

Fundamental Analysis Of Hedge Funds

Swapnil Sinha, Kaustubh Saxena, Achin Goyal, Ayushi Narula

IIT Delhi



Abstract - Hedge funds are private investment vehicles that were founded in 1948 by A.W Jones & Co. because of the need of tools which could use different strategies from the existing ones to reduce risk and generate maximum return. Hedge Funds uses great leverage to generate very high return so it make them prone to generating very big losses. Hedge Funds Require Very in depth knowledge of market so that why not everyone is not allowed to participate in this. People with sufficient financial stability only are allowed to invest in this. Strategy of hedge funds depends on manager's knowledge ,expertise and investor's risk and return profile . This depends on various economical ,political and company related factors. Remuneration of a Manager is done in two ways: a fixed management fee and second incentive based on performance of funds. There are several provisions in that of high water mark, hard hurdle rate, soft hurdle rate which determines manager's remuneration and always pushes him to generate higher profits. Hedge Funds invest in anything that is available to generate arbitrage profits.

Keywords - Analysis; Hedge Funds; Arbitrage Profits.

I. INTRODUCTION

Hedge funds are private investment vehicles that can take long and short positions in various markets, using various investment strategies and these funds are accessible to large investors only. Hedge funds are alternative investments that pool funds to generate higher return . these are less regulated than traditional strategies.

The Complex Nature of Hedge funds lets them trade through only Prime Brokers, who provide many services including custodial services, securities for short sale, lending and trading.

Hedge funds typically use long-short strategies, which invest in some balance of long positions (which means buying stocks) and short positions (which means selling stocks with borrowed money, then buying them back later when their price has, ideally, fallen).

The problem with hedge funds is that they indeed need not share many common characteristics and the way they are trying to beat the market differs quite substantially. Brav et al. (2006) take a similar approach and also define hedge funds by their key characteristics but they find four common characteristics:

(1) they are pooled, privately organized investment vehicles;

(2) they are administered by professional investment managers;

(3) they are not widely available to the public;

(4) they operate outside of securities regulation and registration requirements.

1.1) Characteristics Of Hedge Funds

1.1.1) Open to only Qualified investors i.e investors having net worth of more than \$1M or annual income exceeds \$200,000 for past two years because Securities and Exchange Commission considers them to bear the potential risk that comes from investment.

1.1.2) Wider Investment latitude than other funds Hedge funds can literally invest in anything real estate ,stocks ,bonds ,derivatives,currencies whereas mutual funds are restricted to only stocks and long term bonds only.

1.1.3) They Often Use leverage - Hedge funds generally use leverage to amplify there return which is one of there possible trading strategies.

1.1.4) Fee Structure Hedge funds charge both expense ratio and performance fee whereas mutual funds charge only expense ratio.

1.2) Hedge Fund Strategies

1.2.1) Event Driven:

1.2.1.1) Merger Arbitrage - Buy the shares of the firm being acquired and short the shares of firm that is acquiring.

1.2.1.2) Distressed /Restructuring - Buy the undervalued securities that under financial distress and analysis shows a higher value after proper restructuring.

1.2.1.3) Activist shareholders :- Buying huge equity in a company to influence its internal decisions or policies to increase its value.

1.2.1.4) Special Situations :- Invest in securities of firm that paying dividends or issuing or repurchasing stocks.

1.2.2) Relative Value Strategies :

1.2.2.1) Convertible arbitrage fixed income :- Exploit pricing discrepancies between convertible bonds and common equity of the issuing company.

1.2.2.2) Asset Backed Fixed Income :- Exploit price discrepancies between various assets backed securities and mortgage backed Securities.

1.2.2.3) General Fixed Income :- Exploit price discrepancies between various securities.

1.2.2.4) Volatility :- Exploiting price discrepancies arising from differences between returns volatility implied by options prices and manager expectations of future volatility.

1.2.3) Macro Strategies :- Based on global economic trends and events may involve long or short positions in equities, fixed income, currencies and commodities.

1.2.4) Equity Hedge Fund Strategies :- seek to generate profit from long or short positions in publicly traded equities or derivatives.

1.2.4.1) Market Neutral :- use technical or fundamental analysis to select undervalued equities to be held long and to select overvalued securities to be sold short, in approximately equal amount of profits to be generated from their relative price movements.

1.2.4.2) Fundamental Growth :- Use fundamental and technical analysis to find out companies which have high growth rate and can sustain it for longer period of time.

1.2.4.3) Negative Biased :- hedge fund structure which is more inclined towards shorting overvalued securities with a negative outlook towards market.

1.3) Fund of Hedge Funds

A fund of hedge funds is an investment vehicle whose portfolio consists of shares in a number of hedge funds. The fund of funds strategy can be applied to any type of investment fund, from a mutual fund to a private equity fund. The fund of funds – which may also be called a collective investment or a multi-manager investment – simply holds a portfolio of other investment funds instead of investing directly in securities, such as stocks, bonds, commodities or derivatives.

