A
Project Report

On

"Hedge Funds and Effects of Investment Technology in Hedge Funds''

Submitted to

G. S. College of Commerce & Economics, Nagpur

Affiliated to

Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

In partial fulfilment for the award of the degree of

Bachelor of Business Administration

Submitted by

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Under the Guidance of

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G.S. College Of Commerce & Economics, Nagpur

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CERTIFICATE

This is to certify that **"SHIVAM TAMRAKAR"** has submitted the project report titled **"HEDGE FUNDS AND EFFECTS OF INVESTMENT TECHNOLOGY ON HEDGE FUNDS'',** towards partial fulfilment of **BACHELOR OF BUSINESS ADMINISTRATION** degree examination. This has not been submitted for any other examination and does not form part of any other course undergone by the candidate. It is further certified that he has ingeniously completed his project as prescribed by Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur.

Prof. Ashima Varghese
(Project Guide)

Dr. Afsar Sheikh
(Co-ordinator)

Place: Nagpur
Date:

DECLARATION

I here-by declare that the project with title "HEDGE FUNDS AND EFFECTS OF INVESTMENT TECHNOLOGY IN HEDGE FUNDS'' has been completed by me in partial fulfilment of BACHELOR OF BUSINESS ADMINISTRATION degree examination as prescribed by Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur and this has not been submitted for any other examination and does not form the part of any other course undertaken by me.

Shivam Tamrakar

Place: Nagpur

Date:

ACKNOWLEDGEMENT

With immense pride and sense of gratitude, I take this golden opportunity to express my sincere regards to Mrs Swathi kathaley, Principal, G.S. College of Commerce & Economics, Nagpur.

I am extremely thankful to my Project Guide Prof. Ashima Varghese for her guideline throughout the project. I tender my sincere regards to Co-ordinator,Dr. Afsar Sheikh for giving me outstanding guidance, enthusiastic suggestions and invaluable encouragement which helped me in the completion of the project.

I would like to thank all those who helped me in making this project complete and successful.

Shivam Tamrakar

Place: Nagpur
Date:

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INTRODUCTION

Hedge Funds

1.1 Standard Definitions of a Hedge Fund

A hedge fund can be defined as an actively managed, pooled investment vehicle that is open to only a limited group of investors and whose performance is measured in absolute return units. However, this simple definition excludes some hedge funds and includes some funds that are clearly not hedge funds. There is no simple and all-encompassing definition. The nomenclature "hedge fund" provides insight into its original definition. To "hedge" is to lower overall risk by taking on an asset position that offsets an existing source of risk. For example, an investor holding a large position in foreign equities can hedge the portfolio's currency risk by going short currency futures. A trader with a large inventory position in an individual stock can hedge the market component of the stock's risk by going short equity index futures. One might define a hedge fund as an information motivated fund that hedges away all or most sources of risk not related to the price-relevant information available for speculation1 .What we have just described is a "classic" hedge fund, but the operational composition of hedge funds has steadily evolved until it is now difficult to define a hedge fund based upon investment strategies alone. Hedge funds now vary widely in investing strategies, size, and other characteristics. Hedge fund managers are usually motivated to maximise absolute returns under any market condition. Most hedge fund managers receive asymmetric incentive fees based on positive absolute returns and are not measured against the performance of passive benchmarks that represent the overall market. Hedge fund management is fundamentally skill-based, relying on the talents of active investment management to exceed the returns of passive indexing.

Hedge fund managers have flexibility to choose from a wide range of investment techniques and assets, including long and short positions in stocks, bonds, and commodities. Leverage is commonly used (83% of funds) to magnify the effect of

investment decisions [Liang, 1999]. Fund managers may trade in foreign currencies and

derivatives (options or futures), and they may concentrate, rather then diversify, their investments in chosen countries or industry sectors. Hedge fund managers commonly invest their own money in the fund, which further aligns their personal motivation with that of outside investors. Some hedge funds do not hedge at all; they simply take advantage of the legal and compensatory structures of hedge funds to pursue desired trading strategies. In practice, a legal structure that avoids certain regulatory constraints remains a common thread that unites all hedge funds. Hence it is possible to use their legal status as an alternative means of defining a hedge fund.

1.2 The Legal Structures of Hedge Funds

Hedge funds are clearly recognisable by their legal structures. Many people think that hedge funds are completely unregulated, but it is more accurate to say that hedge funds are structured to take advantage of exemptions in regulations. Fung and Hsieh (1999) explain the justification for these exemptions is that the regulations are meant for the general public and that hedge funds are intended for well-informed, well-financed, private investors. The legal structure of hedge funds is intrinsic to their nature. Flexibility, opaqueness, and aggressive incentive compensation are fundamental to the highly speculative, information-motivated trading strategies of hedge funds. These features are in conflict with a highly regulated legal environment.

Hedge funds are almost always organised as limited partnerships or limited liability companies to provide pass-through tax treatment. The fund itself does not pay taxes on investment returns, but returns are passed through so that individual investors pay the taxes on their personal tax bills. (If the hedge fund were set up as a corporation, profits would be taxed twice.

In the USA, hedge funds usually seek exemptions from a number of SEC regulations. The Investment Company Act of 1940 contains disclosure and registration requirements and imposes limits on the use of investment techniques, such as leverage and diversification [Lhabitant, 2002]. The Investment Company Act was designed for mutual

funds, and it exempted funds with fewer than 100 investors. In 1996, it was amended so that more investors could participate, so long as each "qualified purchaser" was either an individual with at least $5 million in assets or an institutional investor with at least $25 million [President's Working Group, 1999].

Hedge funds usually seek exemption from the registration and disclosure requirements in the Securities Act of 1933, partly to prevent revealing proprietary trading strategies to competitors and partly to reduce the costs and effort of reporting. To obtain the exemption, hedge funds must agree to private placement, which restricts a fund from public solicitation (such as advertising) and limits the offer to 35 investors who do not meet minimum wealth requirements (such as a net worth of over $1 million, an annual income of over $200,000). The easiest way for hedge funds to meet this requirement is to restrict the offering to wealthy investors.

