

15.433 INVESTMENTS

Class 21: Hedge Funds

Spring 2003

The Beginning of Hedge Funds

In 1949, Alfred Jones established the first hedge fund in the U.S.

At its beginning, the defining characteristic of a hedge fund was that it hedged against the likelihood of a declining market.

Two speculative tools were merged into a conservative form of investing:

1. leverage was used to obtain higher profits.
2. short selling was employed to hedge against the downside risk.

By combining long and short positions, Jones exploited the relative pricing of stocks, while minimizing his exposure to the overall market.

To align the manager/investor incentives, Jones employed performance based fee compensation. He also kept all of his own money in the fund.

A Little History of Hedge Funds

While mutual funds were the darlings of Wall Street in the 60's, Jones' hedge fund was outperforming the best mutual funds even after the 20% incentive fee deduction. The news of Jones' performance created excitement, and by 1968, approximately 200 hedge funds were in existence.

During the 60s bull market, many of the new hedge fund managers stopped hedging the downside risk, and went into the bear market of the early 70s with long, leveraged positions. Many were put out of business.

During the next decade, only a modest number of hedge funds were established.

Over the past 10 years, however, the number of funds has increased at an average rate of 25 74% per year.

Investment Flexibility

Hedge funds are largely unregulated. This lack of regulation permitted a hedge fund manager to employ leverage, to sell short, and to charge performance based fees, practices that normally were not available to regulated investors such as mutual funds.

A second differentiating characteristic was the amount of leverage employed. Hedge fund managers were able to leverage their portfolios through the use of futures, options, and repurchase agreements, as well as through more traditional sources of financing such as banks and brokerage firms.

While hedge funds came in all shapes and sizes, they tended to have one common trait: low correlation with the U.S. equity market.

Some Structural Details

The majority of the funds are organized as limited partnerships, allowing only 99 investors. General partners usually have a significant investment in the partnership.

Performance based compensation. Typically, 20% of net profits in addition to 1% management fee. Most performance fees are subject to a "high watermark," and some require a "hurdle rate."

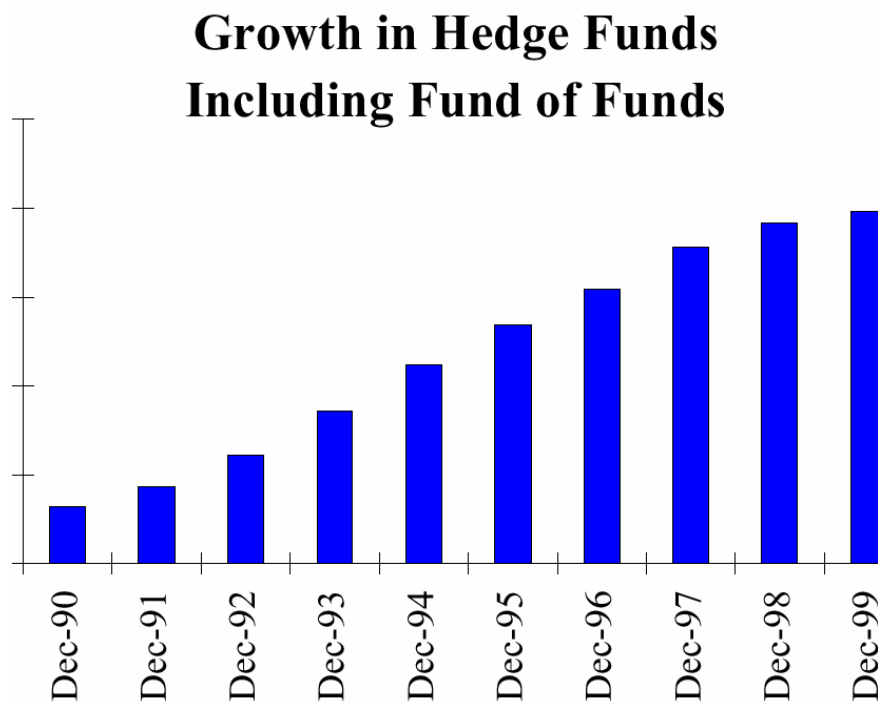
Restricted withdrawals. Typically, limited partners are allowed to withdraw only annually, and some had a "lock up" period as long as three years.

A culture of secrecy. Rarely are limited partners given a list of portfolio holdings.

Size and Location

According to a report by Tremont & TASS in 1999, there are 5,000 funds in the whole industry. However, over 90% of the \$325 billion under management in the industry is managed by some 2,600 funds.

