

Hedge Funds & Listed Options

Portfolio Management Strategies

**Exploring ways
to hedge, monetize
and diversify a
portfolio by using
listed options.**

Hedge Funds & Listed Options: Portfolio Management Strategies

CBOE INVESTOR SERIES – PAPER NO. 5

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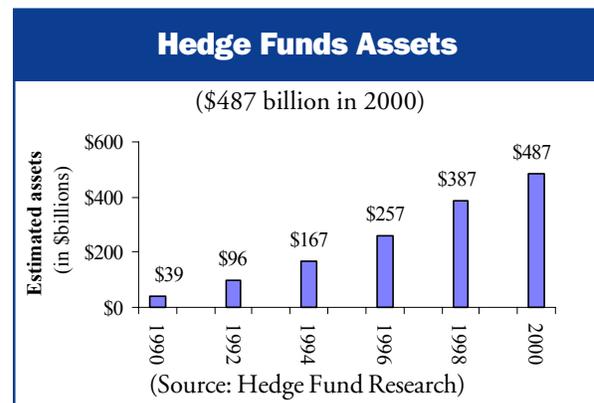
Introduction

A key feature of hedge funds lies in their high level of flexibility in the selection of investment, hedging and trading strategies. Equity and equity index options offer these funds many alternative ways to manage risks and implement views. This paper describes just a few of many potential strategies for hedge fund managers and presents an overview of associated regulatory issues.

Overview of Hedge Funds

Interest in investing in hedge funds grew tremendously in the 1990s, and estimates of the industry's size range from 3,200 to 5,500 separate funds, managing between \$150 billion and \$370 billion in assets (see the nearby graph).¹

The term "hedge fund" generally is used to refer to private investment pools open only to wealthy investors.² In the United States hedge funds usually are organized as limited partnerships. Reports indicate that the first "modern" hedge fund was launched in the late 1940s.³ Decades ago the primary



investors in hedge funds were the "international monied set," but in recent years allocations to hedge funds have been made by colleges, universities, foundations, and pension funds.⁴

In the 1950s and 1960s hedge funds offered a novel approach to investing in that many hedge funds (unlike registered mutual funds) engaged in the unrestricted short selling (or hedging) of securities positions. The term "hedge fund" is still used today even as the strategies and investment instruments used by these funds in recent years have broadened.⁵

¹ See Mitchell Pacelle, "Bull Market Has a Bumper Crop: Hedge Funds," *Wall Street Journal*, June 5, 1998, p. C1; Laura Jereski, "Investors Find Hedge Funds More Attractive," *Wall Street Journal*, Aug. 12, 1997, p. C1; Tim Middleton, "Grass Roots for Hedge Funds," *New York Times*, March 2, 1997; Anne Tergesen, "As Hedge Funds Grow, Their Walls Don't Look So High," *New York Times*, Nov. 2, 1997, p. 11; Joshua Ramo, "Hedge Funds – or, How the Rich Get Richer," *Time*, Sept. 1, 1997, p. 56; Bethany McLean, "Everybody's Going Hedge Funds," *Fortune*, June 8, 1988, p. 177. However, also see R. Clow and R. Atlas, "Wall Street and the Hedge Funds – What Went Wrong," *Institutional Investor*, Dec. 1998, p. 44.

² Ruth Simon, "What Are Hedge Funds, and Who Are They For?" *Wall Street Journal*, Sept. 30, 1998, p. C1.

³ Dyan Machan and Riva Atlas, "George Soros, Meet A.W. Jones," *Forbes*, Jan. 17, 1994, p. 42.

⁴ Laura Jereski, "Investors Find Hedge Funds More Attractive," *Wall Street Journal*, Aug. 12, 1997, p. C1; See also Laura Jereski, "A New Breed of Hedge Fund Is on the Prowl," *Wall Street Journal*, April 29, 1997, p. C1.

⁵ Thomas Schneeweis, "Dealing with the Myths of Hedge Fund Investment," *The Journal of Alternative Investments*, Winter 1998, p. 11; David McCarthy and Richard Spurgin, "A Review of Hedge Fund Performance Benchmarks," *Journal of Alternative Investments*, Summer 1998, p. 18.

Today's hedge funds do not necessarily engage in hedging, and often utilize a wide variety of trading strategies. Directories now offer numerous classifications for types of hedge funds,⁶ including:

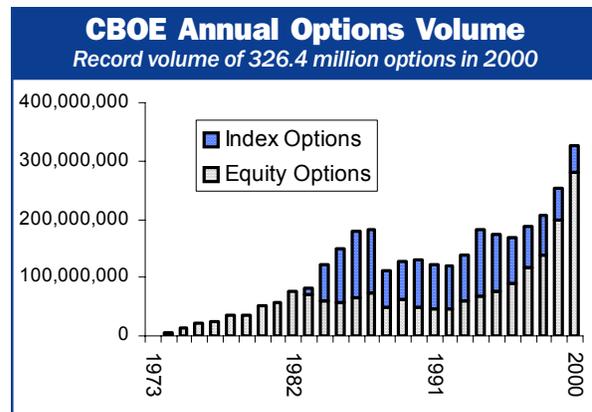
- Convertible arbitrage
- Distressed securities
- Emerging markets
- Equity hedge
- Equity market neutral
- Equity non-hedge
- Event-driven
- Fixed income
- Foreign exchange
- Macro
- Market timing
- Merger arbitrage
- Relative value arbitrage
- Sector
- Short selling

Listed options can assist hedge funds in pursuing many different types of strategies used by money managers under the above classifications.

