

PART

One

Overview

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CHAPTER 1

The Basics of Hedge Fund Investing

A newcomer to hedge fund investing can easily get overwhelmed by the new terminology and unique characteristics associated with this type of investing. There is a lot to know and not always a lot of time to learn it. This chapter is meant to present the basics of hedge fund investing, including defining alternative investments, understanding the characteristics and structures of hedge funds, and then comparing them to mutual funds. The chapter also provides an initial overview of some of the most common hedge fund strategies. In addition, we'll evaluate how to use monthly returns reported to investors to measure performance and how leverage, short selling, and derivatives used in hedge fund investing impact results. This chapter lays the foundation for the rest of the book. Let's get started.

WHAT ARE ALTERNATIVE INVESTMENTS?

Alternative investments is a term used to describe nontraditional asset classes. Traditional asset classes include stocks, bonds, commodities, and foreign exchange. Alternative investments include real estate funds, private equity, venture capital, managed futures funds, hedge funds, and sometimes products that invest in hard assets such as timber, land, or artwork.

The more established and better understood traditional asset classes are best described as having large global markets, significant pools of liquidity, and a high degree of price transparency, regulation, and established market microstructures. Mutual funds have been around in various shapes and sizes for well over 100 years, whereas alternatives and hedge funds, by even the broadest measures, started in the late 1960s and really only began to grow in the early 1990s.

Alternative investing is not a mature industry. Alternative investments are considered relatively young in terms of life cycle and track records. Hedge funds are perhaps the newest form of alternatives and as such may also be the least understood. Their business models are also not as stable, well developed, or mature as those associated with traditional investing or even earlier forms of alternatives, such as real estate and private equity. Today, there are over \$10 trillion of investments in traditional stock and bond mutual funds in the United States and over \$25 trillion globally, as compared to just over \$2 trillion invested globally in hedge funds.

So what exactly constitutes an alternative as opposed to a traditional investment? There are a few broad categories that most professionals would agree make up the broad universe of alternative investment opportunities.

Real estate investing includes funds that invest in commercial or residential real estate or mortgages that produce rental income, interest income, and capital appreciation. Most funds are organized in specific regions or by specific types of properties.

Private equity investing includes funds that take equity ownership in existing private companies in the hope of streamlining or improving management, negotiating favorable leverage terms with banks, and improving performance so that the fund may ultimately profit from an initial public offering (IPO) of the company's shares.

Venture capital investing includes funds that provide day-one capital to fund new business ideas. These early-stage investors hope to profit by sale of the company to a strategic investor or perhaps to a private equity fund that ultimately will help the company go public.

Managed futures investing includes funds that are specially dedicated to trading futures contracts based on directional or trend-following models. These funds are similar to hedge funds in many ways. They are different from hedge funds in that they are restricted to trading listed futures contracts and are regulated by the Commodity Futures Trading Commission (CFTC).

Hedge fund investing includes private investment partnerships and funds that trade stocks, bonds, commodities, or derivatives using leverage, short selling, and other techniques designed to enhance performance and reduce the volatility of traditional asset classes and investments.

There are several common attributes shared among the various types of alternative investments that make them unique. Most alternative investments are run by expert management, are major investors in the funds they

manage, get paid both management and performance or incentive fees, use leverage to enhance returns, are illiquid, provide limited transparency to investors, and are difficult to value.

Alternative investment managers are not managing money to beat a benchmark and as such are free to focus on narrow opportunities that need a high level of expertise. A commercial real estate fund might employ a property manager who is an expert on shopping malls in Chicago. A private equity fund may focus on infrastructure projects or telecommunications and may employ former industry executives and engineers to evaluate potential investments. A hedge fund that invests in equities related to the biotech industry may have doctors on staff who work as analysts and recommend companies to the portfolio manager.

Most professional managers who start a private equity or hedge fund also invest the majority of their personal net worth in the fund. Managers do this to align interests and to signal confidence to investors that they believe in what they are doing and that they are not merely managing other people's money.

Managers of alternative investments command a performance fee in addition to a fixed fee for managing assets. Managers getting an incentive or performance fee share in the upside when they produce positive results and generally do not get paid when they produce negative results. The effect of the performance fee is to give the manager a tangible incentive to generate the highest possible absolute level of return and to minimize variation and volatility over a complete business cycle.

Alternative investments are generally less regulated than traditional investments. This opens the door to the use of leverage, short selling, and derivatives on a much grander scale. Leverage is a powerful tool for magnifying winning outcomes and enhancing returns. Short selling is another form of leverage that particularly applies to managed futures and hedge funds and allows managers to magnify outcomes. It also enables them to mitigate volatility and reduce risk. Derivatives can be used by real estate funds to hedge interest rate risk or hedge funds to place bets on the market.

Managers of alternatives can be quite secretive and at times even a bit paranoid about disclosure. They routinely do not provide much information to their investors and, rather, expect investors to rely on incentives and co-investment to align interests rather than active monitoring of positions. Some institutions struggle with the limited transparency that many alternative investments offer. Managers are also terribly afraid of their strategies being leaked and replicated if they provide too many details.

The following summary of the unique features of alternative investments may be useful in trying to classify an investment as part of a traditional or alternative portfolio.

Expert management means that the manager of the pool of investments has significant experience in a relatively narrow market segment, industry, or area of investing. This level of skill and focus can allow the manager to identify unique value or opportunities not readily seen by the investor community at large and, as such, generate significant outperformance for investors.

Manager co-investment means that the manager and many of the partners or employees of the management company are also investors in the fund. This further serves to align the interests of the investors with those of the manager.

Performance fees mean that the manager is paid a percentage of the profits of the investments, in addition to any flat fees for managing the fund. The widespread use of an incentive fee is based on the principle that it aligns the interest of the manager with that of the investor.

Leverage means that the fund borrows money to make investments. The use of a fund's investor capital, plus leverage obtained from banks or derivatives, allows the fund to magnify gains or losses from each investment and achieve higher rates of return.

Illiquidity means that an investor must lock up money in the fund for an extended period and can generally not sell the fund immediately to generate a return of capital.

Limited transparency means that a fund does not disclose its investments to its investors on a daily basis and, further, that it may restrict the amount of periodic information provided to investors related to positions, strategy, leverage, or risk.

Hard to value means that the investment or the underlying instruments owned in the portfolio may not be listed on any exchange and require an over-the-counter (OTC) quotation or price, a model price, or an independent valuation to determine the value.

HEDGE FUND CHARACTERISTICS AND STRUCTURES

Legal Entities and Domiciles

A hedge fund is a specific type of alternative investment. It is a commingled vehicle that allows many investors who qualify to be aggregated and invested in a single pool of capital. A hedge fund is generally lightly regulated and uses leverage and short selling, in addition to traditional security

selection and asset allocation, to generate returns and also often uses derivatives to enhance its results.

Hedge funds are generally organized as either onshore funds or offshore funds. Onshore funds are funds organized in the United States as either partnerships or limited liability companies. Offshore funds are investment companies organized outside the United States, typically in a tax haven such as the Cayman Islands or Luxembourg.

Onshore funds are U.S. entities that are formed as limited partnerships (LP) or limited liability companies (LLC). The LP form is much more widely used in practice. Onshore funds are typically formed in Delaware and managed by a general partner (GP). The managing member or manager typically manages an LLC. Investors in an LP are limited partners, and investors in an LLC are simply members.

Offshore funds are most typically organized in tax-exempt jurisdictions and offered to U.S. non-taxable investors or investors located outside the United States. The vehicle is usually a form of a segregated portfolio company (SPC) or LP that elects to be treated as a corporation for U.S. tax purposes, although the company form is much more common. Funds are typically formed in jurisdictions that do not impose tax on fund income (e.g., Cayman Islands, Bermuda, British Virgin Islands). A board of directors is required to govern the company and appoint a professional investment manager to manage the portfolio. In the LP, both the company and the portfolio are managed by a GP, just as is the case domestically.

Management Company Responsibility and Organizational Design

A hedge fund manager is the company, individual, or partnership that is empowered by the fund to manage its investments and bind the fund to legal obligations. Figure 1.1 shows the position of the hedge fund manager or general partner at the center of all decision making, transactions, and business relationships. Under certain circumstances, particularly with offshore funds, a board of directors or group of advisors also has the authority to commit the fund to contracts or make decisions on behalf of the fund. In most cases, these decisions, if retained by a board, are in practice delegated to the manager and reviewed by the board or advisors.

Domestic funds generally empower the fund manager by naming the fund manager or management company as the general partner of the partnership entity. Offshore funds are created with a board of directors that appoints the manager or the management company and executes a fund management agreement between the manager and the fund entity delegating a wide range of authority to the manager to enter contracts and bind the fund.