Funds of hedge funds simply follow this strategy by constructing a portfolio of other hedge funds. How the underlying hedge funds are chosen can vary. A fund of hedge funds may invest only in hedge funds using a particular management strategy. Or, a fund of hedge funds may invest in hedge funds using many different strategies in an attempt to gain exposure to all of them.

The benefit of owning any fund of fund is experienced management and diversification. A portfolio manager uses his or her experience and skill to select the best underlying funds based on past performance and other factors. If the portfolio manager is talented, this can increase return potential and decrease risk potential, since putting your eggs in more than one basket may reduce the dangers associated with investing in a single hedge fund. With funds of hedge funds, there is an additional benefit, given that most hedge funds have prohibitively high initial minimum investments. Through a fund of hedge funds, investors can theoretically gain access to a number of the country's best hedge funds with a relatively smaller investment.

For example, investing in five hedge funds with \$1,000,000 minimums would require \$5,000,000. Investing in a fund of hedge funds that invests in those same underlying funds may require just \$1,000,000. In fact, it may even require less. Sometimes a fund of hedge funds will invest in only one hedge fund, but offer shares at a much lower initial minimum investment than the underlying hedge fund does. This gives investors access to an acclaimed fund with less cash than would normally be required.

One disadvantage of investing in a fund of hedge funds is the fees. These funds generally charge a fee for their services in addition to the fees charged by the underlying hedge funds. In other words, each underlying hedge fund

might charge a fee of 1% to 2% of assets under management and an incentive fee of 15% to 25% of profits generated. On top of that, a fund of hedge funds will typically charge its own fees. While fund of hedge funds have been criticized for this “incremental fee” structure, portfolio managers often argue that the fees are more than made up for by potential higher risk-adjusted returns offered by funds of hedge funds.

In summary, funds of hedge funds may be appealing to investors seeking the high return potential of hedge funds along with a little diversification to help manage risk and lower investment minimums – but before investing, be sure you know how much fees will cut into your returns.

1.4) Equity long-Short:

An equity long-short strategy is an investing strategy, used primarily by hedge funds, that involves taking long positions in stocks that are expected to increase in value and short positions in stocks that are expected to decrease in value. You may know that taking a long position in a stock simply means buying it: If the stock increases in value, you will make money. On the other hand, taking a short position in a stock means borrowing a stock you don’t own (usually from your broker), selling it, then hoping it declines in value, at which time you can buy it back at a lower price than you paid for it and return the borrowed shares.

Hedge funds using equity long-short strategies simply do this on a grander scale. At its most basic level, an equity long-short strategy consists of buying an undervalued stock and shorting an overvalued stock. Ideally, the long position will increase in value, and the short position will decline in value. If this happens, and the positions are of equal size, the hedge fund will benefit. That said, the strategy will work even if the long position declines in value, provided that the long position outperforms the short position. Thus, the goal of any equity long-short strategy is to minimize exposure to the market in general, and profit from a change in the difference, or spread, between two stocks.

That may sound complicated, so let’s look at a hypothetical example. let’s say a hedge fund takes a \$1 million long position in Pfizer and a \$1 million short position in Wyeth, both large pharmaceutical companies. With these positions, any event that causes all pharmaceutical stocks to fall will lead to a loss on the Pfizer position and a profit on the Wyeth position. Similarly, an event that causes both stocks to rise will have little effect, since the positions balance each other out. So, the market risk is minimal. Why, then, would a portfolio manager take

such a position? Because he or she thinks Pfizer will perform better than Wyeth.

Equity long-short strategies such as the one described, which hold equal dollar amounts of long and short positions, are called market neutral strategies. But not all equity long-short strategies are market neutral. Some hedge fund managers will maintain a long bias, as is the case with so-called “130/30” strategies. With these strategies, hedge funds have 130% exposure to long positions and 30% exposure to short positions. Other structures are also used, such as 120% long and 20% short. (Few hedge funds have a long-term short bias, since the equity markets tend to move up over time.)

Equity long-short managers can also be distinguished by the geographic market in which they invest, the sector in which they invest (financial, health care or technology, for example) or their investment style (value or quantitative, for example). Buying and selling two related stocks—for example, two stocks in the same region or industry—is called a “paired trade” model. It may limit risk to a specific subset of the market instead of the market in general.

Equity long-short strategies have been used by sophisticated investors, such as institutions, for years. They became increasingly popular among individual investors as traditional strategies struggled in the most recent bear market, highlighting the need for investors to consider expanding their portfolios into innovative financial solutions.

Equity long-short strategies are not without risks. These strategies have all the generic hedge fund risks: For example, hedge funds are typically not as liquid as mutual funds, meaning it is more difficult to sell shares; the strategies they use could lead to significant losses; and they can have high fees. Additionally, equity long-short strategies have some unique risks. The main one is that the portfolio manager must correctly predict the relative performance of two stocks, which can be difficult. Another risk results from what is referred to in the industry as “beta mismatch.” While this is more complicated than we can explain in detail here, essentially, it means that when the stock market declines sharply, long positions could lose more than short positions.