Some hedge fund managers also seek an exemption from the Investment Advisers Act of 1940, which requires hedge fund managers to register as investment advisers. For registered managers, a fund may only charge a performance-based incentive fee (which is typically the manager's main remuneration) if the fund is limited to high net-worth individuals. Some managers elect to register as investment advisers, because some

investors may feel greater reassurance, and the additional restrictions are not especially onerous [Lhabitant, 2002].

Hedge funds are usually more secretive than other pooled investment vehicles, such as mutual funds. A hedge fund manager may want to acquire her positions quietly, so as not to tip off other investors of her intentions. Or a fund manager may use proprietary trading models without wanting to reveal clues to her systematic approach. With so much flexibility and privacy conferred to managers, investors must heavily rely upon managers' judgement in investment selection, asset allocation, and risk management.

There is a fundamental conflict between the needs of hedge funds and the needs of regulators overseeing consumer investment products. Hedge funds need flexibility, secrecy, and strong performance incentives. Regulators of consumer financial products need to ensure reliability, full disclosure, and managerial conservatism. Removing hedge funds from the set of regulated consumer investment products, and then barring or restricting general consumer access to them, reconciles these conflicting objectives.

In 1949, Alfred Winslow Jones started an investment partnership that is regarded as the first hedge fund. Remarkably many of the ideas that he introduced over fifty years ago remain fundamental to today's hedge fund industry.

Jones structured his fund to be exempt from the SEC regulations described in the Investment Company Act of 1940. This enabled Jones' fund to use a wider variety of investment techniques, including short selling, leverage, and concentration (rather than diversification) of his portfolio.

Jones committed his own money in the partnership and based his remuneration as a performance incentive fee, 20% of profits. Both practices encourage interest alignment between manager and outside investor and continue to be used today by most hedge funds Jones pioneered combining shorting and leverage, techniques that generally increase risk, and used them to hedge against market movements and reduce his risk exposure. He considered himself to be an excellent stock picker, but a poor market timer, so he used a

market-neutral strategy of having equal long and short positions. Jones' long-short strategy rewarded exceptional stock selection and created a portfolio that reacted less to the vagaries of the overall market. He also used the capital made available from short selling as leverage to make additional investments.

In order to compare performance, risk, and other characteristics, it is helpful to categorise hedge funds by their investment strategies). Strategies may be designed to be market-neutral (very low correlation to the overall market) or directional (a "bet" anticipating a specific market movement). Selection decisions may be purely systematic (based upon computer models) or discretionary (ultimately based on a person). A hedge fund may pursue several strategies at the same time, internally allocating its assets proportionately across different strategies. As Schneeweis (1998) notes, some hedge fund strategies (for example, fixed income arbitrage) were previously the proprietary domain of investment banks and their trading desks. One driver for the growth of hedge funds is the application of investment bank trading desk strategies to private investment vehicles.

The classic long-short position is to choose two closely related securities, short the perceived overvalued one and long the undervalued one. For example, go long General Motors and short Ford Motors. This classic example has the greatest risk reduction since the two stocks are likely to have very similar market risk exposures. The pair-trade removes most of the market risk. Idiosyncratic risk remains, but it can be reduced with a portfolio of similar trades. Long-short portfolios are rarely completely market-neutral. They typically exhibit either a long bias or short bias, and so have a corresponding market exposure (positive or negative). They are also likely to be exposed to other market-wide sources of risk, such as style or industry risk factors.

Long-short hedge funds focus on security selection to achieve absolute returns, while decreasing market risk exposure by offsetting short and long positions. Compared to a long-only portfolio, short selling reduces correlation with the market, provides additional leverage, and allows the manager to take advantage of overvalued as well as undervalued securities. Derivatives may also be used for either hedging or leverage. Security selection decisions may incorporate industry long-short (such as buy technology and short natural resources) or regional long-short (such as buy Latin America and short Eastern Europe).

Situations for relative-value arbitrage often occur with illiquid assets, so there may be added liquidity risk. Gains on individual trades made be small, so leverage is often used with relative-value strategies to increase total returns.

Literature Review

Abstract

Literature review of Hedge Funds Performance Persistence.

By Michel Guirguis
Parental House

This paper examines in detail the literature review of hedge funds performance persistence. Hedge funds are also known as alternative investments that are suited to institutional investors or wealthy investors with significant experience and knowledge in investment. They are used to hedge different types of risk by using derivatives products. Hedge fund managers use call and put options, commodity futures, forward contracts, index, currency and fixed income options and futures to hedge credit risk, market risk, country risk, sector risk, company risk, interest rate risk and currency risk. They try to reduce risk, offset loses and positively increase the performance of the fund. They are not liquid as they use a lockup period for a certain period of time. They are used from wealthy investors that have a capital higher than 250,000 USD. In some cases the invested capital could be 1,000,000 USD or more than 10,000,000 USD.

Agarwal, and Naik, (2004), investigated six equity hedge funds strategies such as event arbitrage, restructuring, event driven, relative value arbitrage, convertible arbitrage and long/short equity. They used the Hedge Fund Research, (HFR) database and the CSFB/Tremont indexes. The data used consisted of monthly returns from January 1990 to June 2000 for the HFR indexes and from January 1994 to June 2000 for the CSFB/Tremont indexes. They used for the risk and return analysis at the money and out of money European call and put options that are traded on the S&P 500 index. They tested for long-term performance by regressing

hedge fund index return on size, market, value, momentum and options. They found that long-term returns are smaller and long-term volatilities are higher. Hedge funds returns for the current period are better than the long-term performance. Ammann, Huber, Schmid,(2010), examined hedge fund performance persistence from the period 6 to 36 months. The database that they have used was the Lipper/TASS and CISDM databases from 1994 to 2008. The database included both alive and "dead" funds to avoid survivorship and backfill bias. The methodology that they have used was a panel probit regression. They wanted to test the effect of fund characteristics on performance persistence. They investigated for performance persistence by using twoway sorted portfolios based on performance and fund characteristics. The fund characteristics that they included in their analysis is fund size, fund age, relative fund flows, a dummy variable whether the fund is closed to new investments, the length of the notice and the length of the redemption period, management and incentive fees, leverage, and a dummy variable for whether the fund management is personally invested in the fund. In addition, they used a 'Strategy Distinctiveness Index' (SDI) as proposed by Wang and Zheng (2008). The results from the probit regression indicate that all the fund characteristics are significantly related to observing performance persistence.