The growth of hedge funds has been facilitated by a 1996 change to the U.S. securities laws that allows a hedge fund to exceed a 100-investor limit if the fund limits the types of investors to certain high-net-worth persons.⁷

Growth in Use of Listed Options

The equity and equity index options business also has seen tremendous growth in recent years, growth that attests to the increasing popularity of options for institutional investors as well as individual investors. For years, institutional investors have bought and sold equity and equity index options at the CBOE. In fact, according to a 1997 survey,⁸ 128 major pension fund money managers reported using options as part of their overall management strategy. These managers



and others have discovered that options may provide investment and risk management alternatives for the many types of portfolios they manage.

Portfolio Management Strategies

The examples in this paper are based on hypothetical situations and should only be considered as examples of potential strategies. They illustrate just a few of many strategies that may be useful for hedge fund managers. For the sake of simplicity, taxes, commissions, other transactions costs, dividends and tracking error (pertaining to index options) have been omitted from the examples that follow.

A. The Call Purchase

The purchase of call options enables hedge fund managers to obtain equity market exposure with a limited, pre-defined risk. An advantage of buying calls is that leverage can be controlled – market exposure can be more or less than the outright purchase of stocks.

⁶ See Hedge Fund Research, Inc., Money Manager Directory (1997); David McCarthy and Richard Spurgin, "A Review of Hedge Fund Performance Benchmarks," *Journal of Alternative Investments*, Summer 1998, p. 18.

⁷ In 1996 Section 3(c)(7) was added to the Investment Company Act. See the Legal and Regulatory overview near the end of this paper for more details. Several hedge funds are looking at the possibility of admitting an unlimited number of "qualified investors." Laura Jereski, "A New Breed of Hedge Fund Is on the Prowl," *Wall Street Journal*, April 29, 1997, p. C1.

⁸ *Pensions & Investments* (May 12, 1997), p. 27.

As an example, assume that in mid-March, stock XYZ is trading at 60 and the May expiration (2-month) 60-strike call on XYZ has a premium⁹ of 3. A manager who purchases these calls has, for each call, the right to purchase 100 shares of XYZ at the price of 60. This right exists until the option expires in 2 months, or until the manager sells the option in the open market.

Table 1 contains an analysis of potential profits or losses at expiration. If XYZ is below 60, the strike price, the call will have no value and expire worthless. In this case, the loss is the premium of 3 (or \$300 per contract purchased).⁹ Note that this is the maximum risk since the call contains the right to purchase stock at 60, but not the obligation to do so.

If XYZ is above 60 at expiration, the manager may exercise¹⁰ the right to buy the stock at 60. The manager would have a net profit, before commissions, if the price of XYZ is higher than 63, the breakeven point (the 60 strike plus the 3 premium). In this case, the manager retains upside potential of the stock.

Stock at Expiration	Initial Cost of Call	Expiration Value of Call	Profit (Loss) on Call
70	(3)	+ 10	+ 7
65	(3)	+ 5	+ 2
63	(3)	+ 3	+ 0
60	(3)	0	(3)
55	(3)	0	(3)
50	(3)	0	(3)

The manager may purchase these options as a conservative investment or as a more speculative venture, depending on the amount of leverage incorporated. For example, notice that \$60,000 could purchase 1,000 shares of stock at \$60 per share. A leveraged, speculative alternative would be the purchase of 200 options for \$60,000 (at \$300 each). In this case, we compare 1,000 shares of actual stock on one hand to the right to buy 20,000 shares of stock on the other.

A non-leveraged, conservative alternative to the stock purchase would be to purchase 10 call options for \$3,000 (\$300 each) and place the remaining \$57,000 into interest-bearing “cash” instruments. Now we compare 1,000 shares of actual stock to holding cash and the right to buy 1,000 shares of stock. The call plus cash alternative involves lower downside risk (\$3,000 compared to \$60,000) and exposure to upside potential of the stock (less \$3,000).¹²

Table 2: Comparison Between Leveraged and Non-Leveraged Call Purchases

	Leveraged Call Purchase	Non-leveraged Call Purchase ¹³
Capital Required	\$60,000	\$60,000
Transaction	Purchase 200 calls at \$300 each	Purchase 10 calls at \$300 each and deposit \$57,000 into “cash” instruments
Stock Risk	\$60,000 (premium paid)	\$3,000 (premium paid)
Potential	Return on 20,000 shares, less \$60,000	Return on 1,000 shares, less \$3,000

⁹ “Premium” is the price of an option contract, determined in the competitive marketplace, which the option buyer pays to the seller for the rights conveyed by the option contract.

¹⁰ Each option contract represents 100 shares of stock, and the price per contract is 100 times the quoted price of the option.

¹¹ “Exercise” means to invoke the right under which the purchaser of an option may buy (in the case of a call) or sell (in the case of a put) the underlying security.

¹² Call options do not pay dividends, nor do they grant voting rights. The interest earned on the cash will reduce the risk and increase the potential return.

¹³ The table does not reflect interest earned on cash.

B. The Bull Call Spread

Hedge fund managers may consider bull call spreads to obtain equity market exposure with limited, pre-defined risk. Relative to the call purchase, this strategy may involve a lower breakeven point in exchange for limited upside potential.

A bull call spread involves the purchase of one call and the simultaneous sale of another call with the same expiration but a higher strike. This strategy requires a net out-of-pocket expense because the purchased call is more valuable.