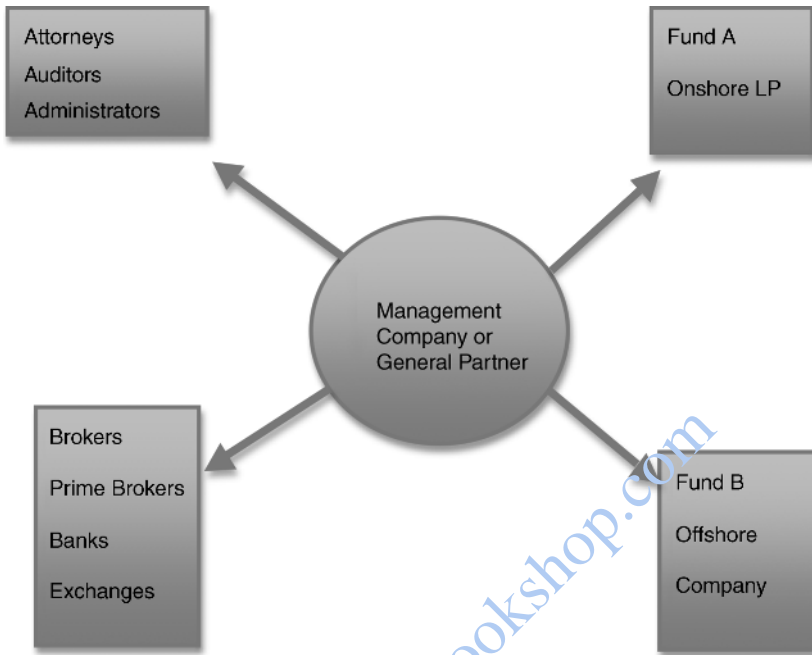


FIGURE 1.1 Position of the Hedge Fund Management Company

The fund manager is the entity that has staff, occupies space, pays bills, buys and sells stocks, and manages risk. The fund owns the securities purchased and any liabilities in the form of leverage or payables created on its behalf as a result of manager actions or omissions.

Funds can be formed in a number of U.S. and offshore jurisdictions. Common U.S. jurisdictions include Delaware and New York. Common offshore jurisdictions include the Cayman Islands, Ireland, the British Virgin Islands, and Luxembourg. The primary purposes of the offshore fund are to solicit international investors, create eligibility for certain investments whose sale is prohibited or restricted in the United States, and facilitate the needs of U.S. tax-exempt investors. Most funds create both a domestic onshore fund and an offshore fund when they launch to broaden their appeal and accessibility to the widest range of investors possible.

The management company organizes the initial setup of the business and runs each fund investment vehicle under its domain on a day-to-day basis. The management company usually includes many people and teams responsible for executing trades, designing the portfolio, performing research, and managing risk, in addition to those needed to run operations and accounting, market the firm, and offer the funds to investors.

Hedge fund management companies share a number of common organization design features; however, the specific organization of any management company is highly variable and dependent on its size, age, strategy, jurisdiction, and product mix and the personality of the founding partner. A fund manager who launches with \$50 to \$100 million in a single fund would require at least three to five people to manage and run the business effectively today. The days of launching a fund with two men and a dog and later becoming highly successful are no more. A management company responsible for managing one strategy and two funds (onshore and offshore) with similar or identical mandates and \$500 million to \$5 billion in assets could perhaps continue to operate out of a single location or office and might need to employ 10 to 20 people to run the business and build in controls and reporting to investors. A fund that managed more than \$5 billion would most likely employ over 100 people and operate in multiple offices and locations around the world with a well-defined business model and diverse functional responsibilities.

A manager in the United States may be required to register with the Securities and Exchange Commission (SEC), depending on the assets under management (AUM) of the organization. The rules today require managers to register with the SEC if they manage more than \$150 million in assets. Managers with lesser amounts may be required to register with their state authorities under certain conditions.

A fund that is managed by a specific fund manager and offered for sale may also be exempt from registration as a security under the 1933 and 1934 Acts if the fund is limited to fewer than 99 investors under safe harbor rule c3-1 or is limited to fewer than 499 investors under safe harbor rule c3-7. Other prohibitions restrict advertising or impose investor qualifications based on income and net worth tests, allowing funds to be classified as private placement rather than as public securities, which have to follow onerous regulatory specifications and restrictions similar to mutual funds.

A typical management company is generally owned solely by the senior partner or partners and employs functional experts such as portfolio managers, traders, a director of research, risk managers, a COO, a CFO, a controller, a head of information technology, and a head of operations, plus analysts and staff to support each function. Most organizations are relatively flat, with many direct reporting lines to the general partner, who is usually also the firm's CIO.

The specific roles and responsibilities of each individual supporting a fund vary from firm to firm and from strategy to strategy; however, most funds seek to establish a critical mass by filling certain roles that are needed to launch and grow the business in a controlled fashion. Without

this critical mass, it is difficult for investors to take the fund seriously. When evaluating a fund, note if the following positions are in place, and if not, why.

The general partner or owner of the management company is usually the firm's founder and sole equity owner. The GP may also be the CIO and the CEO of the firm. This is usually the case in funds below \$1 billion in AUM.

The portfolio manager is generally a partner or highly paid professional who manages a portion of the portfolio or a particular sector or strategy of the fund and works directly with the CIO in allocating capital and generating ideas.

A director of research is usually a senior professional or partner responsible for economic, industry, or quantitative research to support the idea generation process.

The head trader is responsible for efficiently and cost-effectively executing trades, based on instructions from the CIO, portfolio managers, or CIO.

The risk manager is responsible for independently evaluating portfolio risk and monitoring risk limits and policies of the fund designed to mitigate losses.

The head of information technology is responsible for the firm's desktop, remote, and telephonic environment; the development and maintenance of its software and hardware configuration; and linkages to external service providers, brokers, and investors.

The COO is responsible for all non-investment-related activities and the day-to-day running of the firm.

The CFO is responsible for the fund's financial statements, tax returns, and all record keeping related to both the fund and the management company.

The head of operations and/or the treasurer is responsible for the day-to-day processing of securities purchases and sales, income collection or payment, fund expenses, borrowing money, reinvesting cash, and reconciling positions with traders, administrators, and brokers.

The head of investor relations is responsible for sales and service of the firm's individual and institutional investors, as well as most of the firm's communications and reporting to investors.

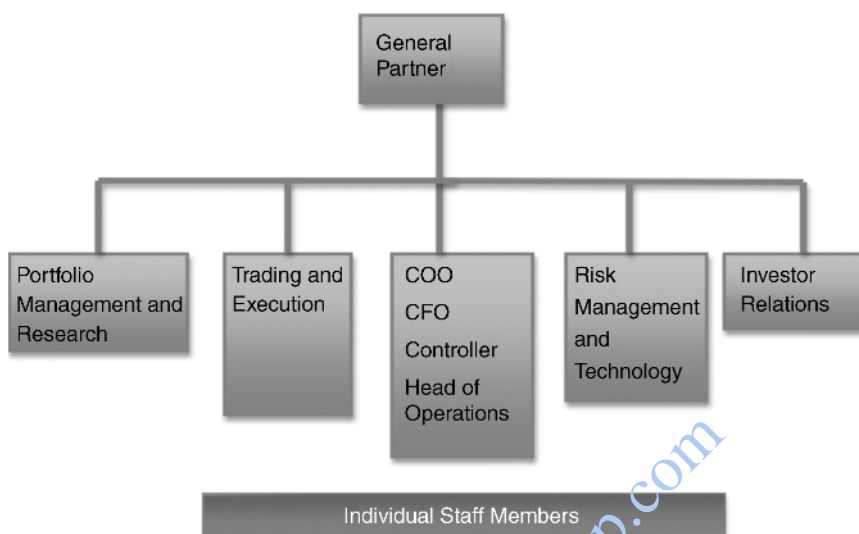


FIGURE 1.2 Hedge Fund Organizational Model

Figure 1.2 shows the typical roles and reporting lines for a hedge fund that is interested in managing money on behalf of high-net-worth individuals and institutional investors.

Although all these roles are certainly not essential on day one, most will be added as the funds grow in size and complexity or as they attract institutional investors. Funds also need to establish an in-house legal and compliance function if they are managing more than \$150 million in the United States and are SEC registered or operating in jurisdictions that require registration as an investment adviser. Many funds that are not required to register with the SEC do, in fact, choose to have a compliance manual, a code of conduct, and an in-house compliance officer to monitor adherence to the firm's policies.