Getmansky, (2004), tested the life cycles of hedge funds. She used the TASS database supplied by the Tremont Company. She tested how net flows into individual funds are affected by historic performance, recent performance, historic flows, age, past standard deviation of returns, category fund, and past assets. Increase by 10% in a current return increases fund flow by 2%. Hedge funds that use directional strategies are directly affected by past returns. In contrast, market neutral and event driven hedge funds are less affected by past returns. The association of current returns and current flows is positive and significant with a coefficient of 0.234. Historic flows positively affect current flows with a coefficient

of 0.048. However, historic size and age negatively affect the future flows with coefficients of -0.041 and -0.001. The historic standard deviation of returns negatively influences quarterly flows with a coefficient of -0.002. The annual attrition rate averaged 7.10% between 1994-2002. She focused on the industry and fund specific factors that affect the survival probability of hedge funds. She found that hedge funds liquidate decrease as the investor's focus on the individual performance return. In contrast, if investors focused on a category of hedge funds that performed well, then, the probability of liquidation due to competition increases. In addition, she found a concave relationship between performance and assets under management. Optimal asset size can be found by examining past returns, fund flows, market impact, competition and favourable category positioning.Sun, Wang, and Zheng, (2018), used the Lipper TASS database to test for performance persistence among hedge funds. They found hedge fund persistence over weak markets but no persistence over strong markets. They constructed two performance measures RET_DOWN and RET_UP according to hedge funds returns. They found that funds in the highest RET_DOWN quintile outperform funds in the lowest quintile by approximately 7% in the consecutive year. The RET_DOWN performance measure can be used as a predictor of future fund performance over a period of 3 years. They tested for time varying predictability among hedge funds returns. Their performance methodology included the Fung–Hsieh, (2001), seven factor alpha, the appraisal ratio, and the Sharpe ratio. They found that funds with better RET_DOWN significantly outperform their peers in all performance measures over the next 3 months to 3 years. In contrast, funds with better RET_UP do not outperform. They found that winners in down markets repeat themselves.

Titman and Tiu (2008), used six different databases during the period January 1994 to December 2005. The sample was free of survivorship and backfill bias. They found that funds with low R -squares have high Sharpe ratios, alphas and higher returns. Funds with low R – squares quartile produce better results on average than funds with high R-squares quartile. Larger funds showed improved Sharpe ratios but not better raw returns. Funds with more than a year lockup period show future outperformance. They found performance persistence among hedge funds in Sharpe ratios over one year horizons.

Relevance of Study

Hedge Fund Databases and Analysis Tools

Not too long ago, finding hedge fund managers was a blend of skill, luck and networking. The primary method for discovering new hedge fund talent was word of mouth and extensive legwork, with at least one company even going so far as to go door to door in New York looking at nameplates to discover new talent. The first directory of hedge fund information was published in 1990 by Antoine Bernheim and contained information on 70 offshore funds. Other paper directories followed, and while they were an improvement over the existing methods for gathering hedge fund data, they still proved unwieldy, lacking any kind of apparatus for methodical hedge fund searches. Attempts to analyse the data involved retyping information into Excel™ or Quattro Pro™ spreadsheets and entering formulas for calculation and sorting. The first electronic platform was a MS-DOS programme built through an affiliation between MAR and Burlington Hall Asset Management. In 1996, Strategic Financial Solutions, LLC (SFS) recognised the need for a more comprehensive platform that could utilise input from virtually any commercial database. Today, SFS continues to offer multi-database analytic capabilities through its flagship PerTrac 2000 desktop software platform. Others, including InvestorForce and HedgeFund.net, offer single-database analysis via the Internet.

Since 1997, the electronic data market has grown exponentially. There are currently 12 major hedge fund databases available commercially either coupled with or downloadable into analytic packages. Although generally assumed to overlap substantially, a recent SFS study showed that when as many as nine of these databases were combined, each database still had between 100 and 400 unique funds. As a result, approximately 26% of hedge fund investors subscribe to two or more databases. By simply purchasing one or more of these databases and putting it into one of the web based or desktop software platforms gives investors instant access to thousands of funds, full statistical and qualitative searches, sophisticated

portfolio construction and asset allocation, peer and style analysis, Monte Carlo simulations and more.

Company	Web Site
Alternative Asset Center	www.aa-center.net
Altvest	www.altvest.com
Barclay's Global HedgeSource	www.barclaygrp.com
CISDM	www.umass.edu/som/cisdm/index.htm
Eurekahedge	www.eurekahedge.com
Hedge Fund Intelligence (Bank of Bermuda/AsiaHedge, InvestHedge and EuroHedge databases)	www.hedgefundintelligence.com
HedgeFund.net	www.hedgefund.net
Hedge Fund Research (HFR)	www.hfr.com
Morgan Stanley Capital International	www.msci.com/hedge
Tass/Tremont	www.tassresearch.com

Online Publication Resources

The increasing popularity of hedge fund investments has inspired a number of new publications devoted to covering the industry. Many of these publications, including Infovest21, HedgeWorld, HedgeFund.net, FundNexus, and Albourne Village provide up-to-the-minute hedge fund news delivered straight to your email in-box.

Investors can use hedge fund publications and web sites to supplement their due diligence process, find new funds, as well as research frauds and blow-ups. Managers can use the information to keep abreast of competitors, benchmarks and regulatory changes. They can also use the medium to announce new personnel, new funds, and asset milestones, which in turn can attract new investors.