Assume it's mid-March, stock XXX is trading at $72\frac{1}{2}$ and the June expiration (3-month) 70-strike call on XXX is trading at $5\frac{3}{4}$. In addition, the June 65-strike call is at $9\frac{1}{4}$ and the June 75-strike call is at $3\frac{1}{4}$. As an alternative to the purchase of one of these calls, consider the manager who purchases the 65-strike call and sells the 75-strike call. The manager's net out-of-pocket expense for the spread is 6 (not including commissions):

Premium paid for 65-strike call purchase	$9\frac{1}{4}$	or	\$925
Premium received from 75-strike call sale	$3\frac{1}{4}$	or	\$325
Net cost of spread is	6	or	\$600 ¹⁴

This strategy limits risk to the net premium paid, but also limits potential profits. This is because the manager has the right to buy stock at 65, but has the obligation to sell it at 75 (to the buyer of the 75-strike call). Table 3 shows potential profits or losses for various stock price levels at option expiration.

If, at expiration, XXX is below 65, both options expire without value and the manager incurs a maximum loss of 6 per spread or \$600. Between 65 and 75, the 75-strike call expires worthless but the 65-strike call has value. The position breaks even at 71 (the 65 strike plus net premium of 6). If XXX is above 75 at expiration, losses on the 75-strike call offset additional gains from the 65-strike call. The maximum profit on the spread is limited to 4.

The sold call position is considered "covered" because exercise of the purchased call position can fulfill obligations to deliver stock.¹⁵ However, this transaction requires a margin account and the net premium of 6 (not including commissions) paid up-front.

A bull call spread may outperform an outright call purchase if the underlying stock shows little upward movement. Table 4 compares the 65/75 call spread to the purchase of the 70-strike call at $5\frac{3}{4}$.

Table 3: Profit (Loss) on the Bull Call Spread

Stock at Expiration	Value of Purchased 65 Call	Value of Sold 75 Call	Net Value of Spread	Initial Cost of Spread	Profit (Loss) on Spread
80	+ 15	(5)	+ 10	(6)	+ 4
75	+ 10	0	+ 10	(6)	+ 4
$72\frac{1}{2}$	+ $7\frac{1}{2}$	0	+ $7\frac{1}{2}$	(6)	+ $1\frac{1}{2}$
70	+ 5	0	+ 5	(6)	(1)
65	0	0	0	(6)	(6)

¹⁴ Each option contract represents 100 shares of stock, and the price per contract is 100 times the quoted price of the option.

¹⁵ Purchased calls allow the purchase of stock, sold calls obligate the sale of stock.

Table 4: Comparison Between the Call Purchase and the Bull Call Spread		
Stock at Expiration	Profit (Loss) on 70 Call @ 5 ¾	Profit (Loss) on 65/75 Spread @ 6
80	+ 4 ¼	+ 4
75 ¾	+ 0	+ 4
75	(¾)	+ 4
72 ½*	(3 ¼)	+ 1 ½
71	(4 ¾)	+ 0
70	(5 ¾)	(1)
65	(5 ¾)	(6)
*Unchanged		

Note the similarity in downside exposure — risk 5 ¾ on the 70-strike call vs. 6 on the spread. However, also note some important differences. The 70-strike call outperforms if the stock rallies above approximately 80. In this case, the 65/75 call spread is limited in potential whereas the 70-strike call is not. The spread outperforms in more neutral markets, as evidenced by the lower breakeven point (71 on the spread vs. 75 ¾ on the 70-strike call). The fact that the spread profits when the stock is unchanged (whereas the 70-strike call does not) also shows outperformance in neutral markets.

C. The Protective Put

Purchasing put options permits a hedge fund manager to hedge equity market risk by limiting downside risk while retaining upside potential.

Protective puts are puts purchased against equity market holdings. Managers may buy puts on individual stocks, thereby obtaining the right to sell or “put” the stocks to a put seller in the case that the stock declines.

However, managers wishing to reduce the downside market risk of a portfolio of stocks may consider using index options.¹⁶ The Chicago Board Options Exchange lists options on over 40 different indexes, including options on the Dow Jones Industrial AverageSM (ticker symbol “DJX”) and the Standard & Poor’s 500 Stock Index[®] (ticker symbol “SPXTM”).

As an example, consider a manager with a stock portfolio roughly matching the composition of the SPX. The manager might consider options on this index to protect the portfolio, as opposed to options on individual stocks in the fund. Unlike options on individual stocks, exercise of index options does not result in the delivery of stock but results in a cash settlement.

Assume that the SPX index is currently at 1,000.00 and that the manager wants to establish a hedge to protect \$10 million of the fund’s value. The manager may determine the number of put option contracts to purchase by dividing the amount to be hedged (\$10,000,000) by the current SPX value (1,000 x \$100 or \$100,000)¹⁷, *i.e.* \$10,000,000/\$100,000 = 100.

Assume the manager purchases a 90-day 1,000 strike SPX put at 30. The total amount required for the purchase is \$300,000 (100 contracts x 30 premium x \$100 multiplier).

Table 5 contains an analysis of potential profits or losses under differing market conditions at expiration. In the case where the index falls, the protective puts limit the portfolio’s downside since gains from the purchased puts offset losses in the stock portfolio. However, we have assumed that the composition of the portfolio matches the composition of the index.

¹⁶ The use of index options to hedge equity market risk involves tracking error. This is the risk that the index does not move in tandem with the investor’s underlying exposure.