HEDGE FUNDS VERSUS MUTUAL FUNDS

A mutual fund is a highly regulated, collective investment vehicle managed by a professional investment manager. It aggregates smaller investors into larger pools that create economies of scale and efficiency related to research, commissions, and diversification. Mutual funds have been available to investors in a wide range of asset classes since the mid-1970s and became increasingly popular in the 1980s and 1990s as a result of retail attention, product deregulation, and solid returns. Mutual funds generally cannot use leverage or short selling and generally cannot use most derivatives.

Collective investment products originated in the Netherlands in the eighteenth century, became popular in England and France, and first appeared in the United States in the 1890s. The creation of the Massachusetts Investors' Trust in Boston heralded the arrival of the modern mutual fund in 1924. The fund went public in 1928, eventually spawning the mutual fund firm known today as MFS Investment Management. State Street Investors started its mutual fund product line in 1924 under the stewardship of Richard Paine, Richard Saltonstall, and Paul Cabot. In 1928, Scudder, Stevens, and Clark launched the first no-load fund.

The creation of the Securities and Exchange Commission and the passage of the Securities Act of 1933 and 1934 provided safeguards to protect investors in mutual funds. Mutual funds were required to register with the SEC and provide disclosure in the form of a prospectus. The Investment Company Act of 1940 put in place additional regulations that required more disclosures and sought to minimize conflicts of interest. At the beginning of the 1950s, the number of open-end funds topped 100. In 1954, the financial markets overcame their 1929 peak, and the mutual fund industry began to grow in earnest, adding some 50 new funds over the course of the decade. The 1960s saw more than 100 new funds established and billions of dollars in new investment inflows. The bear market of the late 1960s resulted in a temporary outflow and a minor reversal of the trend in growth. Later, in the 1970s, Wells Fargo Bank established the first passively managed index fund product, a concept used by John Bogle to found the Vanguard Group.

Hedge funds emerged as an investment product in the late 1960s. Alfred Winslow Jones is considered to have been the first hedge fund manager, in that he used leverage and short selling to modify portfolio returns and was paid an incentive fee. Hedge funds, however, provide investors with investment opportunities that are very different from those available from traditional investments such as mutual funds. Hedge funds are also regulated and structured differently from mutual funds and thus have certain unique properties, although both operate using expert managers on behalf of passive investors. Hedge funds are designed to offer investors less volatility and lower correlation to traditional investment benchmarks such as the S&P 500 and the various corporate bond indices.

Hedge funds do share some common features of the more familiar mutual fund; however, they also have some very significant differences. There are seven major differences between a hedge fund and a mutual fund that are worth noting:

1. Performance measurement

Mutual fund success or failure is based on relative performance versus some benchmark or index. Performance is compared to a

particular index that is considered suitable to capture passive returns from a particular asset class. Equity mutual funds are commonly benchmarked against an index such as the S&P 500. Hedge funds, on the other hand, are designed to generate positive returns in all market conditions and as such are referred to as absolute return investments that can generate mostly alpha for their investors.

2. Regulation

The mutual fund industry is highly regulated in the United States, whereas regulation of the hedge fund industry is only just beginning to emerge in many markets, including the United States. A mutual fund's design, terms, liquidity, performance calculations, and other features are prescribed by regulation. In addition, they are generally restricted from many types of transactions, including the use of short selling and derivatives. Hedge funds, by contrast, are only lightly regulated and therefore much less restricted. They are allowed to short-sell securities, use leverage, add derivatives to their portfolios, and use many techniques designed to enhance performance or reduce volatility.

3. Compensation model

Mutual funds are generally rewarded and compensated by a fixed management fee based on a percent of assets under management. The fee generally varies by asset class, with money markets and fixed income earning the lowest fees and active equity or credit strategies earning the highest. Hedge funds are generally compensated with both a fixed management fee and a variable performance fee based on the funds results.

4. Protection against declining markets

Mutual funds are generally not designed to protect investors against declining markets, as they normally need to stay close to 100 percent invested in a specific asset class. In some limited cases, they can use put options or short index futures for hedging. Hedge funds, however, are often able to protect against declining markets by utilizing various hedging strategies, short selling, and derivatives. Hedge funds are often able to generate positive returns in declining markets.

5. Correlation to traditional asset classes

The performance of most mutual funds is dependent on the direction of the equity or bond markets. The performance of many hedge fund strategies has a low, perhaps even negative, correlation to the stock or bond market.

6. Leverage, short selling, and derivatives

Most mutual funds are restricted by regulation from the use of leverage, short selling, or derivatives. When permitted to do so, they can do so only in varying degrees and within strict limits. Even those

that can use leverage, short selling, and derivatives often do not, as the firm may lack the expertise and training to do so effectively. Almost every hedge fund can use some combination of leverage, short selling, or derivatives to modify returns and lower volatility.

7. Liquidity

Most mutual funds offer daily liquidity. In cases where liquidity is restricted, investors most often can exit the fund by paying a penalty. Hedge fund investors usually can redeem only periodically, based on the strategy of the fund. Redemption is usually monthly or quarterly. In some cases it may extend to one or two years.

Size and Scope of the Mutual Fund Industry

The global mutual fund industry peaked at 641 organizations and \$24.6 trillion at the end of 2007. The number of managers and the assets under management declined dramatically in 2008, as asset values fell across the board and many funds experienced significant redemptions and liquidations. The industry has since recovered and is expected to continue to grow in the future. Figures 1.3, 1.4, and 1.5 show the growth in mutual fund companies, assets, and size of companies just prior to the market crash in 2008. The industry at that time was made up of a large number of smaller firms on the one hand, and a handful of dominant players managing the majority of assets on the other. Today, a few large firms such as Vanguard, Fidelity, and Pacific Asset Management Company dominate the mutual fund field.

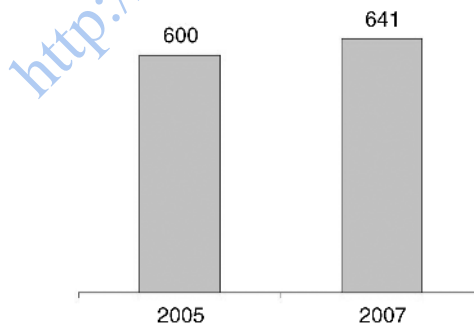


FIGURE 1.3 Number of U.S. Mutual Funds

Source: Tiburon Advisors, www.tiburonadvisors.com/07.07.13%20-%20Mutual_Funds_Key_Highlights.html.

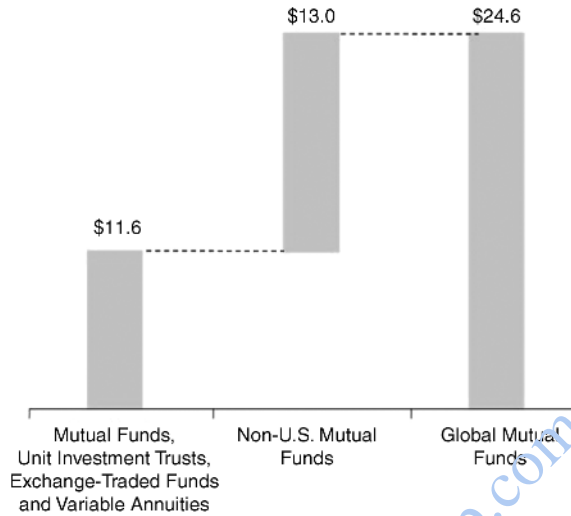


FIGURE 1.4 Global Mutual Fund Assets under Management (US\$ Trillions)

Source: Tiburon Advisors, www.tiburonadvisors.com/07.07.13%20-%20Mutual_Funds_Key_Highlights.html.

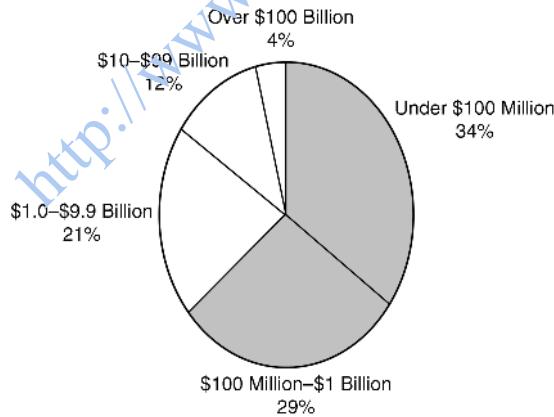


FIGURE 1.5 Sizes of U.S. Mutual Fund Parent Companies by Assets under Management

Source: Tiburon Advisors, www.tiburonadvisors.com/07.07.13%20-%20Mutual_Funds_Key_Highlights.html.