The Future of Hedge Fund Technology

There are always new technologies on the horizon. For example, Fund Nexus is

attempting to change the way investors subscribe to funds by offering a platform with uniform subscription documents and direct electronic delivery to and confirmation by administrators. Several companies are building custom platforms for data collection that should further enhance the database landscape, and one company even is building a platform that will cross-check funds across databases to remove duplicate funds and may one day offer data verification to the major databases. There are also plans to rate hedge funds, much like Morningstar did for mutual funds. Indeed, with all of the advances made in past seven years and with grand plans for the future, the process of finding funds and investors can only continue to improve.

Objectives of Study

- To evaluate Key Elements of a Hedge Fund.
- To elaborate genesis and structure of Hedge Funds,
- To study Hedge Fund investment strategies.
- To understand investment strategies, market dimension and returns.

Need of the Study

- While the current market environment presents challenges for institutional investors, it also offers hedge funds alpha opportunities unseen for years. To maximise their return potential in this environment, hedge funds are investing in more data and further developing their tech stack to help scale their operations.
- "The macroeconomic environment with increasing interest rates, soaring inflation, heightened geopolitical tensions and uncertainty surrounding central bank policy has resulted in higher market volatility and more pronounced trends in asset prices," says Daniel Leveau (pictured), VP investor solutions, SigTech.
- After a decade of institutional investors primarily focusing on capturing market beta, the hunt for alpha has returned. Many investors have reduced their return expectations for the equity and fixed income markets, identifying the need to tap into additional sources of return to meet return targets. Here, many hedge fund strategies can play a central role.
- Indeed, these are ideal market conditions for hedge funds to generate alpha and underscore their worth. This has resulted in increased demand for unconstrained investment strategies in general and for macro strategies specifically. It has also highlighted how instrumental an investment manager's quant infrastructure is in the development and maintenance of an edge in alpha generation.
- Supporting this, Leveau points to the ongoing quantification of the hedge fund industry: "One of the most noticeable trends in the industry is discretionary managers embracing the use of new technological advancements to - congruent with most other industries - profit from the digitisation of key activities."

- In view of this, hedge funds are increasingly partnering with specialist third-party providers, enabling the funds to focus even more on their core activity of generating alpha. The constant development of new technologies makes it increasingly difficult and costly to sustain the internal construction and maintenance of research infrastructure.

Leveau remarks:

"We believe that there is going to be increased specialisation in the hedge fund industry, with a move away from hedge funds doing everything internally. Instead, the trend for outsourcing to third party specialist providers, to ensure managers gain access to the right technology and data to support their investment processes, will accelerate."

Limitations Of Study

- Researcher faced following limitations during the research

1. Lack of transparency: Many hedge funds are not required to disclose their investments or performance information, making it difficult to accurately assess their performance or risk.

2. Limited historical data: Hedge funds have been around for less than a century and therefore there is limited historical data available for analysis.

3. Selection bias: Hedge funds are often closed to new investors and only available to a select group of individuals, which can lead to selection bias in studies of hedge fund performance.

4. Complex strategies: Hedge funds often employ complex investment strategies, which can make it difficult to understand and analyse their reviewal statements and require efforts to Foreplay methods in the market corner.

Hypothesis

- H0 : Investment technology has an insignificant impact on market in Hedge Funds

- H1 : Investment technology has a significant impact on market in Hedge Funds

Research Methodology

Research Methodology is purely and simply basic frame work for astudy that guiders the collection of data and analysis of the data. Inthis paper we analyse Hedge Funds' Strategies and their Market.Firstly, we will introduce its Genesis and its Key Elements followed byits Legal Structure. Secondly, we will explain the main Hedge. fundInvestment Strategies alongside the logic behind their schemes., inthe last chapter of this paper, we will illustrate data collected fromvarious databases with the objective to Define Hedge funds and theirMarket Dimension under several indicators such as the Assets UnderManagement, the GeographicLocation, the Strategies and theReturns. Finally, the last section of this paper will include aBloomberg report on the latest performances of Hedge funds with the purpose to inform and allow the reader to make further observations concerning the current Hedge fund Market.

Primary Data sources

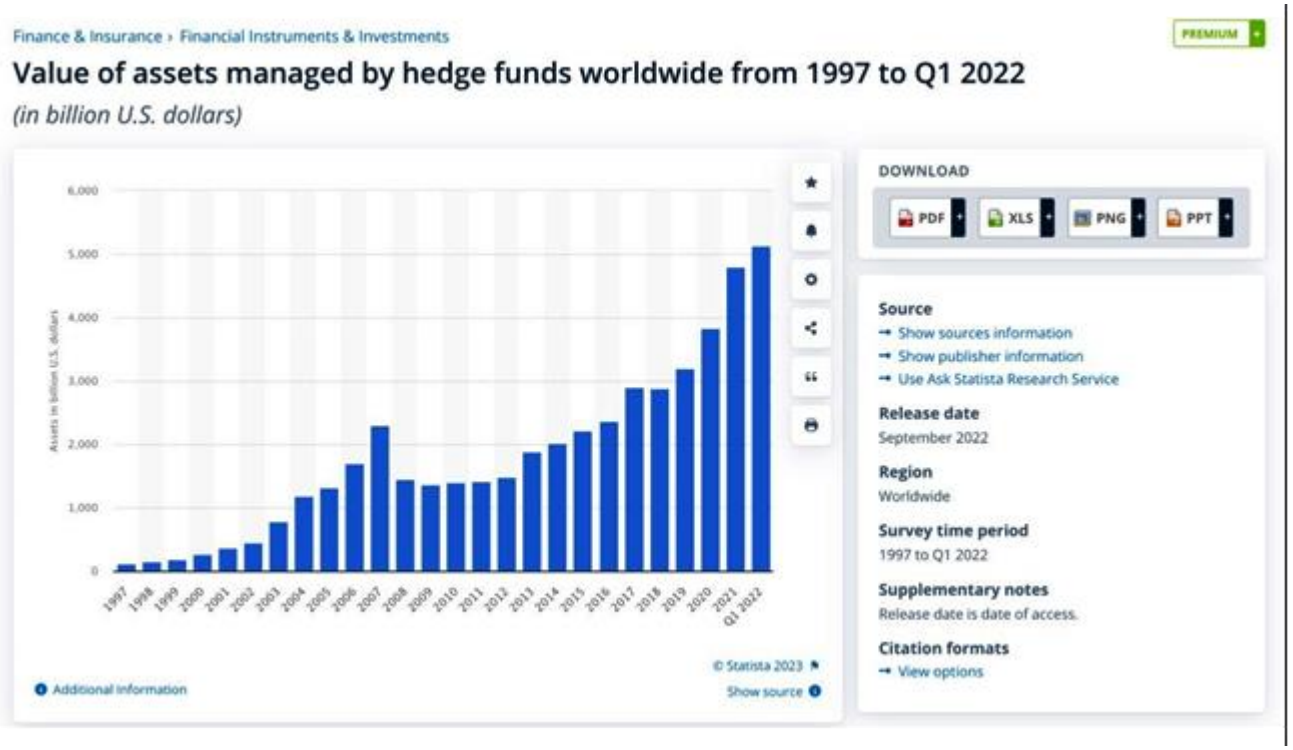
1. Transaction data/Consumer spending
2. Social Media & related sentiment data
3. App usage
4. Email receipt