¹⁷ As with most listed index options, options on the SPX index have a \$100 multiplier.

Table 5: Profit (Loss) on The Protective Put

Range of Market Outcomes	S&P 500 Expiration Level	Value of Unprotected Portfolio	Profit (Loss) on Index Put Options	Profit (Loss) on Protected Portfolio	Value of Protected Portfolio
+20%	1,200	12,000,000	(300,000)	+1,700,000	11,700,000
+10%	1,100	11,000,000	(300,000)	+700,000	10,700,000
0%	1,000	10,000,000	(300,000)	(300,000)	9,700,000
-10%	900	9,000,000	+700,000	(300,000)	9,700,000
-20%	800	8,000,000	+1,700,000	(300,000)	9,700,000

To the extent that the index and the portfolio do not match, the portfolio may perform better or worse.

If the index rises, the puts have no value. However, the portfolio retains upside market exposure less the fixed cost of the puts. This strategy is a useful tool for maintaining stock market exposure through difficult periods.

Standardized Options vs. FLEX Options

Hedge funds considering the use of listed options may wish to consider both standardized options and FLEX options. Standardized options grant the holder of an option the right to buy or sell at a standardized exercise price for a standardized period of time. The Chicago Board Options Exchange introduced standardized exchange-listed options in 1973.

FLexible EXchange[®] (“FLEX[®]”) options were developed in 1993. FLEX[®] options allow the investor to select non-standardized contract terms, for such components as the exercise price, expiration date and style (e.g., American- vs. European-style). Like conventional options, FLEX options continue to provide the price discovery of competitive auction markets; a secondary market to offset or alter positions; an independent daily valuation of prices; and contract guarantees, with the virtual elimination of counterparty risk.¹⁸

Financial Integrity of Exchange-Listed Options

The Options Clearing Corporation (OCC) issues all CBOE options contracts. The OCC has a “AAA” credit rating from Standard & Poor’s. OCC provides market and systemic safety to the listed securities options markets in the U.S. As the issuer of exchange listed options, OCC in effect becomes the buyer to every clearing member representing a seller and the seller to every clearing member representing a buyer.

OCC’s role is supported by a three-tiered safeguard system. Qualifications for OCC membership are stringent to protect OCC and its clearing members. Each clearing member applicant is subject to a thorough initial assessment of its operational capability, the experience and competence of its personnel, and its financial condition in relation to predefined standards. After tough membership standards, OCC’s second line of defense against clearing member default is member margin deposits. OCC currently holds billions in aggregate clearing member margin deposits. The third line of defense is the clearing members’ contributions to the clearing fund. A member’s clearing fund deposit is based upon its options activity and is computed monthly. OCC’s clearing fund totals hundreds of millions of dollars.

¹⁸ For an example of how an institutional investor used index FLEX options, see Paul Barr, “UFCW Hedges to Lock in Gains,” *Pensions & Investments*, Dec. 8, 1997.

In addition to the OCC safeguards, the CBOE has adopted its own rules and regulations to better ensure a fair and orderly marketplace. Both the CBOE and the OCC operate under the jurisdiction of the SEC and are obliged to follow federal securities laws and regulations.

All brokerage firms conducting public options business must furnish options customers with the options disclosure document, *Characteristics and Risks of Standardized Options*. Firms are also obligated to establish each customer's suitability for options trading to ensure that all options recommendations made to customers are suitable in light of their investment objectives, financial situation and needs.

Registered representatives must pass a registration exam, the Series 7 exam, that tests their knowledge of the securities industry, options, federal law and regulations, and exchange rules. Branch office managers require more training, experience and must pass a more advanced exam, the Series 8 exam, concerning the supervision of brokers. Options advertising and educational material provided to customers must be prepared in compliance with certain rules and regulations before dissemination, and must be approved by the firm's Compliance Department and an options exchange (or other exchange or association having similar standards) of which the firm is a member.

Overview of Legal and Regulatory Issues Related to Hedge Funds

Following is a summary of some of the key legal and regulatory issues facing hedge funds.

No Additional SEC Registration as a Result of Options Trading

As noted below, most hedge funds seek to avoid registration with the SEC by relying on the "private offering" exemption provided by Regulation D under the Securities Act of 1933.¹⁹ These funds may trade listed options without registering with the SEC. For hedge funds currently registered with the SEC, the SEC does not require additional registration to begin trading listed options.²⁰

Launching a Hedge Fund — Exemptions from SEC Registration

People looking to start a hedge fund often ask the following three questions:

1. Must a Hedge Fund Offering Be Registered with a Federal or State Agency?

- Generally, federal and state securities laws require that securities be registered before they are sold, unless they qualify for exemption from registration.²¹ For tax reasons, most hedge funds choose to organize as limited partnerships, limited liability companies or business trusts. Their interests (or units) are considered securities. Therefore, unless an exemption from registration applies, a hedge fund would need to register its interests with the Securities and Exchange Commission before making an offering.

¹⁹ Regulation D, 17 C.F.R. §230.501-508.

²⁰ However, some hedge funds register with the SEC as broker-dealers in order to obtain certain margin benefits afforded only to broker-dealers. See, e.g., the Federal Reserve Board's Regulation T margin rules at 12 C.F.R. §220. However, these margin benefits should be weighed against the fact that registering as a broker-dealer will subject the hedge fund to on-going financial disclosure and SEC and exchange regulations.

²¹ Securities Act of 1933, 15 U.S.C. §77.