Size and Scope of the Hedge Fund Industry

The global hedge fund industry peaked at 11,000 organizations, including both hedge funds and funds of hedge fund managers, with just over \$2.4 trillion in assets under management at the end of 2007. The number of managers and the assets under management declined dramatically in 2008 as asset values fell across the board and many funds experienced significant redemptions and liquidations. The industry has since recovered all of its lost assets and is now in excess of \$2 trillion and poised to be setting new records in the near future. The number of managers today, however, remains closer to 9,000 and has not regained its peak of almost 11,000 in 2007. This is due to a large number of funds being forced to close in 2008 and 2009 and the fact that there have been fewer new launches in 2010 and 2011 than at the peak of the market.

Today, the industry is dominated, on the one hand, by many small firms with low levels of assets under management and, on the other hand, by a small number of very large firms with a very large percentage of industry assets under management. According to Hedge Fund Research, almost 60 percent of all hedge funds manage less than \$100 million. However, the largest funds with assets greater than \$1 billion manage almost 80 percent of all investor assets.

Figure 1.6 shows the number of hedge funds and funds of hedge fund managers from 1990 to 2011. Figure 1.7 shows the growth in assets and the net asset flows from 1990 to 2011 into the hedge fund industry, and Figure 1.8 shows the distribution of hedge fund assets by tier.

Mutual funds, pension plans, sovereign wealth funds, endowments and foundations, and individual investors still own the majority of their investments in traditional stocks and bonds. Hedge funds investments represent a relatively small percentage of all securities owned by global investors today.

Despite the relatively small size of assets under management, the influence of hedge funds on stock, bond, currency, and commodity prices, as well as the importance of their research and information flows and fees to Wall Street, continues to grow.

Hedge funds now account for a significant amount of the daily volume on the NYSE, according to 2012 statistics compiled by StatSpotting.com:

- High-frequency trading: 56 percent (includes proprietary trading shops, market makers, and high-frequency trading hedge funds)
- Institutional: 17 percent (mutual funds, pensions, asset managers)
- Hedge funds: 15 percent
- Retail: 11 percent
- Other: 1 percent (nonproprietary banking)

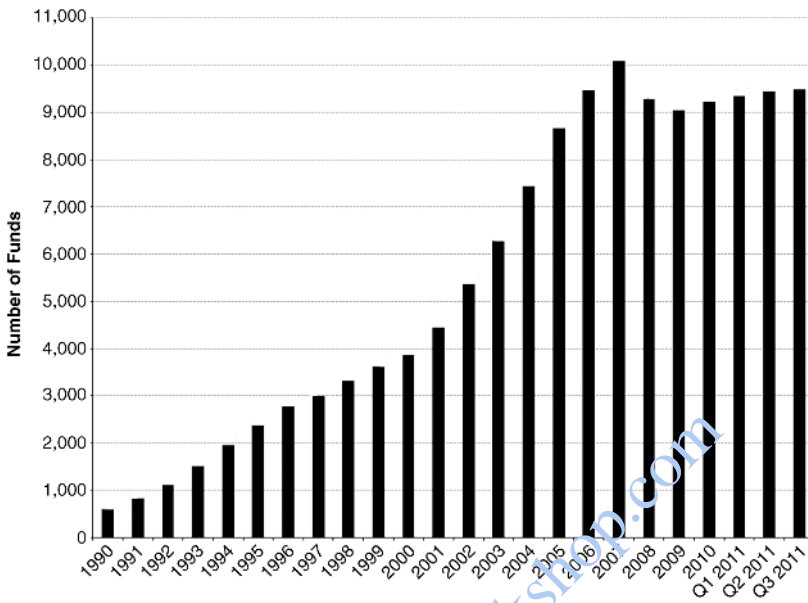


FIGURE 1.6 Estimated Number of Hedge Fund and Fund of Hedge Fund Managers, 1990–2011

Source: HFR Industry Reports © HFR, Inc. 2012, www.hedgefundresearch.com.

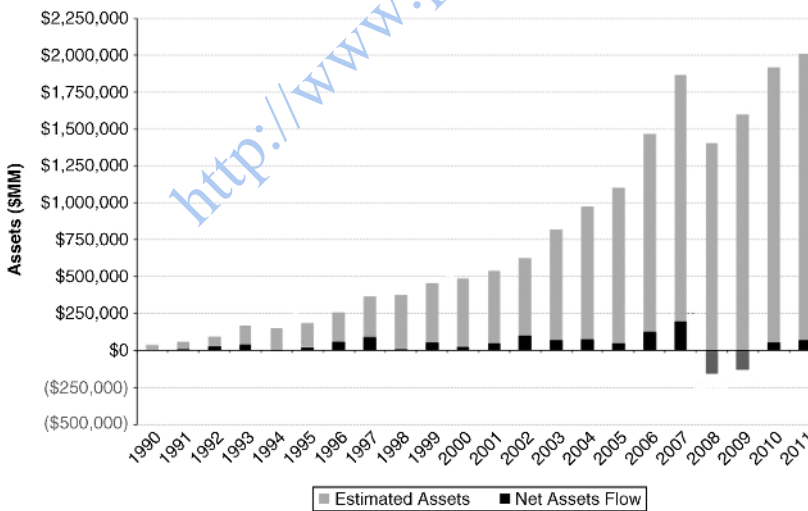


FIGURE 1.7 Estimated Growth of Assets/Net Asset Flow Hedge Fund Industry, 1990–2011

Source: HFR Industry Reports © HFR, Inc. 2012, www.hedgefundresearch.com.

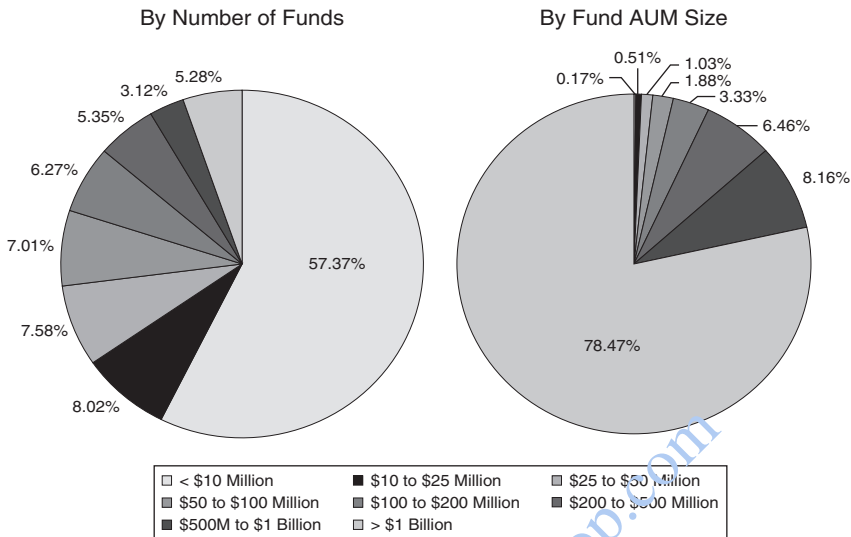


FIGURE 1.8 Distribution of Industry Assets by Fund AUM Tier as of Q4 2011
 Source: HFR Industry Reports © HFR, Inc. 2012, www.hedgefundresearch.com.

TYPES OF HEDGE FUND STRATEGIES

There are several broad categories of hedge fund strategies and styles that are useful to understand before delving into additional detail.

Hedge funds can attempt to profit from trading in a variety of instruments. Hedge funds typically trade either individual stocks, bonds, or options or instruments that allow them to take exposure to broad asset classes such as futures or sometimes ETFs. Hedge funds that invest in individual stocks may go either long or short, based on the results of their company-specific research and level of conviction in the ideas or trends supporting each position. A manager who buys IBM and profits from its increase in value can at the same time sell Microsoft short and profit from its fall in value. A manager using this strategy would be relatively insulated from a fall in the overall technology sector and would seek to profit from the relative performance of IBM versus Microsoft in both rising and falling markets. Figure 1.9 shows the changes in prices for IBM, Microsoft, and the NASDAQ Composite over a 12-month period.