Secondary Data Sources

1. Equity Funds
2. Directional Funds statement
3. Reports and statements of Hedge funds
4. Magazines, journals etc
5. Research papers

DATA ANALYSIS & INTERPRETATION

Value of assets managed by hedge funds worldwide from 1997 to Q1 2022

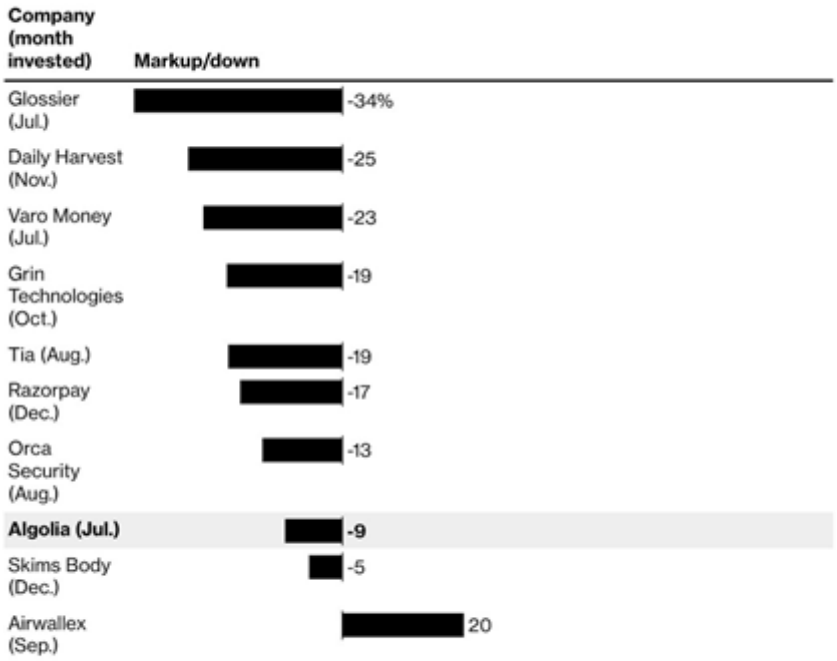


The hedge fund industry boomed in the 1990s, and value of assets managed by hedge funds worldwide grew steadily until 2007. The value fell markedly the following year because of the financial crisis and did not recover until 2013. In the first quarter of 2022, the value reached over 5.13 trillion U.S. dollars, and the largest share of the assets are managed by hedge fund managers in the United States.

Note: Month invested refers to month of initial investment and does not address any potential follow-on investments made into the same company. Lone Pine's percent change in marks are as of June 30, 2022.

A Hedge Fund's Venture Bets Slump

Lone Pine marked down many companies it backed in 2021



Note: Month invested refers to month of initial investment and does not address any potential follow-on investments made into the same company. Lone Pine's percent change in marks are as of June 30, 2022.

Source: Investor documents

By the end of September, Fidelity's markdown reached 43%. It's unclear whether or how much Lone Pine has since adiusted its valuation for the company. Spokespeople for that hedge fund and the four others declined to comment for this story.

Summary Statistics

The total sample comprises 53 hedge fund managers that existed prior to 1998 for which we have CDA/Spectrum data, and that satisfy the inclusion criteria described in the text. The number of managers in the first column refers to those with a valid 13F filing in the given quarter. Stock holdings per manager denotes the sum of the market value of all stocks held by the manager at the end of the quarter. Portfolio turnover is defined as the minimum of the absolute values of buys and sells during a quarter *t* divided by total holdings, where buys, sells, and holdings are measured with end-of-quarter *t*-1 prices. Means, medians, and cross-sectional semi-interquartile ranges (s.i.q.r., one-half the difference between the 75th and 25th percentile) for portfolio turnover are annualized.

Year	Qtr.	Number of Mgrs.	Stock Holdings per Manager			Number of Stocks per Manager			Portfolio Turnover			Stock Holdings
			Mean ($ mill)	Median ($ mill)	S.i.q.r. ($ mill)	Mean	Median	S.i.q.r.	Mean (ann.)	Median (ann.)	S.i.q.r. (ann.)	Aggregate ($ mill)
1998	1	35	1280	295	755	150	56	77				44,794
	2	42	1053	231	445	113	50	49	1.02	0.94	0.34	44,234
	3	42	728	145	364	71	44	30	0.83	0.57	0.40	30,594
	4	41	925	178	417	66	39	36	1.16	1.05	0.58	37,912
1999	1	39	1070	216	538	74	47	39	0.98	0.84	0.55	41,742
	2	42	995	211	382	75	48	38	1.12	1.12	0.50	41,807
	3	43	927	244	426	69	37	42	1.28	1.32	0.46	39,879
	4	44	1136	270	615	83	46	41	1.02	0.95	0.51	49,981
2000	1	43	1138	316	792	85	39	49	1.33	1.12	0.71	48,933
	2	44	772	246	383	67	37	41	1.19	0.99	0.75	33,988
	3	45	861	269	413	80	37	34	1.21	1.22	0.63	38,747
	4	48	812	190	427	100	45	37	1.06	0.77	0.70	38,989