- The vast majority of hedge funds seek to avoid registration with the SEC by relying on the “private offering” exemption provided by Regulation D under the Securities Act of 1933.²² Regulation D offers three methods for structuring an offering that is exempt from registration. These are found in Rules 504, 505 and 506. All three prohibit general solicitations and general advertising.²³
- Most hedge funds use Rule 506 which places no ceiling on how much may be raised in the offering, or, to a lesser extent, Rule 505 which limits the offering to \$5 million. Both Rules permit an unlimited number of accredited (that is, high-net-worth) persons to invest, but restrict to 35 the number of nonaccredited investors able to participate in the offering.²⁴ The two Rules differ in that the sponsor of a Rule 506 offering must reasonably believe, before admitting a nonaccredited investor, that the investor has sufficient knowledge and experience in financial and business matters to be able to evaluate the merits and risks of the investment.²⁵ No such provision applies to Rule 505 offerings.
- With both Rule 505 and 506 offerings, the fund must provide nonaccredited investors with certain disclosures (usually in the form of a private offering memorandum) that describe the investment and the fund. Among this information is a description of the risks, a statement of the fees and expenses that the fund will incur, a description of the fund’s trading policies, an explanation of the material tax consequences of investing in the fund and details on how the offering is to be conducted and how the subscriptions obtained in the offering will be used.²⁶ Where sales are made only to accredited investors, no specific disclosures are required, but often the sponsor of the fund will prepare a private offering memorandum containing much of the same information needed when nonaccredited persons are solicited. In a private offering, there is no expectation that a secondary market for the interests will develop and, in fact, the resale of securities offered under Rules 505 and 506 is restricted.
- If a hedge fund claims an exemption from registration under Regulation D, then the fund must file a Form D with the SEC within 15 days after the initial closing of its offering.
- Form D inquires about the size of the offering, the costs involved and the status of purchasers as accredited and nonaccredited. Most states have adopted rules that operate like the Regulation D exemption and, of these, many also require the filing of the Form D. As a result of a federal law that went into effect in April 1997 (called the National Securities Market Improvement Act),²⁷ states may no longer require a filing of the Form D before the offering takes place. Also, they may not review the offering to decide whether it is fair or appropriate for their residents (called a “merit review test”). They may, however, continue to require the filing of the Form D and to collect a filing fee.²⁸

²² Regulation D, 17 C.F.R. §230.501-508.

²³ For a definition of these terms, please see Rule 502(c), 17 C.F.R. §230.502(c).

²⁴ The definition of accredited investor appears in Rule 501(a), 17 C.F.R. §230.501(a).

²⁵ Rule 506(b)(2)(ii), 17 C.F.R. §230.506(b)(2)(ii).

²⁶ Rule 502(b) sets forth the disclosure required for nonaccredited investors.

²⁷ Pub. L. No. 104-290; 110 Stat. 3416.

²⁸ Rules Implementing Amendments to the Investment Advisers Act of 1940. 17 CFR Parts 275 and 279. Release No. IA-1633. Final Rules.

2. How Does a Hedge Fund Qualify for Exemption from Registration as an Investment Company?

Exemption from federal registration as an investment company (that is, a mutual fund) is critical to hedge funds. With an exemption, they are not required to comply with the extensive disclosure, investment and other regulatory requirements imposed on registered investment companies. In this way, a hedge fund maintains its flexibility in portfolio composition, trading strategies and the amount of leverage used, among other things.

Hedge funds generally rely on one of two federal exemptions:

- **100-Person Restriction:** As a policy matter, Congress decided that investment companies having fewer than 100 investors, including, in limited partnerships, the general partner, were too small to warrant federal regulation. This policy was adopted in Section 3(c)(1) of the Investment Company Act.²⁹ The topic of counting investors is the subject of many and, in some cases, complicated rules and issues (for example, are a husband and wife treated as one investor; when does a limited partnership count as one; and when must each of its investors be counted separately?). Most recently, the treatment of limited partnerships has been simplified by an amendment to the law. An investment company purchasing interests in a second investment company may be counted as one investor if its investment represents 10% or less of the total of all investments in the second company.³⁰

- **Qualified Purchaser Restriction:** The National Securities Markets Improvement Act added a second exemption category for funds willing to limit their investors to high-net-worth persons (new Section 3(c)(7) of the Investment Company Act).³¹ In brief, the term “Qualified Purchasers” includes individuals and trusts having investments of not less than \$5 million and companies having investments of not less than \$25 million.³² A fund that restricts its investors to Qualified Purchasers may exceed the 100-person limitation imposed by Section 3(c)(1).³³

3. Must the Manager of a Hedge Fund Register as an Investment Adviser?

- The statutory definition of an “investment adviser” is someone who is engaged in the business of providing advice to others, or issuing reports or analyses, as to the value of, or the advisability of investing in, securities for compensation.³⁴ As with investment companies, Congress has decided that certain advisors are too small to warrant federal regulation. This level has been set at 15 clients. Specifically, an advisor having fewer than 15 clients during the prior 12 months who does not hold himself out to the public as an investment adviser and does not act as an investment adviser to a registered investment company is exempt from registration. Because the hedge fund is counted, in most cases, as one client of the adviser, many hedge fund advisers qualify for this exemption.³⁵

²⁹ 15 U.S.C. §8093(c)(1).

³⁰ 15 U.S.C. §80a3(c)(i).

³¹ Section 3(c)(1)(A) of the Investment Company Act of 1940.