Some equity-oriented funds may buy or sell stocks and trade options to profit or enhance their particular views on volatility or market direction while investing only a small portion of their capital to take large amounts

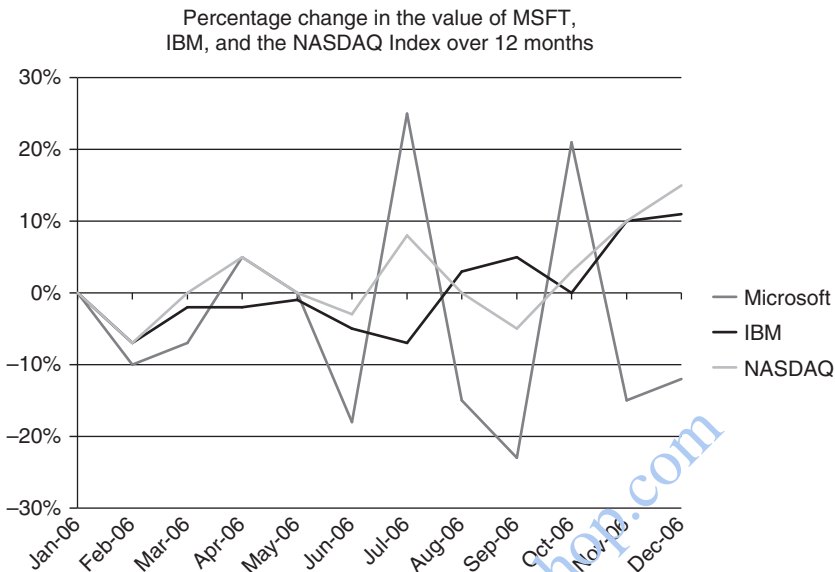


FIGURE 1.9 Long and Short Equity Opportunities
Source: Yahoo! Finance.

of risk. Managers using options are attracted to the higher degree of leverage embedded in the product relative to traditional margin loans, borrowing from a bank, or short selling. Long calls can create exposure similar to a purchase in a margin account, and long puts can create exposure similar to a short sale. Options can also be used to buy or sell volatility on the equity market or on individual stocks and bonds. They can also be written to generate income to enhance performance.

Some funds that are fixed-income oriented may take varying exposures to U.S. government bonds or currencies. A fund can take a net short position in interest rate futures if the manager believes the value of the underlying Treasury note will fall due to rising interest rates. Another fund could go long interest rate futures to take a bullish view on bond prices and a bearish view on rates. Figure 1.10 shows how hedge funds changed their position in the 10-year note contract from net short to net long over a 12-month period.

Still others who are macro oriented might attempt to profit from either directional bets or changes in relative values of various asset classes, such as stocks, bonds, or currencies. Those funds might be buying or selling equity futures contracts on the Dow Jones or S&P Index while buying or selling

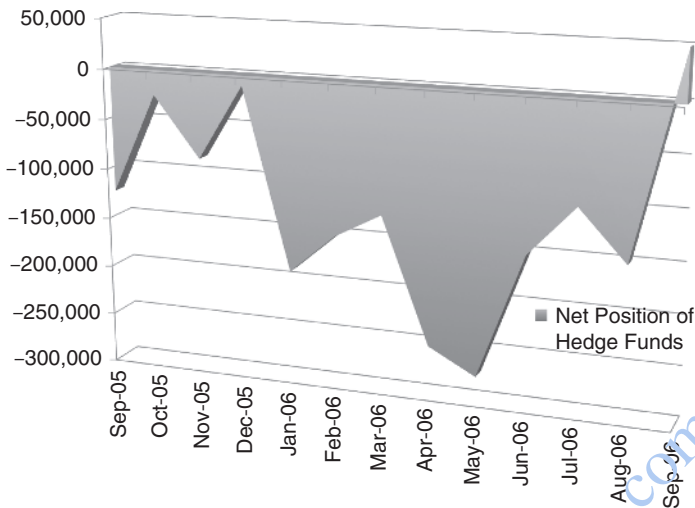


FIGURE 1.10 Speculative Use of Treasury Note Futures Contracts
 Source: http://articles.businessinsider.com/2010-09-30/wall_street/30089785_1_government-bonds-funds-chicken

interest rate futures on the 10-year U.S. government bond. Fund managers who believe equity prices would generate a better total return than bonds might go long equity futures and short Treasury futures during certain periods and reverse the position when they anticipate the relationships changing. Figure 1.11 shows the periods over the past 200 years when stocks have beaten bonds and vice versa. Each run-up or dip in the relationship represents a trading opportunity for a fund manager who believes the relationships may revert to back to historical levels.

Broadly speaking, hedge funds can be classified as being macro or directional in nature, equity long and short oriented, those designed to take advantage of relative value opportunities or those intended to profit from specific binary events, or a combination of all of these. The terminology is somewhat inconsistently applied, and designating any individual manager as part of a specific style bucket is not always straightforward. Generally speaking, a fund fits into one of a few broad styles.

- 1. Macro:** This style includes funds that are opportunistically long and short multiple financial assets using a wide range of instruments. Strategies are either discretionary or trend following.
- 2. Equity hedge:** This category includes strategies that are long and short securities with varying degrees of exposure and leverage known as equity variable bias. Strategies can be long or short biased and can be

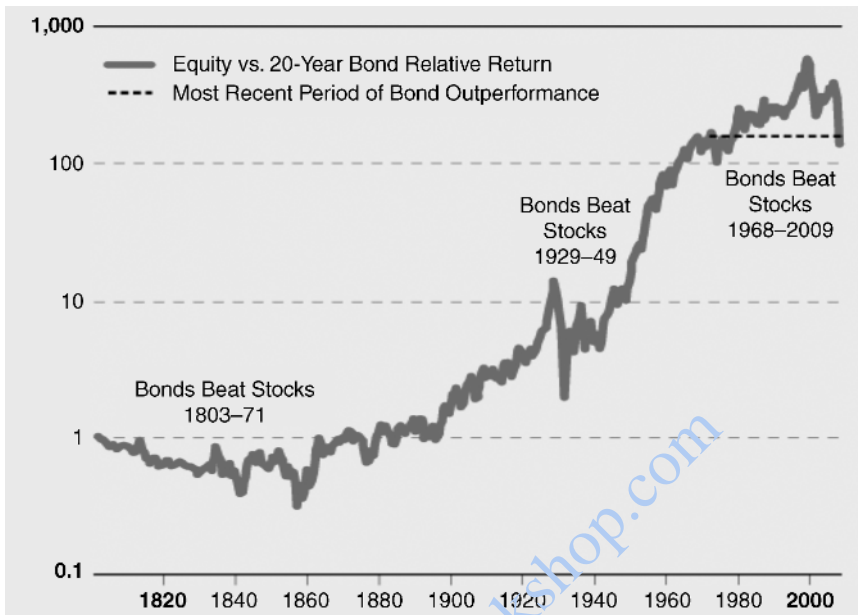


FIGURE 1.11 Stock versus Bond Cumulative Relative Performance, 1801–2009
 Source: Michael Santoli, “Stocks vs. Bonds,” *Barron’s*, March 27, 2009, <http://online.barrons.com/article/SB123819638720161459.html?page=sp>.

domestic, international, emerging market, global, or sector, region, or industry focused.

3. **Relative value:** This includes arbitrage strategies and those that seek to take advantage of mispricing or relative differences in similar securities that exist for short time frames. This style includes strategies such as fixed income and credit arbitrage and convertible bond arbitrage, and sometimes equity strategies such as market neutral or long and short equity that are not directionally biased.
4. **Event driven:** This style includes strategies that involve corporate transactions and special situations such as risk arbitrage (long and short equity securities of companies involved in corporate transactions) or distressed (long undervalued securities of companies usually in financial distress or operating under Chapter 11) or those that are opportunistic and profit from patent approval, regulatory actions, spin-offs, strategic repositioning, or other significant binary onetime events.
5. **Multistrategy:** This style includes funds that seek to allocate capital in a dynamic fashion across any or all of these broad styles or individual strategies. Many funds of hedge funds also fall into this category.

This broad classification of hedge fund styles can be further segregated into many more individual fund strategies. There are many different terms used to describe individual fund strategies in evaluating or researching hedge fund investments. Each strategy has its own performance and risk characteristics that can also often influence the structure of the fund and the terms of the fund that are ultimately offered to investors. Figure 1.12 shows the standard strategy classification used by Hedge Fund Research (HFR) to categorize various types of hedge fund strategies.

The common strategies that are covered in this text and studied in Part Two include global macro, long and short equity, event, fixed-income relative value, and multistrategy funds.