In summary, equity long-short strategies may help increase returns in difficult market environments, but also involve some risk. As a result, investors considering these strategies may want to ensure that their hedge funds follow

strict rules to evaluate market risks and find good investment opportunities.

1.6) Convertible Arbitrage:

Convertible arbitrage is a type of equity long-short investing strategy often used by hedge funds. An equity long-short strategy is an investing strategy which involves taking long positions in stocks that are expected to increase in value and short positions in stocks that are expected to decrease in value. Instead of purchasing and shorting stocks, however, convertible arbitrage takes a long position in, or purchases, convertible securities. It simultaneously takes a short position in, or sells, the same company's common stock.

To understand how that works, it is important to know what convertible securities are. A convertible security is a security that can be converted into another security at a predetermined time and a predetermined price. In most cases, the term applies to a bond that can be converted into a stock. Convertible bonds are considered neither bonds nor stocks, but hybrid securities with features of both. They may have a lower yield than other bonds, but this is usually balanced by the fact that they can be converted into stock at what is usually a discount to the stock's market value. In fact, buying the convertible bond places the investor in a position to hold the bond as-is, or to convert it to stock if he or she anticipates that the stock's price will rise.

The idea behind convertible arbitrage is that a company's convertible bonds are sometimes priced inefficiently relative to the company's stock. Convertible arbitrage attempts to profit from this pricing error. To illustrate how convertible arbitrage works, a hedge fund using convertible arbitrage will buy a company's convertible bonds at the same time as it shorts the company's stock. If the company's stock price falls, the hedge fund will benefit from its short position; it is also likely that the company's convertible bonds will decline less than its stock, because they are protected by their value as fixed-income instruments. On the other hand, if the company's stock price rises, the hedge fund can convert its convertible bonds into stock and sell that stock at market value, thereby benefiting from its long position, and ideally, compensating for any losses on its short position.

Convertible arbitrage is not without risks. First, it is trickier than it sounds. Because one generally must hold convertible bonds for a specified amount of time before they can be converted into stock, it is important for the convertible arbitrageur to evaluate the market carefully and

determine in advance if market conditions will coincide with the time frame in which conversion is permitted.

Additionally, convertible arbitrageurs can fall victim to unpredictable events. One example is the market crash of 1987, when many convertible bonds declined more than the stocks into which they were convertible, for various reasons which are not totally understood even today. A more recent example occurred in 2005, when many arbitrageurs had long positions in General Motors (GM) convertible bonds and short positions in GM stock. They suffered losses when a billionaire investor tried to buy GM stock at the same time its debt was being downgraded by credit-ratings agencies.

Finally, convertible arbitrage has become increasingly popular in recent years as investors have sought alternative investment options. That has reduced the effectiveness of the strategy. In summary, convertible arbitrage, like other long-short strategies, may help increase returns in difficult market environments, but it isn't without risks. As a result, investors considering a hedge fund that uses convertible arbitrage may want to carefully evaluate whether the potential return is balanced by the potential risks.

1.7) Hedge Fund Strategy - Emerging Markets Fund:

An emerging market hedge fund is a hedge fund that specializes its investments in the securities of emerging market countries. Although there is no exact definition of "emerging market countries," these countries are in the process of developing. They typically have per-capita incomes on the lower to middle end of the world range, and are in the process of moving from a closed market to an open market. As a result, emerging market countries include a wide range of nations. China and Russia, two of the world's economic powerhouses, are lumped in the emerging market category with Peru, a much smaller country with fewer resources, because all have recently embarked on economic development and reform programs, and have thus "emerged" onto the global financial scene. In fact, while only around 20% of the world's nations are considered emerging market countries, these countries constitute approximately 80% of the global population.

Although emerging market stocks have been available for some time through emerging market mutual funds, earlier this decade, institutional investors such as pension funds and endowments started looking for alternative investment options and began pouring money into emerging market hedge funds as well. Emerging market hedge funds offer one significant advantage over emerging market mutual funds. While mutual funds typically invest only in

stocks and bonds, hedge funds can offer exposure to more sophisticated investments, including commodities, real estate, currencies and derivatives (which are contracts to buy or sell another security at a specified price, and include futures and options). Emerging market hedge funds can also use leverage, which is essentially investing with borrowed money. These strategies could significantly increase return potential.

Along with the increase return potential, however, comes increased risk potential. Emerging market hedge funds have all the generic hedge fund risks: For example, hedge funds are typically not as liquid as mutual funds, meaning it is more difficult to sell shares; the strategies they use could lead to significant losses; and they can have high fees. Additionally, investing in the emerging markets has some unique risks, including a lack of transparency, which makes it hard to evaluate investment opportunities; relative illiquidity; and extreme volatility.