³² “Qualified Purchaser” under Section 3(c)(7) includes individuals (including individuals holding a shared interest in the 3(c)(7) issuer with a spouse) if they have at least \$5 million in investments. Specified family-owned companies with not less than \$5 million in investments are also Qualified Purchasers. Certain trusts (in addition to those that would qualify as family-owned companies) for which investment decisions are made by a Qualified Purchaser, are themselves Qualified Purchasers, provided that the trust was established and funded by Qualified Purchasers. Any other person, acting for its own account or the account of other Qualified Purchasers, who in the aggregate owns and invests on a discretionary basis not less than \$25 million is also a Qualified Purchaser. 15 U.S.C. 80a-2(a)(51)(A).

³³ 15 U.S.C. §80a-3(c)(7).

³⁴ Section 202 of the Investment Advisers Act of 1940, 15 U.S.C. §80b-2.

³⁵ Section 203(b)(3) of the Investment Advisers Act of 1940. 15 U.S.C. §80b-3(b)(3). Section 203(b)(3)-1 provides a guide to “counting clients.” Each fund or limited partnership is usually considered one client if the limited partnership interests are securities and the general partner provides investment advice to the partnership based on the investment objectives of the partnership. Note that this determination is factual. It is made on a case-by-case basis. For purposes of this paper, we assume that the hedge fund proposes to trade options that are subject to SEC regulation and traded on the CBOE. This paper does not cover the types of trading that would require registration as a Commodity Trading Advisor with the Commodity Futures Trading Commission.

- To avoid dual registration at the federal and state level, the National Securities Markets Improvements Act imposed an asset-size test. If a hedge fund manager meets the definition of investment adviser, does not qualify for exemption under the 15-or-fewer clients provision, and has at least \$25 million of assets under management, he or she must register with the SEC. If, however, the hedge fund manager has less than the requisite \$25 million for federal registration, it must register with the state in which it has its primary place of business. There are exceptions to this rule.³⁶
- With federally-registered advisers, the states can still require the filing of a notice and payment of a filing fee. However, a state's regulatory commission cannot comment on the registration forms submitted at the federal level.³⁷

THIS PAPER IS INTENDED TO PRESENT AN OVERVIEW RATHER THAN A COMPREHENSIVE TREATMENT OF THE SUBJECT. IT IS NOT MEANT TO PROVIDE LEGAL ADVICE WITH RESPECT TO ANY SPECIFIC MATTER. PERSONS HAVING QUESTIONS SHOULD CONSULT WITH THEIR OWN LEGAL COUNSEL.

³⁶ For example, if the adviser's primary place of business is located in a state that has no rules for the registration of investment advisors, the federal rules will apply regardless of the size of the assets involved. There are four states which currently do not require registration of investment advisers: Iowa, Ohio, Wyoming and Colorado. The National Securities Markets Improvement Act has spurred efforts in three of these four states (Colorado, Iowa and Ohio) to adopt adviser laws. *State News*. Securities Regulation & Law Report. (Vol. 29, No. 26), June 27, 1997.

³⁷ Rules implementing Amendments to the Investment Advisers Act of 1940. 17 CFR Parts 275 and 279. Release No. IA-1633. Final Rules.

Appendix I: Glossary of Options Terms

American-style Option: An option contract that may be exercised at any time between the date of purchase and the expiration date. Most exchange-traded options are American-style.

Assignment: The receipt of an exercise notice by an option writer (seller) that obligates him to sell (in the case of a call) or purchase (in the case of a put) the underlying security at the specified strike price.

At-the-money: An option is at-the-money if the strike price of the option is equal to the market price of the underlying security.

Call: An option that gives the holder the right to buy an underlying instrument, such as a stock, a futures contract or an index value, at a specified price for a certain, fixed period of time.

Capped-style option: A capped option is an option with an established profit cap or cap price. The cap price is equal to the option's strike price plus a cap interval for a call option or the strike price minus a cap interval for a put option. A capped option is automatically exercised when the underlying security closes *at or above* the option's cap price (for a call) or *at or below* the option's cap price (for a put).

Class of options: Option contracts of the same type (call or put) and style (American, European or Capped) that cover the same underlying security.

Clearing Corporation (or Clearing House): The business entity through which transactions executed on the floor of an exchange are settled using a process of matching purchases and sales.

Clearing Member: A member firm of the Clearing Corporation.

Closing purchase: A transaction in which the purchaser's intention is to reduce or eliminate a short position in a given series of options.

Closing sale: A transaction in which the seller's intention is to reduce or eliminate a long position in a given series of options.

Collar: A contract providing for both a cap (ceiling) and floor (minimum).

Covered call option writing: A strategy in which one sells call options while simultaneously owning an equivalent position in the underlying security or strategy in which one sells put options and simultaneously is short an equivalent position in the underlying security.

Derivative security: A financial security whose value is determined in part from the value and characteristics of another security, the underlying security.

Equity options: Options on shares of an individual common stock.

European-style options: An option contract that may be exercised only during a specified period of time just prior to its expiration.

Exercise: To implement the right under which the holder of an option is entitled to buy (in the case of a call) or sell (in the case of a put) the underlying security.

Exercise price (*See Strike price*):

Exercise settlement amount: The difference between the exercise price of the option and the exercise settlement value of the index on the day an exercise notice is tendered, multiplied by the index multiplier.

Expiration cycle: An expiration cycle relates to the dates on which options on a particular underlying security expire. Options on a given underlying security, other than LEAPS®, will be assigned to one of three cycles, the January cycle, the February cycle or the March cycle.