Table II

Exposure of Hedge Funds to the Technology Segment: Two-factor Return Regressions

This table reports the results of time-series regressions of monthly hedge fund return indexes on R_M, the CRSP value-weighted NYSE/AMEX/Nasdaq market index, and $R_T - R_M$, the return on the Nasdaq high P/S portfolio minus the market return (the *TECH* factor).

$$R_t = \alpha + \beta R_{Mt} + \gamma (R_{Tt} - R_{Mt}) + \varepsilon_t$$

The sample period is April 1998 to December 2000. The *t*-statistics for coefficient estimates are in parentheses. We use β and γ estimates to compute w_T, the implied ratio of net investments in technology stocks to net investments in stocks overall, with delta-method standard errors (see, e.g., Campbell, Lo, and MacKinlay 1997, p. 540) reported in brackets. The dependent variable in Panel A is an equal-weighted index of five funds managed by the five largest managers in our sample. In Panel B left-hand variables are returns on HFR style indexes, classified by HFR as follows: *Equity Hedge* funds invest in core holding of long equities, hedged at all times with short sales of stocks and/or stock index options. *Equity Market Neutral* investing seeks to profit by exploiting pricing inefficiencies between related equity securities, neutralizing exposure to market risk by combining long and short positions. *Equity Non-Hedge* funds are predominately long equities, although they have the ability to hedge with short sales of stocks and/or stock index options. *Macro* involves investing by making leveraged bets on anticipated price movements of stock markets, interest rates, foreign exchange, and physical commodities. *Market Timing* involves switching into investments—mostly mutual funds and money markets—that appear to be beginning an uptrend and switching out of investments that appear to be starting a downtrend. *Short Sellers* specialize in short-selling securities. *Sector Technology* funds emphasize investment in securities of the technology arena. In Panel C, the dependent variable is the monthly return on the aggregate long positions of hedge funds, as reported in their 13F filings and analyzed in Figure 2.

Index	Factor Loadings			Implied Tech-Weight
	β	γ	adj. R^2	w_T
Panel A: Equal-weighted Index of Largest Funds in Our Sample (1998-2000)				
Large	0.42	0.17	0.56	0.49
	(3.51)	(2.51)		[0.08]
Panel B: HFR Hedge Fund Style Indexes (1998-2000)				
Equity-hedge	0.45	0.15	0.80	0.44
	(6.36)	(3.92)		[0.04]
Equity non-hedge	0.74	0.16	0.86	0.34
	(9.07)	(3.57)		[0.03]
Equity market-neutral	0.07	0.01	0.10	0.32
	(1.54)	(0.53)		[0.15]
Market timing	0.25	0.07	0.48	0.38
	(3.45)	(1.67)		[0.08]
Short-selling specialists	-1.00	-0.43	0.80	*
	(-5.93)	(-4.57)		
Macro	0.13	0.09	0.34	0.70
	(1.84)	(2.13)		[0.21]
Sector technology	0.71	0.57	0.86	0.84
	(5.29)	(7.62)		[0.08]
Panel C: Aggregate Long Portfolio (As in Figure 2)				
13F	1.13	0.29	0.89	0.37
	(9.97)	(4.49)		[0.03]

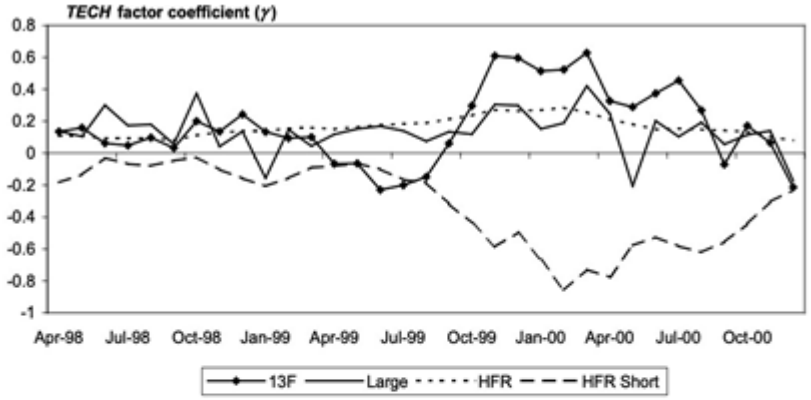


Figure 3. Exposure of hedge funds to the technology segment: Smoothed Kalman filter estimates. Time-series regressions of monthly hedge fund return indexes on R_M, the CRSP value-weighted NYSE/AMEX/Nasdaq market index, and the *TECH* factor, which is the return on the Nasdaq high P/S portfolio return R_T minus the market return, are run like in Table 2, but allowing for stochastically time-varying regression slopes, estimated via Kalman filtering and smoothing. Dependent variables are *13F*, the return on the portfolio of aggregate long holdings of all hedge funds from our 13F filings data; *Large*, an equal-weighted average of returns on five funds managed by the five largest managers in our sample; and *HFR*, which is an equal-weighted average across all HFR style indexes examined in Table 2, with the exception of short-selling specialists (*HFR Short*), which are considered separately. The figure shows the estimated coefficients (γ) on the *TECH* factor.

Figure 4a: Weight of technology stocks in hedge fund portfolio versus weight in marke portfolio.