In fact, any downturn in these countries' securities could be self-propagating: If hedge fund investors, faced with a downturn in one emerging market country demand their money back, hedge funds could be forced to sell holdings in unaffected markets to meet redemption requests, leading to a steep slide in regions that weren't originally affected. One final downside to emerging market hedge funds is that they, like all hedge funds, are not currently regulated by the U.S. Securities and Exchange Commission (SEC), a financial industry oversight entity. As a result, they are typically open only to a limited range of investors. Specifically, U.S. laws require that hedge fund investors be "accredited," which means they must earn a minimum annual income, have a net worth of more than \$1 million, and possess significant investment knowledge.

In summary, emerging market hedge funds may be a good choice for investors who want more access to the emerging markets than emerging market mutual funds can offer—if they can meet the suitability requirements and are willing to accept the increased risk.

1.8) Investing in Distressed Securities

Distressed securities may be an attractive investment option for sophisticated investors who are looking for a bargain and are willing to accept some risk. Distressed securities are securities; most often corporate bonds, bank debt and trade claims, but occasionally common and preferred stock as well, of companies that are in some sort of distress. Typically, that means heading toward or in bankruptcy.

When a company is unable to meet its financial obligations, its debt securities may be substantially reduced in value. When does "reduced in value" become "distressed"? Typically, a company's debt is considered distressed when its yield to maturity (which is its anticipated rate of return if it is held to maturity) is more than 1000 basis points above the risk-free rate of return (which is the return of a "risk-free" asset such as U.S. Treasuries). A security is also often considered distressed if it is rated CCC or below by one or more of the major debt-rating agencies, which include Standard & Poor's, Moody's and Fitch.

When a company becomes distressed, the investors holding its securities often react to the possibility of bankruptcy by selling those securities at a reduced price. Because their price is reduced, distressed securities are attractive to investors who are looking for a bargain. Typically, these investors think the company that issued the distressed securities is not in as difficult a position as the market believes. The company may not enter bankruptcy at all. It may enter Chapter 7 bankruptcy (which involves shutting its doors), but upon liquidation, have enough money to pay its debt holders. Or, it may enter Chapter 11 bankruptcy (which lets the company continue operating while working out a plan for reorganization with a committee of major creditors) and successfully reorganize. In all of these cases, the value of the company's distressed securities may increase, allowing investors holding those securities to profit.

Investors in distressed securities must be willing to accept significant risk, however. Most distressed securities are issued by companies that end up filing for bankruptcy. When this happens, some distressed securities are rendered worthless. For example, when a company goes bankrupt, its common stock has no value (which is why many investors limit their investments to more senior distressed securities, such as corporate bonds, bank debt and trade claims). As a result, investors in distressed securities must have the knowledge and skill to accurately assess whether the issuer (the company in distress) can improve its operations and successfully reorganize—and if so, which of its securities will benefit.

Because of the risks involved, large institutional investors—such as hedge funds, private equity firms and investment banks—are the major buyers of distressed securities. Often, these investors—alone or in conjunction with other distressed investors—will try to influence the process by which the issuing company reorganizes.

Sometimes, the investors will inject new capital into the company in exchange for, say, equity.

In summary, then, while a company teetering on the edge of bankruptcy may not sound like a great investment opportunity, it could be—for sophisticated investors who understand investing in distressed securities and are willing to accept the risks.

1.9) Understanding Event-Driven Investing

Event-driven investing is an investing strategy that seeks to exploit pricing inefficiencies that may occur before or after a corporate event, such as a bankruptcy, merger, acquisition or spinoff. To illustrate, consider what happens in the case of a potential acquisition. When a company signals its intent to buy another company, the stock price of the company to be acquired typically rises. However, it usually remains somewhere below the acquisition price—a discount that reflects the market’s uncertainty about whether the acquisition will truly occur.

That’s when event-driven investors enter the picture. An event-driven investor will analyze the potential acquisition—looking at the reason for the acquisition, the terms of the acquisition and any regulatory issues (such as antitrust laws)—and determine the likelihood of the acquisition actually occurring. If it seems likely that the deal will close, the event-driven investor will purchase the stock of the company to be acquired, and sell it after the acquisition, when its price has risen to the acquisition price (or greater).

Event-driven investing strategies are typically used only by large institutional investors, such as hedge funds and private equity firms. That’s because traditional equity investors, including managers of equity mutual funds, do not have the expertise necessary to analyze many corporate events. But that’s exactly how event-driven investors make money. To illustrate, let’s go back to our example of a potential acquisition and consider how a traditional fund manager looks at the situation. Let’s say the manager holds the stock of the company that is to be acquired. When the planned acquisition is announced, the stock rallies (partly as a result of event-driven investors buying it). The traditional manager doesn’t have the expertise to determine if the deal will go through, so he or she will often sell the stock before the acquisition occurs, realizing a solid profit and sacrificing the remaining upside (that is, any additional profit that he or she would have realized by holding the stock until after the acquisition).

That additional upside is locked in by the event-driven investor.

Event-driven investing is often used by investors who also use distressed-investing strategies. As explained in *Investing in Distressed Securities*, distressed securities are securities—most often corporate bonds, bank debt and trade claims—of companies that are in some sort of distress, such as bankruptcy. That’s because event-driven and distressed investing strategies may be complementary. Event-driven investing tends to work best when the economy is performing well (because this is when corporate activity is highest). Distressed investing, on the other hand, tends to work best when the economy is performing poorly (because this is when companies tend to become distressed).