Expiration date: Date on which an option and the right to exercise it, cease to exist.

Hedge: A conservative strategy used to limit investment loss by effecting a transaction which offsets an existing position.

Holder: The purchaser of an option.

In-the-money: A call option is in-the-money if the strike price is less than the market price of the underlying security. A put option is in-the-money if the strike price is greater than the market price of the underlying security.

Intrinsic value: The amount by which an option is in-the-money (see above definition).

LEAPS®: Long-term Equity Anticipation Securities, or LEAPS®, are long-term stock or index options. LEAPS®, like all options, are available in two types, calls and puts, with expiration dates up to three years in the future.

Long position: A position wherein an investor's interest in a particular series of options is as a net holder (i.e., the number of contracts bought exceeds the number of contracts sold).

Margin requirement (for options): The amount an uncovered (naked) option writer is required to deposit and maintain to cover a position. The margin requirement is calculated daily.

Opening purchase: A transaction in which the purchaser's intention is to create or increase a long position in a given series of options.

Opening sale: A transaction in which the seller's intention is to create or increase a short position in a given series of options.

Open interest: The number of outstanding options or futures contracts in the exchange market or in a particular class or series. Refers to unliquidated purchases or sales.

Option: The right, but not the obligation, to buy or sell an underlying instrument, such as a stock, a futures contract or an index value, at a specified price for a certain, fixed period of time.

Out-of-the-money: A call option is out-of-the-money if the strike price is greater than the market price of the underlying security. A put option is out-of-the-money if the strike price is less than the market price of the underlying security.

Premium: The price of an option contract, determined in the competitive marketplace, which the buyer of the option pays to the option writer for the rights conveyed by the option contract.

Put: An option contract that gives the holder the right to sell an underlying instrument, such as a stock, a futures contract or an index value, at a specified price for a certain, fixed period of time.

Secondary market: A market where orders may be entered for closing transactions through the purchase of previously sold options or the sale of previously purchased options.

Series: All option contracts of the same class that also have the same unit of trade, expiration date and strike price.

Short position: A position wherein a person's interest in a particular series of options is as a net writer (i.e., the number of contracts sold exceeds the number of contracts bought).

Strike price: The stated price per share for which the underlying security may be purchased (in the case of a call) or sold (in the case of a put) by the option holder upon exercise of the option contract.

Swap: A contractual agreement to exchange a stream of payments with a counterparty. The traditional **interest rate swap** is an exchange of fixed interest payments for floating rate payments. A generic **currency swap** is an agreement to exchange one currency for another at a forward exchange rate. The most common form of **equity swaps** involve a swap between the return on a stock index and a benchmark rate of interest; equity swap also can involve the exchange of returns on two different equity indices.

Time value: The portion of the option premium that is attributable to the amount of time remaining until the expiration of the option contract. Time value is whatever value the option has in addition to its intrinsic value.

Type: The classification of an option contract as either a put or a call.

Uncovered call writing: A short call option position in which the writer does not own an equivalent position in the underlying security represented by his option contracts.

Uncovered put writing: A short put option position in which the writer does not have a corresponding short position in the underlying security or has not deposited, in a cash account, cash or cash equivalents equal to the exercise value of the put.

Underlying security: The security subject to being purchased or sold upon exercise of the option contract.

Volatility: A measure of the fluctuation in the market price of the underlying security. Mathematically, volatility is the annualized standard deviation of daily price movements.

Writer: The seller of an option contract.

Appendix II: Information on FLEX

CBOE FLEX[®] OPTIONS QUICK REFERENCE SHEET

Overview of FLEX Options

FLEX Options (FLEXible EXchange[®] Options) are customizable options contracts traded at the Chicago Board Options Exchange and cleared by the Options Clearing Corporation. FLEX Options provide the ability to customize key contract terms including strike prices, exercise styles and expiration dates with the transparency, administrative ease and clearing guarantees of standard listed options.

Product Specifications

Index FLEX

Equity FLEX

	S&P 100 [®]	S&P 500 [®]	DJIA SM	Russell 2000 [®]	Nasdaq 100 [®]	
CONTRACT						More than 1,300 equities are eligible for Equity FLEX trading.
SYMBOLS	OEX[®]	SPXTM	DJX	RUT	NDXSM	Visit www.cboe.com for a current list of symbols.
Ticker						
Exercise	Open (OET)	Open (SET)	Open (DJS)	Open (RLS)	Open (NDS)	
Settlement Value	Close (OEX)	Close (SPX)	Close (DJX)	Close (RUT)	Close (NDX)	
EXPIRATION DATE	Up to 5 years from the trade date ; however, <u>not</u> the 3rd Friday of the month or two business days preceding or following that date.					Up to 5 years from the trade date ; however, <u>not</u> the 3rd Friday of the month or two business days preceding or following that date.
OPTION TYPE	Put or Call					Put or Call
EXERCISE STYLE	American or European					American or European
STRIKE PRICE	Index value, percent of index value or other methods					Stock price, percent of stock price or other methods
PREMIUM	Percentage of the level of the underlying index or specific dollar amount per contract or contingent on specified factors in other related markets					Percentage of the level of the underlying stock or specific dollar amount per contract
MINIMUM SIZE	Opening new series: \$10M underlying value Opening transaction in existing series: \$1M underlying value Closing transactions: \$1M underlying value or position balance					Opening new series: 250 contracts or \$1M underlying value Opening transaction in existing series: 100 contracts Closing transactions: 25 contracts or position balance
TRADING HOURS	9 a.m. to 3 p.m. Chicago Time					9 a.m. to 3 p.m. Chicago Time
POSITION LIMITS	OEX	SPX	DJX	RUT	NDX	No position limits
	No position limits			200,000 contracts on the same side of the market		
EXERCISE SETTLEMENT VALUE	All Index Flex options are cash-settled (U.S.\$) For American-style contracts, exercises tendered prior to the expiration date are settled against the closing value of the index on the day of the exercise.					Exercises result in delivery of stock.