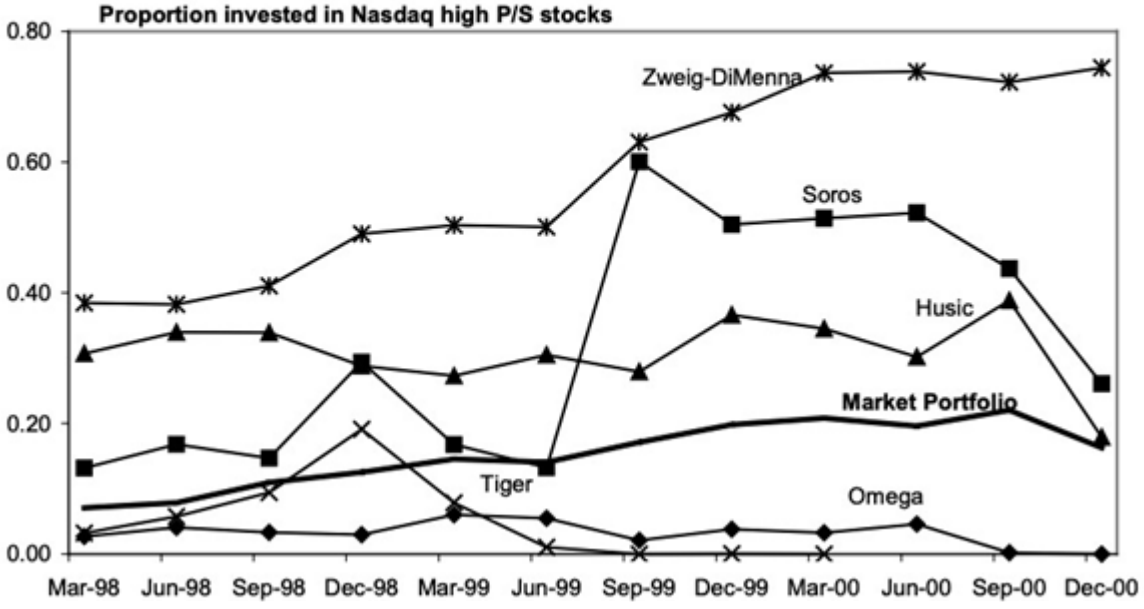


Figure 4b: Fund flows, 3-month moving average.

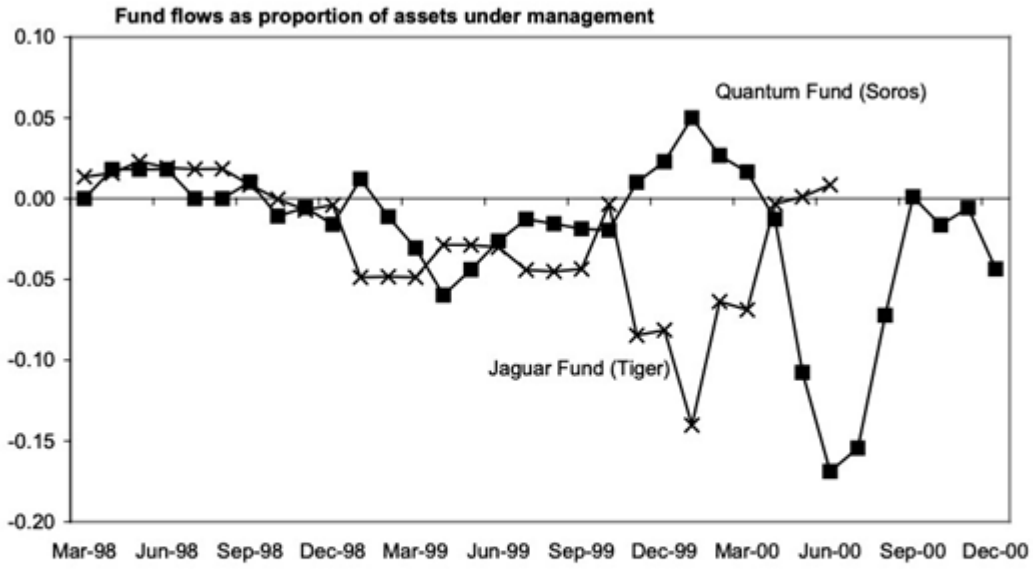
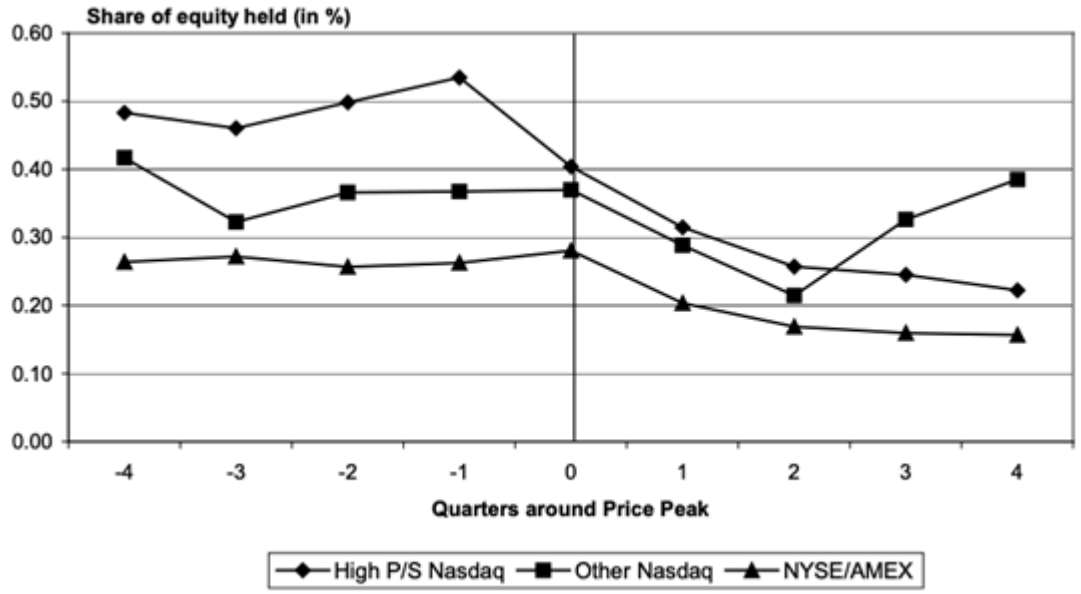


Figure 4. Investment in technology stocks and fund flows for individual hedge fund managers. For Figure 4a, we compute the end-of-quarter weight, in terms of market value, of high P/S quintile Nasdaq stocks in the overall stock portfolio of hedge funds, given their reported holdings on form 13F. For comparison, we also report the value-weight of high P/S stocks in the market portfolio (all stocks on CRSP). Results are shown for the five managers with the largest overall stock holdings in March 1998. Figure 4b