While event-driven investing can be profitable, event-driven investors must be willing to accept some risk. Many corporate events do not occur as planned. This can ultimately reduce the price of a company’s stock and cause an event-driven investor to lose money. As a result, event-driven investors must have the knowledge and skill to accurately assess whether a corporate event will actually occur.

In summary, then, while a company subject to a complex event may not sound like a great investment opportunity, it could be—for sophisticated investors who have the expertise to evaluate the event and are willing to accept increased risk.

1.10) Understanding Fixed-Income Arbitrage

Fixed-income arbitrage is an investment strategy that exploits pricing differentials between fixed-income securities. Before we explain that, let’s review the concept of arbitrage. Arbitrage, at its most simplest, involves buying securities on one market for immediate resale on another market in order to profit from a price discrepancy. But in the hedge fund world, arbitrage more commonly refers to the simultaneous purchase and sale of two similar securities whose prices, in the opinion of the trader, are not in sync with what the trader believes to be their “true value.” Acting on the assumption that prices will revert to true value over time, the trader will sell short the overpriced security and buy the underpriced security. Once prices revert to true value, the trade can be liquidated at a profit. (Remember, short selling is simply borrowing a security you don’t own, selling it, then hoping it declines in value, at which time you can buy it back at a lower price than you paid for it and return the borrowed securities.) Arbitrage can also be used

to buy and sell two stocks, two commodities and many other securities.

Although many investors are unfamiliar with the term “fixed-income arbitrage” most have heard of one of its major users: long Term Capital Management, a hedge fund that in the 1990s realized average annual returns of greater than 40%, then had to be bailed out by several Wall Street firms at the encouragement of the U.S. Federal Reserve Board. To understand fixed-income arbitrage, it is important to have some familiarity with fixed-income securities. At their most basic level, fixed-income securities are simply debt instruments, issued by private companies or public entities, which promise a fixed stream of income. U.S. Treasuries, corporate bonds and municipal bonds are examples. There are, however, more sophisticated fixed-income securities, such as credit default swaps.

Credit default swaps are complex financial instruments similar to insurance contracts in that they provide the buyer with protection against specific risks. So, for example, say you buy a corporate bond from Company ABC. You think the company will pay you back with interest, but it might default, and you invested a lot of money, so you want some added protection. So, you call your insurance company and ask it to sell you insurance against the possible default of Company ABC’s bonds. Your insurance company charges you a fee for that insurance, just as it would if you were buying car insurance or homeowner’s insurance. But here’s the catch: When it comes to credit default swaps, you don’t have to actually own the asset in order to insure it. Your insurance company is selling insurance on Company ABC’s stock to anyone. In other words, it’s selling pieces of paper—securities that fall into the “derivatives” category—called credit default swaps. And these pieces of paper are traded over-the-counter by sophisticated investors.

The reason for that detailed explanation of credit default swaps, as you might have guessed, is that they are often used in fixed-income arbitrage. In fact, one of the most popular fixed-income arbitrage strategies is called “swap spread arbitrage.” While swap-spread arbitrage is too complex a topic to explain in full here, it involves taking a bet on the direction of credit default swap rates and other interest rates, such as the interest rate of U.S.

Treasuries or the London Interbank Offered Rate (LIBOR, which is the interest rate banks charge each other for loans). There are many other fixed-income arbitrage strategies, however. Another is called yield curve arbitrage. The yield curve is a graphical representation of how yields on bonds of different maturities compare. When the yield

curve is flat, shorter- and longer-term yields are close. When the yield curve is heavily sloped, there is a greater gap between short- and long-term yields. Yield-curve arbitrageurs seek to profit from shifts in the yield curve by taking long and short positions in Treasuries of various maturities.

Another fixed-income arbitrage strategy is capital structure arbitrage, which seeks to profit from the pricing differentials between various claims on a company, such as its debt and stock. For example, a capital structure arbitrageur who believes a company’s debt is overpriced relative to its stock might short the company’s debt and buy the company’s stock. Fixed-income arbitrageurs must be willing to accept significant risk. That’s because fixed-income arbitrage typically provides relatively small returns, but can potentially lead to huge losses. In fact, many people refer to fixed-income arbitrage as “picking up nickels in front of a steamroller.”

Because of the limited returns and huge risks involved, large institutional investors with significant assets—such as hedge funds, private equity firms and investment banks—are the major users of fixed-income arbitrage. In summary, then, fixed-income arbitrage could be a good investment option, but it is best used by institutional investors who have significant assets and are willing to accept the risks.