Appendix III: Overview of CBOE Products

	S&P 100® Index	S&P 500® Index	Dow Jones Industrial Average SM	Russell 2000® Index	Nasdaq-100 Index®	CBOE trades options on the following: Equities & LEAPS® S&P 100 Index® LEAPS S&P 500 Index® LEAPS S&P 500 Index Long-Dated Options FLEX® Options <i>Equity FLEX</i> <i>Index FLEX</i> Dow Jones Industrial Average SM (DJX) & LEAPS The Dow 10 Index SM (MUT) Dow Jones Internet Commerce Index SM (ECM) Dow Jones REIT Index (DJR) Dow Jones Transportation Average SM & LEAPS Dow Jones Utility Average SM & LEAPS Morgan Stanley Multinational Company Index SM Russell 2000® Index & LEAPS S&P 500/BARRA Growth Index S&P 500/BARRA Value Index S&P SmallCap 600 Index Latin 15 Index TM Index CBOE Mexico Index & LEAPS Nikkei 300® Index & LEAPS NYSE Composite Index® CBOE Automotive Index CBOE Computer Software Index CBOE Gaming Index CBOE Gold Index CBOE Internet Index & LEAPS CBOE Oil Index & LEAPS CBOE Technology Index & LEAPS GSTI TM Composite Index GSTI Hardware Index GSTI Internet Index GSTI Multimedia Networking Index GSTI Semiconductor Index GSTI Services Index GSTI Software Index S&P® Banks Index S&P Chemical Index S&P Health Care Index S&P Insurance Index S&P Retail Index Options S&P Transportation Index Interest Rate Options & LEAPS																			
Symbol	OEX® (OEW and OEZ are used for additional series)	SPX TM (SPB, SPQ, SPZ and SXB are used for additional series)	DJX	RUT (RUZ is used for additional series)	NDX SM (NDU and NDZ are used for additional series)																				
Underlying	Capitalization-weighted index of 100 stocks	Capitalization-weighted index of 500 stocks	Price-weighted index of 30 stocks. Options are based on 1/100th of the DJIA level	Capitalization-weighted index of 2000 stocks	Modified capitalization-weighted index of 100 stocks																				
Multiplier	\$100																								
Exercise Style	American	European	European	European	European																				
Expiration Months	4 near-term months plus 1 additional month from the March quarterly cycle	3 near-term months plus 3 additional months from the March quarterly cycle	3 near-term months plus 3 additional months from the March quarterly cycle	Up to 3 near-term months plus 3 additional months from the March quarterly cycle	Up to 3 near-term months plus 3 additional months from the March quarterly cycle																				
2000 Average Daily Volume	61,530	87,286	14,933	2,998	9,172																				
2000 Year-End Open Interest	170,183	1,365,342	223,569	21,489	68,108																				
Trading Hours	Generally 8:30 a.m. - 3:15 p.m. Chicago time. In 2001, the CBOE plans to begin trading certain index options in a pre-opening extended hours session on the CBOEdirect screen-based trading system.																								
<p align="center">CBOE Annual Options Volume Record volume of 326.4 million options in 2000</p> <p>The chart displays the annual volume of options traded on the CBOE from 1973 to 2000. The Y-axis represents the number of options, ranging from 0 to 400,000,000. The X-axis represents the years. The bars are stacked, with Equity Options (black) at the bottom and Index Options (blue) on top. The total volume shows a consistent upward trend, with a major peak in 2000 where the total volume exceeded 300 million options.</p> <table border="1"> <caption>Estimated Annual Options Volume (in millions)</caption> <thead> <tr> <th>Year</th> <th>Equity Options</th> <th>Index Options</th> <th>Total</th> </tr> </thead> <tbody> <tr><td>1973</td><td>~10</td><td>~0</td><td>~10</td></tr> <tr><td>1982</td><td>~50</td><td>~0</td><td>~50</td></tr> <tr><td>1991</td><td>~100</td><td>~0</td><td>~100</td></tr> <tr><td>2000</td><td>~150</td><td>~180</td><td>~330</td></tr> </tbody> </table>						Year	Equity Options	Index Options	Total	1973	~10	~0	~10	1982	~50	~0	~50	1991	~100	~0	~100	2000	~150	~180	~330
Year	Equity Options	Index Options	Total																						
1973	~10	~0	~10																						
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2000	~150	~180	~330																						
www.cboe.com institutional@cboe.com																									

Options are not suitable for every investor. For more information consult your investment advisor. Prior to buying and selling options, a person must receive a copy of *Characteristics and Risks of Standardized Options* which is available from The Options Clearing Corporation (OCC) by calling 1-800-OPTIONS, or by writing to the OCC at 440 S. LaSalle, Suite 2400, Chicago, Illinois 60605.

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400 S. LaSalle Street
Chicago, IL 60605
1-877-THE CBOE
www.cboe.com