There is currently no overarching consensus on how each underlying hedge fund strategy maps to the broad macro or discretionary, relative value, long and short equity, or event classifications, nor is there a consensus on what constitutes a multistrategy fund. Each investor, fund, and allocator needs to either choose a vendor scheme or develop its own classification scheme. Most investors and vendors agree that a global macro fund is a type

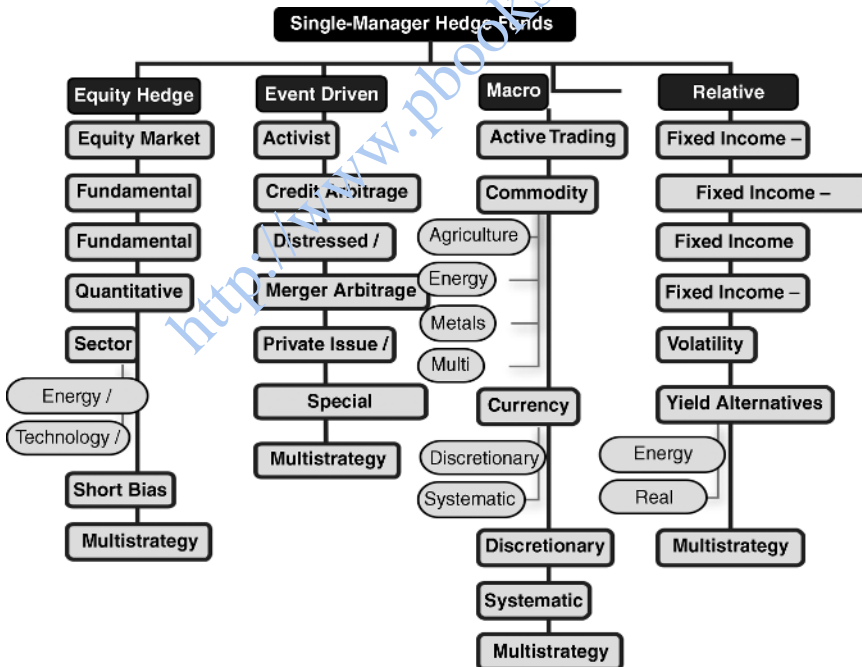


FIGURE 1.12 Hedge Fund Research Strategy Classifications
 Source: HFR Industry Reports © HFR, Inc. 2012, www.hedgefundresearch.com.

of discretionary hedge fund investment and that a convertible arbitrage fund is a form of relative value investing. However, once you go beyond a handful of styles or strategies, there may be little agreement among industry participants, and there is no regulatory definition to fall back on. Some investors do the classification of substrategies and styles on a bespoke basis, and each data provider who tracks fund performance tends to use a slightly different methodology. Other investors formally choose to adopt a scheme used by one of the major commercial database providers, such as Hedge Fund Research (HFR), Eurekahedge, or CS Dow Jones Indices.

The most important part is that you are consistent and evaluate peer groups, funds, and indices with as similar a set of definitions as possible.

Reporting Monthly Returns

Hedge funds provide investors with periodic reports of their returns and their risk profiles, either directly or via a third-party service provider or database. There are no standard methodologies that are mandated, and many forms of reporting and aggregation have limited value, are misleading, or are not accurate. Fund performance is generally reported on a monthly basis and is calculated net of all fees.

The components of hedge fund returns can be broken down into several pieces. There is the return from trading in the stock, bond, commodity, or derivative contract; the return from interest on cash or the expense associated with borrowing cash; the cost of borrowing a stock or bond to sell short; and the return or costs associated with coupons and dividends that are paid or received by the fund.

Security purchases and sales, leverage, and short selling generate the trading profits or loss and carry components of a fund's return each month before fund expenses, management fees, incentive fees, and other charges. Carry can vary widely from strategy to strategy, depending on the nature of the portfolio and the use of leverage and short selling.

A fund's monthly return is comprised of the following items:

Trading profit or loss measures the gain or loss from buying and selling stocks, bonds, currencies, or any other investments, less any commissions or spreads paid to the dealers who were used for execution or positioning trades for the fund.

Interest income or expense measures the amount paid to or received from dealers who provided financing to buy securities or where the fund held cash on deposit that was received from investors or generated via short sales.

Coupons and dividend income are the receipts or payments of income associated with stock or bond positions held by the fund. Owners of the stock or bond receive coupons or dividends, and short sellers of stocks or bonds pay coupons or pay dividends to those institutions or banks that provided the securities loans to the funds.

Borrow fees are incurred by funds to rent the securities borrowed from a bank or institution to sell short.

Cost of carry refers to the net interest, dividend and coupon, and borrow fee to hold a position for the term of investment or annualized for one year. Carry can be positive or negative.

Fees and expenses are usually deducted from the gross trading profit and financing costs or carry figures each month. Fund expenses include the fund's management fee payable to the fund manager and any performance fee or other legal, audit, or research-related expenses chargeable to the fund.

Management fees refer to fixed fee charged by a manager to the fund for its services. These fees can typically range from 1 percent to 5 percent flat fees.

Fund expenses can be related to audit fees, legal fees, and other costs borne by the fund directly.

Performance fees refer to the variable fees charged by a manager to the fund for its services. These fees typically range from 0 to 50 percent of the fund's performance, after all costs and after deducting the fixed management fee.

Commissions are fees paid to dealers to buy and sell stocks or other investments on behalf of a fund. Commissions are normally included in the net purchase or sale price of a security and are a reduction of trading profit or loss.

Every fund generates a unique combination of trading, coupon, dividend, and financing sources of income and expense. In addition, different funds generate varying degrees of long- and short-term capital gains. When reviewing a manager, make sure the components of performance are consistent with the nature of the fund. For example, funds with lots of leverage, like a relative value fund, should show significant interest income and expense. Funds with low degrees of leverage and little trading, such as distressed funds, should show very little interest expense, high coupons on debt, and few borrow fees. Funds that use listed futures, such as global macro funds, should not incur any interest costs and should, in fact, generate interest income.

Funds routinely report results to investors monthly. It is common practice that funds report performance net of all fees, including the management and performance fees they charge to the fund.

Illustration 1 A sample calculation of a fund's net performance for a single month is illustrated here for a fund whose manager charges a typical 2 percent management fee and a 20 percent performance fee, known as a *2 and 20* deal:

| | |
|---------------------------------------------------------------------------------|----------------------|
| Assets under management (AUM) | \$100 million |
| Trading profit or loss | \$ 20 million |
| Plus or minus net dividends, coupons, interest, and borrow expense | <u>\$(5) million</u> |
| Net | \$15 million |
| Less administration costs of 0.50 percent of AUM | \$(500) thousand |
| Less management fee of 2 percent of AUM | <u>\$2 million</u> |
| Net before performance fees | \$12.5 million |
| Performance fee | \$(2.5) million |
| Net return to investors | \$10 million |
| Gross return on investment, after administration | 14.5 percent |
| Net return on investment, after manager compensation | 10 percent |
| Manager compensation | 4.5 percent |

In this example, the manager received approximately 31 percent of total gross return on investment, and the investor received 69 percent. A manager who generates a loss in any year is not entitled to any incentive compensation. In fact, a manager who generates a loss in any given year is not entitled to any incentive compensation going forward until the loss is recovered. This feature in a hedge fund compensation contract is referred to as a *high-water mark*. Some managers may also have an annual minimum performance that must be achieved before an incentive fee is earned. This is referred to as a *hurdle rate*.

IMPACT OF LEVERAGE, SHORT SELLING, AND DERIVATIVES

One of the essential parts of a hedge fund's value proposition is its ability to enhance the basic return from security selection and directionality with leverage, short selling, and derivatives.

Hedge funds effectively combine traditional securities with leverage, short selling, and the use of derivatives to generate unique outcomes, such as higher return and lower volatility.

Leverage refers to the ability of a hedge fund to buy or sell more market value in shares or derivatives than the amount of capital it has raised from its investors. A fund that raises \$100 million and buys \$150 million or short-sells \$200 million does so by combining its capital with money or shares borrowed from a bank or obtained via a derivative instrument, such as a listed or OTC option or futures contract.

Short selling refers to the ability of a fund to sell a stock, bond, or futures contract today that it plans on buying in the future. A short seller profits from a fall in the value of the instrument or security sold. A fund can borrow shares for short selling from a bank or dealer or can obtain short exposure and profits via a derivative instrument or futures contract.

A **derivative** can be a listed instrument, such as an option or a futures contract, that is exchange traded or an OTC instrument negotiated with a bank directly. The derivative can be used to provide leverage and short selling capability and can also modify income, tax, or other payoffs associated with the underlying stock, bond, or currency.

The primary sources of leverage and the ability to sell a security short come from the use of a margin account, repo transaction, or OTC derivatives with a bank, or it is embedded in products such as futures or options. The use of leverage and short selling by hedge fund managers is fundamental to their ability to create unique results relative to traditional managers. In the most basic sense, leverage allows a manager to magnify the effects of both gains and losses. Short selling permits a manager to profit from falling prices on stocks, bonds, or indices and can give the manager the ability to lower portfolio volatility. Access to OTC and listed derivatives can improve fund liquidity, allow a fund to change the character of its income or expense, and improve access to new trade opportunities, sources of leverage, or ability to sell short certain types of securities. Derivative instruments can enhance performance and reduce risk or provide additional sources of profits beyond those available in the traditional stock or bond market. Derivatives can also introduce unwanted credit exposure to a fund based on the country party with whom the fund executed the contract or the exchange on which it was traded.