1.11) Understanding Merger Arbitrage

Merger arbitrage is an investment strategy that simultaneously buys and sells the stocks of two merging companies. Before we explain that, let’s review the concept of arbitrage. Arbitrage, at its most simplest, involves buying securities on one market for immediate resale on another market in order to profit from a price discrepancy. But in the hedge fund world, arbitrage more commonly refers to the simultaneous purchase and sale of two similar securities whose prices, in the opinion of the trader, are not in sync with what the trader believes to be their “true value.” Acting on the assumption that prices will revert to true value over time, the trader will sell short the overpriced security and buy the underpriced security. Once prices revert to true value, the trade can be liquidated at a profit. (Remember, short selling is simply borrowing a security you don’t own, selling it, then hoping it declines in value, at which time you can buy it back at a lower price than you paid for it and return the borrowed securities.) Arbitrage can also be used to buy and sell two stocks, two commodities and many other securities.

Merger arbitrage is a type of Event-Driven investing, which is an investing strategy that seeks to exploit pricing inefficiencies that may occur before or after a corporate event, such as a bankruptcy, merger, acquisition or spinoff. To illustrate, consider what happens in the case of a potential merger. When a company signals its intent to buy another company, the stock price of the target company typically rises, and the stock price of the acquiring company typically declines. However, the stock price of the target company usually remains somewhere below the acquisition price—a discount that reflects the market’s uncertainty about whether the merger will truly occur. That’s where merger arbitrageurs enter the picture. To understand how merger arbitrage is profitable, it is important to understand that corporate mergers are typically divided in two categories: cash mergers and stock for stock mergers.

With cash mergers, an acquiring company purchases the shares of the target company for cash. Until the acquisition is complete, the stock of the target company typically trades below the acquisition price. So, one can buy the stock of the target company before the acquisition, and then make a profit if and when the acquisition goes through. This is not arbitrage, however; this is a speculation on an event occurring. With a stock-for-stock merger, an acquiring company exchanges its own stock for the stock of the target company. During a stock-for-stock merger, a merger arbitrageur buys the stock of the target company while shorting the stock of the acquiring company. So, when the merger is complete, and the target company’s stock is converted into the acquiring company’s stock, the merger arbitrageur simply uses the converted stock to cover his or her short position.

While that sounds simple, there are a number of risks involved. For example, the merger may not go through due to a number of reasons. One of the companies may not be able to satisfy the conditions of the merger. Shareholder approval may not be obtained. Or, regulatory issues (such as antitrust laws) may prevent the merger. Additional complications arise with stock-for-stock mergers when the exchange ratio—the ratio at which the target company’s stock is exchanged for the acquiring company’s stock—fluctuates with the stock price of the acquiring company. This makes evaluating a merger arbitrage opportunity complex, and requires significant expertise on the part of the merger arbitrageur.

Because of these risks, merger arbitrageurs must have the knowledge and skill to accurately assess a number of factors. A merger arbitrageur will analyze the potential

merger—looking at the reason for the merger, the terms of the merger, and any regulatory issues that may hinder the merger—and determine the likelihood of the merger actually occurring and how. Because this requires expertise, large institutional investors—such as hedge funds, private equity firms and investment banks—are the major user of merger arbitrage. In summary, then, while merger arbitrage may sound like a good investment strategy, and often is, it is best used by sophisticated investors who have the expertise to evaluate the merger and are willing to accept the risk of it not going through.

1.12) Understanding Relative-Value Arbitrage

Relative-value arbitrage is an investment strategy that seeks to take advantage of price differentials between related financial instruments, such as stocks and bonds, by simultaneously buying and selling the different securities—thereby allowing investors to potentially profit from the “relative value” of the two securities. Before we explain that, let’s review the concept of arbitrage.

Arbitrage, at its most simplest, involves buying securities on one market for immediate resale on another market in order to profit from a price discrepancy. But in the hedge fund world, arbitrage more commonly refers to the simultaneous purchase and sale of two similar securities whose prices, in the opinion of the trader, are not in sync with what the trader believes to be their “true value.” Acting on the assumption that prices will revert to true value over time, the trader will sell short the overpriced security and buy the underpriced security. Once prices revert to true value, the trade can be liquidated at a profit. (Remember, short selling is simply borrowing a security you don’t own, selling it, then hoping it declines in value, at which time you can buy it back at a lower price than you paid for it and return the borrowed securities.) Arbitrage can also be used to buy and sell two stocks, two commodities and many other securities.

Relative-value arbitrage is also referred to as “pairs” trading. That’s because with relative-value arbitrage, an investor invests in a pair of related securities. Ideally, these securities will have high correlations, meaning they will tend to move in the same direction at the same time. Stocks in the same industry that have trading histories of similar lengths are often used in relative-value arbitrage. Automotive stocks GM and Ford are good examples, as are pharmaceutical stocks Wyeth and Pfizer. But indices, such as the S&P 500 Index and the Dow Jones Utilities Average, can also be used in relative-value arbitrage. So can index-tracking stocks, such as the QQQQ (which tracks the

Nasdaq Composite Index) or the SPY (which tracks the S&P 500 Index). In fact, when it comes to choosing securities, the sky is the limit: Relative-value arbitrage works not only with stocks, but also with futures, options, currencies and commodities.

