
  - This makes some sense: it is easy to identify fund characteristics that will predictably lead to consistently poor investment performance, notably, high expense ratios and high turnover ratios with associated trading costs.
  - It is far harder to identify the secrets of successful stock picking. (If it were easy, we would all be rich!)
  - Thus, the consistency we do observe in fund performance may be due in large part to the poor performers.
    - ✓ This suggests that the real value of past performance data is to avoid truly poor funds, even if identifying the future top performers is still a daunting task.