Figure 3: Growth in Hedge Funds, Source: www.tassresearch.com



Location of hedge funds:

USA	33.9%
Cayman Islands	18.9%
British Virgin Islands	16.5%
Bermuda	11%
Bahamas	7.2%
Others	12.5%

Source: Tremont TASS (June 1999)

Domicile of Fund Managers

In U.S.: 91%

Outside U.S.: 9%

Source: Tremont TASS (June 1999)

A Taxonomy of Hedge Fund Strategies

Directional Trading: based on speculation of market direction in multiple asset classes. Both model based systems and subjective judgment are used to make trading decisions.

Relative Value: focus on spread relationships between pricing components of financial assets. Market risk is kept to a minimum. Many managers use leverage to enhance returns.

Specialist Credit: based on credit sensitive securities. Funds in this strategy conduct a high level of due diligence in order to identify relatively inexpensive securities.

Stock Selection: combine long and short positions, primary in equities, in order to exploit under and overvalued securities. Market exposure can vary substantially.

Low Correlation Among Hedge Fund

Hedge fund managers exhibit much lower correlation with one another than traditional active managers:

- Between 1990 and 2000, the average correlation among Lipper (mutual funds) managers has been on the order of 90%,
- while hedge fund managers resemble S&P 500 stocks have an average correlation on the order of 10%.
- for the universe of stocks, the average correlation is about 20%. The low average correlation among hedge fund managers suggests that pooling funds into portfolios or indices can significantly reduce their total risk, providing distinct advantages relative to traditional active strategies.

Effects of Age

Between 1990 and June 2000

Fund Age (year)	Annualized Return	Annualized Volatility	Sharpe Ratio
≤ 1	27.2%	6.1%	3.7
$1 \geq x \leq 2$	23.5%	5.9%	3.2
$2 \geq x \leq 3$	18.7%	5.5%	2.5
$3 \geq x \leq 5$	18.1%	5.2%	2.5
$x \geq 5$	14.7%	5.9%	1.6

Source: Morgan Stanley Dean Witter

The Rise of LTCM

The fund that LTCM managed had commenced operations with \$1 billion of capital in early 1994, and had subsequently raised an additional \$2 billion.

In September 1997, after three and half years of investment returns that far exceeded even the principals' expectations, the Fund's net capital stood at \$6.7 billion.

Since inception, the Fund's returns after fees had been 19.9% from February 24 through December 31, 1994, 42.8% in 1995, 40.8% in 1996, and 11.1% in 1997 through August.

These returns were achieved without exposure to the stock market. In many of its trades, the firm was in effect a seller of liquidity, diversified across many markets.

Some LTCM Trades

Convergence Trades on Swap Spreads

Yield Curve Relative Value Trades Butterfly Trades

Selling Equity Volatility

Risk Arbitrage

Equity Relative Value Trades on Royal Dutch/Shell

Fixed Rate Residential Mortgages

Japanese Government Bond Swap Spread

The Fall of LTCM

Following a successful 1997, LTCM began the year with about \$4.8 billion in capital, having just returned \$2.7 billion to out-side investors.

In May and June the Fund experienced its two worst months ever, with gross returns of 6.7% and 10.1% respectively. The losses were distributed across many positions, with no single trade experiencing a large loss. In response to the losses, LTCM reduced the risk of the portfolio. By July 21, the fund was up 7.5% on the month. But the month of August was a continuation of adverse movements, and by mid August, overall positions had been cut by an additional 5%.

On Monday, August 17, 1998, in an event that stunned the world, Russia defaulted on its government debt. LTCM had only a small exposure to Russian government credit, and the Fund suffered a correspondingly small loss in these positions.

Friday, August 21, was the worst day in the Fund's history, as many of the Fund's trades moved adversely and substantially:

1. During the morning, the U.S. swap spread widened by 19 bps, compared with a typical daily move of less than a basis point. The U.K. gilt swap spread also widened dramatically that day. The Fund had large short positions in both of these swap spreads.
2. LTCM suffered a significant loss in a risk arbitrage position related to the planned acquisition of telephone equipment maker Ciena Corp by Tellabs, Inc.

LTCM estimated that the combination of the risk arb loss and the unprecedented widening of the U.S. and U.K. swap spreads and other spreads had resulted in a one day loss of about \$553 million - 15% of its

capital.

The Fund was now down to \$2.95 billion, with a dangerously high leverage ratio of 42.

To reduce their risk, the partners would have to sell something. But what? Investors wanted only the safest bonds, which LTCM didn't have. August was the worst month ever recorded in credit spreads. Unlike the the ballooning spreads traditionally linked with an economic collapse, this one was caused by a panic on Wall Street.

In August, three quarters of all hedge funds lost money, and LTCM lost the most: \$1.9 billion, which was 45% of its capital.

Focus:

- Ross (1999) and Perrold (1999)
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Preparation for Next Class

Please read for next class:

- BKM Chapter 27,
- Chow and Kritzman (2001),
- Bernstein (1995), and
- Lewent and Kearney (1990).