Whatever securities are used, when the prices of the two securities diverge—meaning one security rises in value and the other security falls in value—the relative-value arbitrageur buys one security and shorts the other. When the prices converge again, the relative-value arbitrageur closes the trade. Because relative-value arbitrage requires securities to be correlated in price, it is typically used in a sideways market, which is a market that is neither rising nor falling, but trading within a specific range. Whether a market will continue to stay within a specific range can be difficult to evaluate, however, as markets can change direction quickly. So, relative-value arbitrage requires the knowledge and skill to evaluate not just individual securities, but the markets as well.

Because of these risks, large institutional investors—such as hedge funds, private equity firms and investment banks—are the major user of relative-value arbitrage. In summary, then, while relative-value arbitrage may help increase returns in difficult market environments, such as sideways markets, it requires significant expertise, and is best used by sophisticated investors who are willing to accept its risks.

II. ANALYSIS OF HEDGE FUNDS

Although mutual funds and hedge funds can be analyzed using very similar metrics and processes, hedge funds do require an additional level of depth to address their level of complexity and their asymmetric expected returns. Hedge funds are generally only accessible to accredited investors as they require compliance with fewer SEC regulations than other funds.

2.1) Absolute and Relative Returns

Similar to mutual fund performance analysis, hedge funds should be evaluated for both absolute and relative return performance. However, because of the variety of hedge fund strategies and the uniqueness of each hedge fund, a good understanding of the different types of returns is necessary in order to identify them.

Absolute returns give the investor an idea of where to categorize the fund in comparison to the more-traditional types of investments. Also referred to as the total return, absolute return measures the gain or loss experienced by a fund.

For example, a hedge fund with low and stable returns is probably a better substitute for fixed income investments than it would be for emerging market equities, which might be replaced by a high-return global macro fund.

Relative returns, on the other hand, allow an investor to determine a fund's attractiveness compared to other investments. The comparables can be other hedge funds, mutual funds or even certain indexes that an investor is trying to mimic. The key to evaluating relative returns is to determine performance over several time periods, such as one-, three- and five-year annualized returns. In addition, these returns should also be considered relative to the risk inherent in each investment.

The best method to evaluate relative performance is to define a list of peers, which could include a cross section of traditional mutual funds, equity or fixed-income indexes and other hedge funds with similar strategies. A good fund should perform in the top quartiles for each period being analyzed in order to effectively prove its alpha-generating ability.

2.2) Measuring Risk

Doing quantitative analysis without considering risk is akin to crossing a busy street while blindfolded. Basic financial theory indicates that outsized returns can be generated only by taking risks, so although a fund may exhibit excellent returns, an investor should incorporate risk into the analysis to determine the risk-adjusted performance of the fund and how it compares to other investments.

There are several metrics used to measure risk:

2.3) Standard Deviation

Among the advantages of using standard deviation as a measure of risk are its ease of calculation and the simplicity of the concept of a normal distribution of returns. Unfortunately, that is also the reason for its weakness in describing the inherent risks in hedge funds. Most hedge funds do not have symmetrical returns, and the standard deviation metric can also mask the higher-than-expected probability of large losses.

2.4) Value at Risk (VaR)

Value at risk is a risk metric that is based on a combination of mean and standard deviation. Unlike standard deviation, however, it does not describe risk in terms of volatility, but rather as the highest amount that is likely to be lost with a five percent probability. In a normal distribution, it is represented by the leftmost five percent of probable results. The drawback is that both the amount and probability can be underestimated because of the

assumption of normally distributed returns. It should still be evaluated when performing quantitative analysis, but an investor should also consider additional metrics when evaluating risk.

2.5) Skewness

Skewness is a measure of the asymmetry of returns, and analyzing this metric can shed additional light on the risk of a fund.

Figure shows two graphs with identical means and standard deviations. The graph on the left is positively skewed. This means the mean > median > mode. Notice how the right tail is longer and the results on the left are bunched up toward the center. Although these results indicate a higher probability of a result that is less than the mean, it also indicates the probability, albeit low, of an extremely positive result as indicated by the long tail on the right side.



Figure 1. Graphs with identical means and standard deviations

A skewness of approximately zero indicates a normal distribution. Any skewness measure that is positive would more likely resemble the distribution on the left, while negative skewness resembles the distribution on the right. As you can see from the graphs, the danger of a negatively

skewed distribution is the probability of a very negative result, even if the probability is low.

2.6) Kurtosis

Kurtosis is a measure of the combined weight of a distribution's tails relative to the rest of the distribution.