In the United States, leverage is created for hedge funds as a result of their access to margin accounts, repo agreements, and derivatives. The **Federal Reserve Regulation T** regulates the amount of credit that can be extended using margin accounts. Its purpose is to regulate the extension of credit by brokers and dealers to third-party customers. The regulation provides details for the use of margin accounts to buy or short-sell securities.

Margin accounts are primarily used by hedge funds to finance equity and some corporate bond securities. The Federal Reserve also governs repo transactions. They are used by hedge funds to finance short-term positions in government bonds and, sometimes, corporate bonds. In addition to regulating the market, the Federal Reserve is also a repo market participant and uses the market to inject or contract the money supply based on instructions from the open market committee and the board of governors.

A **debit balance** in a margin account is the amount that a fund is currently borrowing to finance securities purchased from a bank or dealer. A “debit” balance will cause a fund to incur margin interest expense.

A **credit balance** is any excess cash in a margin account. A fund receives interest income on any unused cash balances held at a bank or dealer.

An Example of a Leveraged Long Position in a Margin Account

A fund that raises \$50 million in assets and buys \$100 million in securities needs to borrow \$50 million from a broker or bank. It has \$100 million in long market value and \$50 million of AUM. It will also have a negative debit balance in its margin account.

The fund will receive income on \$100 million of securities appreciation or depreciation in value and any coupons or dividends. It will also pay interest expense on any funds borrowed from its broker or bank related to the purchase of securities.

Illustration 2 Cash Account

| | |
|----------------------|-----------------|
| Initial deposit | \$50 million |
| Purchase | \$(100) million |
| Ending debit balance | \$(50) million |

Annual Financing Activity

- Annual financing expense at a 5 percent interest rate would equal \$2.5 million per year.
- Dividend income or expense based on a 4 percent dividend yield would be a positive \$4 million per year.

The fund has an ending cash account debit balance of negative \$50 million. Accounts with a negative cash account balance have to borrow money from their broker or bank to pay for the purchase of securities. Borrowing cash normally occurs automatically in a securities margin account for amounts that are within a fund’s borrowing limit. In the United States,

borrowing limits for specific types of securities are set forth under U.S. Federal Reserve Regulation T.

The fund will have a profit from its financing activity of \$1.5 million, given the excess income from dividends over the amount of interest paid to carry the position. This is a powerful result. The fund could actually lose \$1.5 million in trading and still break even for the year before expenses!

Assuming the fund had a trading gain of 10 percent on its \$100 million portfolio, its gross return on investment before any fees would be 23.0 percent. The fund return is simply the trading profit of \$10 million plus the net financing and dividends of positive \$1.5 million divided by the beginning-of-the-year AUM of \$50 million. The use of leverage has transformed a market gain of 10 percent plus a dividend yield of 4 percent into an investor return of 23.0 percent. The return from leverage in this case is a positive 9 percent.

- Fund return on investment is 23 percent.
- Return on unleveraged assets plus dividend yield is 14 percent.
- Return from leverage alone is 9 percent.

If the portfolio had lost 10 percent, the effects of leverage would have generated a significant loss. The loss of \$10 million, however, would be reduced by the positive carry of \$1.5 million, resulting in an \$8.5 million loss on a \$50 million fund or negative 17 percent. The loss without leverage would have been only negative 6 percent. The additional loss due to the use of leverage was -11 percent.

An Example of a Leveraged Short-Sale Position in a Margin Account

A fund that raises \$50 million and sells short \$100 million in securities needs to borrow \$100 million in securities from a broker or bank and generates \$100 million in cash. The fund has \$100 million in short market value and \$50 million of AUM. It will also have a credit balance in the margin account.

The fund will receive income on \$100 million of securities appreciation or depreciation in value and must pay any coupons or dividends that occur to the entity from which it borrowed the stock or bonds, usually a broker or bank.

A fund that enters into a short sale must also pay to borrow or rent securities from its broker or bank to make a delivery against the short sale.

Illustration 3 Cash Account

| | |
|-----------------------|---------------|
| Initial deposit | \$50 million |
| Short sale | \$100 million |
| Ending credit balance | \$150 million |

Annual Financing Activity

- Annual financing income at a 4 percent rate would equal \$6 million per year.
- Dividend income or expense based on a 1 percent dividend yield would be a negative \$1 million per year.
- Annual borrow fees of 1 percent of the value of the short sale would result in \$1 million of additional expense.

The fund has an ending cash account credit balance of positive \$150 million. Accounts with a positive cash account balance earn interest from their broker or bank at a rate that is lower than when they borrow. A fund that has a short position also owes the dividend to the broker or bank from which it borrowed the shares or bonds to execute the short sale. Funds typically only borrow low-dividend-paying stocks. Borrowing shares normally occurs automatically in a securities margin account, subject to limits set forth under U.S. Federal Reserve Regulation T or the NYSE.

The fund will also have a profit from its financing activity, given the excess interest income from interest of \$6 million versus dividends owed and borrow fees of \$2 million. In the case of a short sale, the effects of leverage are even more powerful; the fund could actually lose \$4 million in trading and still break even for the year before expenses!

Assuming the fund had a trading gain of 10 percent based on a decline in value on its \$100 million short portfolio, its gross return on investment before any fees would be 28 percent. The fund return is simply the profit of \$10 million on the short sale plus the net financing and dividends of positive \$4 million (\$6 million less \$2 million) divided by the beginning of the year AUM of \$50 million. The use of leverage and short selling has transformed a market decline of 10 percent into a positive return of 28 percent.

- Fund return on investment is 28 percent.
- Return on unleveraged assets is 16 percent.
- Return from leverage is 12 percent.

If the short portfolio had increased in value by 10 percent, the effects of leverage and short selling would have generated a significant loss. However, the loss of \$10 million from the change in market value would be reduced by the positive carry of \$4 million, resulting in only a \$6 million loss on a \$50 million fund, or 12 percent.

The effects of leveraged long positions and leveraged short selling on a stand-alone basis can increase risk and generate extreme outcomes. Most funds use a combination of long and short positions in a single portfolio so that they can cancel out the effects of overall market changes and just capture the relative effects and profits from small changes in the value of long positions relative to the short position or relative to the market as a whole. This sort of long and short investing allows funds to use leverage and short selling in tandem to reduce risk and lower volatility while magnifying gains.

MEASURING PERFORMANCE

Hedge funds provide investors with periodic reports of their returns and their risk profile, either directly or via a third-party service provider or database. There are no standard methodologies that are mandated, and many forms of reporting and aggregation have limited value, are misleading, or are not accurate. Fund performance is generally reported on a monthly basis and is calculated net of all fees. Some of the basic values reported to an investor are those related to the fund's returns, volatility, and fund exposure.

Arithmetic and Geometric Mean Returns

The **average monthly return** is simply the sum of all monthly returns in a reporting period divided by the number of periods. A fund generating 2 percent, 4 percent, 2 percent, and 1 percent would have an arithmetic mean of 2.25 percent per month and a 27 percent annualized return.

The **geometric mean** or compound annual growth rate is the rate of return that equates the beginning value to the ending value of an investment over the number of periods of the investment. A fund generating 2 percent, 4 percent, 2 percent, and 1 percent would have a geometric mean that is slightly lower at 2.24 percent per month and a return that is slightly higher at 30 percent. Another term that is synonymous with the geometric mean is the compound annual growth rate (CAGR).

Funds should normally use the geometric mean or CAGR when reporting results to an investor; however, this may not always be the case. The formula to compute the arithmetic and geometric means are covered in more detail in later chapters.

Standard Deviation, Skew, and Kurtosis

The primary source of risk of investing in a fund is the variation of the fund's monthly returns and the risk you will lose money or that returns will be unpredictable. This variation is commonly referred to as the fund's volatility or standard deviation.

The **standard deviation** of a fund is a measure of the volatility of a fund's return distribution. It is based on the standard deviation of monthly returns on an annualized basis. A fund generating 2 percent, 4 percent, 2 percent, and 1 percent would have a monthly standard deviation of 1.26 percent per month and an annualized standard deviation of 4.36 percent as a result of multiplying the monthly figure by the square root of 12 to convert to an annualized measure.