Interpretation

The efficient market hypothesis is based on the presumption that rational investors prevent price bubbles by trading against mispricing. In this paper, we study the behaviour of some of the most sophisticated investors during a bubble period. Specifically, we analyse stock holdings of hedge funds during the technology bubble, 1998 to 2000. We establish two main facts. First, hedge funds were riding the technology bubble, not attacking it. On average, hedge fund stock portfolios were heavily tilted towards technology stocks. This suggests that short-sales constraints, emphasised in recent work on the technology bubble (Ofek and Richardson 2003; Cochrane 2002), are not sufficient to explain the failure of rational speculative activity to contain the technology bubble. Short-sale constraints and arbitrage risks alone can rationalise reluctance to take short positions, but do not explain why sophisticated investors would buy into the overpriced technology sector. Second, on a stock-by-stock basis, hedge funds reduced their holdings before prices collapsed. Within the technology segment—and only there—they outperformed standard characteristics-matched benchmarks. This suggests that hedge fund managers understood that prices of these stocks would eventually deflate. Our findings are consistent with the view that the investor sentiment driving the technology bubble was predictable to some extent, and that hedge funds were exploiting this opportunity. Under these conditions, riding a price bubble for a while can be the optimal strategy for rational investors, as, for example, in Abreu and Brunnermeier (2003).

Recommendation And Suggestion

Recommendation

Hedge Funds Strategies	
Long-Short	The long/short strategy attempts to profit from both upside and downside price movements by taking long positions in relatively underpriced equities and short-selling stocks deemed overpriced.
Equity Market Neutral (EMN)	Equity market neutral (EMN) funds seek to offset the long positions in their portfolio with their short positions – i.e. portfolio beta of zero by pairing longs with shorts.
Short-Selling	Short-sellers specialize on capitalizing on opportunities where asset values are significantly overpriced or by uncovering catalysts such as accounting fraud or management malfeasance.
Event-Driven	Event-driven funds seek to capitalize on an anticipated event to soon occur with the potential to bring significant chances, which can range from regulatory changes to operational turnarounds.
Arbitrage	Arbitrage funds pursue pricing inefficiencies and temporary market mispricing to profit from the inconsistencies in the spread and uncertainty within investor sentiment.
Activist	Activist funs directly influence corporate decisions by vocally exerting their shareholder rights.
Global Macro	Global macro funds strive to profit from economic conditions and political landscape – especially around developments in economic policies, global events, regulatory policies, and foreign policies.

Suggestions

Hedge funds are alternative investments that use market opportunities to their advantage. These funds require a larger initial investment than many other types of investments and generally are accessible only to accredited investors. That's because hedge funds require far less regulation from the Securities and Exchange Commission (SEC) than others like mutual funds. Most hedge funds are illiquid, meaning investors need to keep their money invested for longer periods of time, and withdrawals are often limited to certain periods of time.

As such, they use different strategies so their investors can earn active returns. But potential hedge fund investors need to understand how these funds make money and how much risk they take on when they buy into this financial product. While no two hedge funds are identical, most generate their returns using one or more of several specific strategies that we've outlined below.

Conclusion

Hedge funds are an exciting innovation to the range of professionally managed investment vehicles. Hedge funds concentrate almost exclusively on the speculative role of investment management, that is, the attempt to outperform the market average by superior security valuation and successful trading strategies. Hedge funds are in a sense the opposite of index tracking funds, which simply try to earn the market average return with minimal management cost. Theoretically, one can view a traditionally managed active fund as a combination of a hedge fund and an index tracking fund. The index tracking fund is the "purely passive" component and the hedge fund is the "purely active" component of the traditional active fund.

Hedge funds offer very strong incentives for the portfolio manager by linking the manager's compensation tightly to the realised return of the fund. Hedge funds minimise information leakage and maximise flexibility by avoiding full disclosure and granting the manager very wide latitude in strategy and trading decisions.

These policies differ from those of the traditional fund, which must meet regulatory guidelines intended for protection of the investment public. Hedge funds restrict access to exempt investors only, in order to avoid these regulatory constraints.

Hedge funds confront the traditional fund sector with a strong challenge. They have attracted more attention and media interest than thetraditional sector, they have drawn heavily on the pool of talented fund managers due to their lucrative compensation packages, and they have attracted a very strong (but still proportionately small) flow of capital. There is also some evidence that hedge funds have outperformed on average in terms of their risk-reward profile, although this evidence is not yet conclusive. At a minimum, hedge funds have brought innovative investment strategies and a new sense of excitement to the investment community.

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Appendix

For hedge funds, few legal and regulatory guidelines exist to guide RI policy and practice. Managers need to consider other relevant codes and recommendations as well as best industry practices. List of ESG-related guidelines appropriate for hedge Funds:

List of ESG-related guidelines appropriate for hedge funds:

ORGANISATION	TITLE	KEY POINTS
Standards Board for Alternative Investments	SBAI The Alternative Investment Standards	Managers achieve conformity with the Standards on a "comply-or-explain" basis and make their disclosure statements available to existing and prospective investors upon request.
Alignment of Interests Association	AOI Hedge Fund Investing Principles	Best practices in relation to aligning the interests of managers and investors. The concepts outlined in this document are intended to serve as a basis for continued discussion between investors and their hedge fund managers.
International Organization of Securities Commission	IOSCO Principles For The Valuation Of Hedge Fund Portfolios	Principles for valuing the investment portfolios of hedge funds and the challenges that arise when valuing illiquid or complex financial instruments.

UN conventions and initiatives

- UN Global Compact
- The Universal Declaration of Human Rights
- ILO Declaration on Fundamental Principles and Rights at Work
- The Rio Conventions
- The UN Convention Against Corruption

Other intergovernmental organisations

- OECD Guidelines for Multinational Enterprises
- OECD Anti-Bribery Convention
- OECD Principles of Corporate Governance