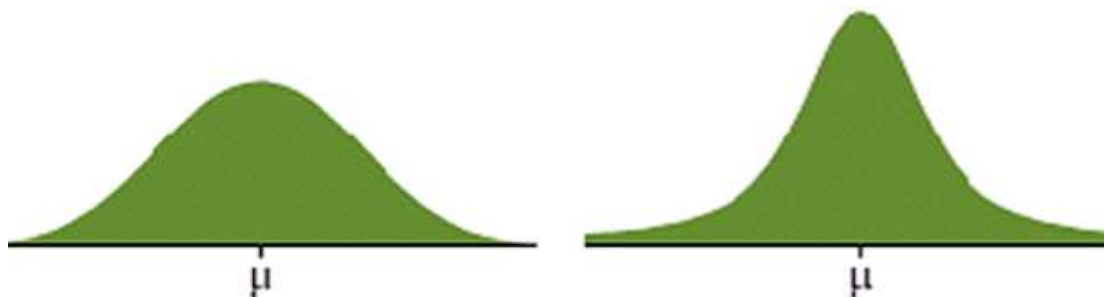


Figure 2. Graphs of distribution

In Figure, the distribution on the left exhibits negative kurtosis, indicating a lower probability of results around the mean, and lower probability of extreme values. A positive kurtosis, the distribution on the right, indicates a higher probability of results near the mean, but also a higher probability of extreme values. In this case, both distributions also have the same mean and standard deviation, so an investor can begin to get an idea of the importance of analyzing the additional risk metrics beyond standard deviation and VAR.

2.7) Sharpe Ratio

One of the most popular measures of risk-adjusted returns used by hedge funds is the Sharpe ratio. The Sharpe ratio indicates the amount of additional return obtained for each level of risk taken. A Sharpe ratio greater than 1 is good, while ratios below 1 can be judged based on the asset class or investment strategy used. In any case, the inputs to the calculation of the Sharpe ratio are mean, standard deviation and the risk-free rate, so Sharpe ratios may be more attractive during periods of low interest rates and less attractive during periods of higher interest rates.

III. MEASURING PERFORMANCE WITH BENCHMARK RATIOS

To accurately measure fund performance, it is necessary to have a point of comparison against which to evaluate returns. These comparison points are known as benchmarks.

There are several measures that can be applied to measure performance relative to a benchmark. These are three common ones:

3.1) Beta

Beta is called systematic risk and is a measure of a fund's returns relative to the returns on an index. A market or index being compared is assigned a beta of 1. A fund with a beta of 1.5, therefore, will tend to have a return of 1.5 percent for every 1 percent movement in the market/index. A fund with a beta of 0.5, on the other hand, will have a 0.5 percent return for every 1 percent return on the market.

Beta is an excellent measure of determining how much equity exposure — to a particular asset class — a fund has and allows an investor to determine if and/or how large an allocation to a fund is warranted. Beta can be measured relative to any benchmark index, including equity, fixed-income or hedge fund indexes, to reveal a fund's sensitivity to movements in the particular index. Most hedge funds calculate beta relative to the S&P 500 index, since they are selling their returns based on their relative insensitivity/correlation to the broader equity market.

3.2) Correlation

Correlation is very similar to beta in that it measures relative changes in returns. However, unlike beta, which assumes that the market drives the performance of a fund to some extent, correlation measures how related the returns of two funds might be. Diversification, for example, is based on the fact that different asset classes and investment strategies react differently to systematic factors.

Correlation is measured on a scale of -1 to +1, where -1 indicates a perfect negative correlation, zero indicates no apparent correlation at all, and +1 indicates a perfect positive correlation. Perfect negative correlation can be achieved by comparing the returns on a long S&P 500 position with a short S&P 500 position. Obviously, for every percent increase in one position there will be an equal percent decrease in the other.

The best use of correlation is to compare the correlation of each fund in a portfolio with each of the other funds in that portfolio. The lower the correlation these funds have to each other, the more likely the portfolio is well diversified.

However, an investor should be wary of too much diversification, as returns may be dramatically reduced.

3.3) Alpha

Many investors assume that alpha is the difference between the fund return and the benchmark return, but alpha actually considers the difference in returns relative to the amount of risk taken. In other words, if the returns are 25 percent better than the benchmark, but the risk taken was 40 percent greater than the benchmark, alpha would actually be negative.

Since this is what most hedge fund managers claim to add to returns, it's important to understand how to analyze it.

Alpha is calculated using the CAPM model: $\text{Expected Return} = \text{Risk-Free Rate} + \text{Beta} * (\text{Expected Return of the Market} - \text{Risk-Free Rate})$.

To calculate whether a hedge fund manager added alpha based on the risk taken, an investor can simply substitute the beta of the hedge fund into the above equation, which would result in an expected return on the hedge fund's performance. If the actual returns exceed the expected return, then the hedge fund manager added alpha based on the risk taken. If the actual return is lower than the expected return, then the hedge fund manager did not add alpha based on risk taken, even though the actual returns may have been higher than the relevant benchmark. Investors should want hedge fund managers who add alpha to returns with the risk they take, and who do not generate returns simply by taking additional risk.

IV. CONCLUSION

Performing quantitative analysis on hedge funds can be very time-consuming and challenging. However, this article has provided a brief description of additional metrics that add valuable information to the analysis. There is also a variety of other metrics that can be used, and even those discussed in this report may be more relevant for some hedge funds and less relevant for others.