The **skew** and **kurtosis** of a fund's monthly performance are measures of third and fourth moment variations in the pattern of a fund's returns. They are measures of the central tendency of a fund's distribution. A negative skew implies surprises to the downside, and a positive skew implies surprises to the upside relative to mean expectations. Kurtosis is a measure of a distribution's tails. A kurtosis greater than three is considered riskier. A normal distribution has a skew of zero and a kurtosis of approximately 3.0.

Many funds also report on a variety of specialty risk measures, such as the **Sharpe ratio**, **maximum drawdown**, **Sortino ratio**, and **alpha** or other risk-based ratios.

Some funds also include portfolio sensitivity measures related to a fund's **beta**, **duration**, **convexity**, or **credit spreads** exposure or even sensitivity to market crashes, earthquakes, oil shocks, or other events.

The formulas to compute the standard deviation, skew, and kurtosis and the implications of a fund's beta, duration, convexity, and credit spread exposures are covered in more detail in later chapters.

Gross and Net Market Value Exposures

Funds usually report their long or short market value exposures to investors as a percentage of AUM. Funds generally report the gross and net exposure of the fund to investors on a periodic basis.

The **gross exposure** of a fund equals the sum of a fund's long and short market values. It is a measure of the value of the fund's assets and liabilities that are exposed to changes in securities prices.

The **net exposure** of a fund equals the difference between the fund's long and short market values. It is a measure of the fund's net exposure to changes in securities prices.

Most funds also adjust their gross and net exposures to reflect the value of futures or options or the notional value of any derivative contracts owned by the fund.

Illustration 4 Assume a fund raised \$100 million from investors, bought \$100 million in securities, and sold short \$50 million in securities. The fund would have \$100 million in long market value, \$25 million in short market value, and \$25 million in short notional value of futures contracts. The fund's gross exposure, as a percentage of AUM, equals 150 percent. The fund's net exposure, as a percentage of AUM, is a positive exposure of 50 percent.

| | |
|-------------------------------|------------------|
| AUM | \$100,000,000.00 |
| Securities owned | \$100,000,000.00 |
| Securities sold short | -\$25,000,000.00 |
| Notional value of derivatives | -\$25,000,000.00 |
| Gross exposure | \$150,000,000.00 |
| As a percentage of AUM | 150 percent |
| Net exposure | \$50,000,000.00 |
| As a percentage of AUM | 50 percent |

Exposure reporting based solely on market values does not always reflect a fund's true gross and net exposure to the markets. Beta is often used by equity-oriented funds to measure the exposure to the markets. If an equity-oriented hedge fund had the exposures in Illustration 4 with long positions having a beta to the S&P 500 of 0.5 and short positions having a beta to the S&P 500 of 1.0, the fund in fact would report a beta-adjusted net exposure of zero!

- Beta-Adjusted Long Market Value = Gross Long Market Value * Weighted Average Beta = \$100 million * 0.5 = \$50 million
- Beta-Adjusted Short Market Value = Gross Short Market Value * Weighted Average Beta = \$50 million * 1.0 = \$50 million
- Net Beta-Adjusted Market Value = Beta-Adjusted Long Market Value – Beta-Adjusted Short Market Value = \$50 million – \$50 million = 0

A fund with a beta-adjusted value of zero would be expected to show performance with very little covariation, if any, with changes in the value of the S&P 500.

Value at Risk as a Measure of Fund Constraint

Value at risk (VAR) is a common exposure measure used for funds that have diversified exposure to many different instruments and markets. In

this case, beta alone is not an adequate measure. Certain funds such as global macro funds commonly report the VAR value and the percentage that it represents of a fund's assets under management.

Illustration 5 A fund with \$100 million in assets and long positions of \$100 million with a VAR of 10 percent or \$10 million and short positions of \$50 million with a VAR of 10 percent or \$5 Million would report a VAR as a percentage of AUM of 15 percent.

| | |
|----------------------------------------------|---------------|
| Position level \$ amount of VAR exposures | \$15 million |
| Fund AUM | \$100 million |
| \$ VAR/Fund AUM = \$15 million/\$100 million | 15 percent |

The level of reporting varies both by strategy and by each fund's willingness to provide investors with different levels of transparency. Third-party risk technology providers such as Risk Metrics, Risk Analytics, administrators, or prime brokers often facilitate risk reporting to investors on behalf of funds.

SUMMARY

This chapter was intended to provide a foundation to facilitate a basic understanding of the nature of alternative investments and hedge funds. It was designed to familiarize students with the core concepts used to describe and evaluate hedge fund investments. It provides the basis for our future discussions about why people invest in hedge funds and how the various strategies used by hedge funds can be evaluated and differentiated by investors.

DISCUSSION QUESTIONS AND PROBLEMS

1. What are some of the common characteristics of alternative investments?
2. How are alternative investment companies organized?
3. What are the common sources of a hedge fund's return?
4. How does leverage affect performance?
5. What sort of data is used to evaluate a fund's historical return distribution and why?
6. Assume a fund with \$100 million in AUM has a trading profit of \$15 million, net financing costs or carry of negative \$5 million, and fund administrative costs of 0.50 percent.

- a. What is the gross return on investment after financing costs but before any fund expenses or manager fees?
 - b. What is the gross return on investment after fund expenses but before any fees paid to the hedge fund manager?
7. What is the net return on investment in Question 6 after all fees, expenses, and manager compensation, assuming each of the following manager compensation arrangements?
 - a. Standard 2 percent management fee and 20 percent performance fee.
 - b. A 1 percent management fee and 15 percent performance fee.
 - c. A 0 percent management fee and 10 percent performance fee.
 - d. A 5 percent management fee and 35 percent performance fee.
 - e. Pass through of all management company expenses of \$2 million plus a 25 percent performance fee.
8. What was the total compensation to the manager in dollars and as a percentage of investment under each of the scenarios in Question 7?
9. What is the percentage split of the gross return on investment (after carry and administration costs) between the fees paid to the manager and the net return retained by the investor in each of the Question 7 compensation arrangement examples?
10. What is the annual total financing cost or income based on each of the following debit interest rates for a fund that has \$50 million in AUM and buys \$100 million in equities that pay a 4 percent dividend yield at the time of purchase?
 - a. 5 percent.
 - b. 4 percent.
 - c. 3 percent.
 - d. 6 percent.
11. What is the annual total financing cost if the dividend yield changes from 4 percent to each of the following yields?
 - a. 3 percent.
 - b. 2 percent.
 - c. 1 percent.
 - d. 0 percent.
12. Assume a fund has \$50 million in AUM, buys \$100 million in equities, pays a 5 percent margin debit rate, earns a 4 percent dividend yield at the time of purchase, and generates annual trading gains of \$10 million, \$8 million, and \$2 million.
 - a. What is the fund's gross return before financing in each case?
 - b. What is the fund's net return after all financing cost in each case?
 - c. What is the return from leverage in each case?
13. Assume a fund has \$50 million in AUM, sells short \$100 million in equities, earns a 4 percent credit on its cash balance, and pays a 1 percent

- dividend expense and a 1 percent borrow fee, and the value of the stocks sold short falls by 5 percent.
- a. What is the fund's gross return before financing in each case?
 - b. What is the fund's net return after all financing cost in each case?
 - c. What is the return from leverage in each case?
14. Assume a fund has \$100 million under management, buys \$100 million in stocks, and sells short \$50 million in stocks.
- a. What is the fund's gross market value exposure?
 - b. What is the fund's net market value exposure?
15. What is the fund's net beta-adjusted exposure in Question 14, assuming the following weighted average beta of the fund's long and short positions?
- a. 0.5 and 1.0.
 - b. 1.0 and 0.5.
16. Assume a fund had \$50 million under management and wanted to use the fund's maximum leverage of 200 percent of assets while also constraining the fund's net market value exposure to 50 percent of assets.
- a. What is the maximum dollar value of long plus short market value that the fund can execute using maximum leverage?
 - b. What is the dollar value of the fund's net exposure?
 - c. What is the dollar value of assets purchased within these constraints?
 - d. What is the dollar value of assets sold short within these constraints?
17. Assume the fund's long positions in the previous question had a beta of 1.2 and the short positions had a beta of 0.8. What is the fund's net beta adjusted exposure?
18. Assume a fund with \$100 million in assets had long positions of \$100 million with a VAR of 10 percent and short positions of \$50 million with a VAR of 10 percent.
- a. What is the fund's VAR as a percentage of AUM?
 - b. What is your answer if the VAR percentages for long and short positions doubled?
 - c. What are the answers to a. and b. if the AUM were only \$50 million and positions stayed the same?
19. How can derivative instruments be used to enhance fund performance?
20. What additional risks do derivative instruments present to a hedge fund?

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