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Who's Long?

Market-neutral versus Long/short Equity

Alexander M. Ineichen, CFA¹

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Please address all correspondence to:
Alexander Ineichen
UBS Warburg
1 Finsbury Avenue
London EC2M 2PP
United Kingdom
Tel.: +44-20-7568 4944
Fax: +44-20-7568 6457
Email: alexander.ineichen@ubsw.com

¹ Executive Director, Head of Equity Derivatives Research, UBS Warburg, London

Who's Long?

Market-neutral versus Long/short Equity

Market-neutral and long/short equity are different absolute-return strategies

Over the past few months we have observed that there are still misconceptions with regard to the difference between long/short and market-neutral strategies usually implemented by hedge funds. Some investors disagree with our view that long/short equity is not the same as market-neutral. In this article we attempt to clarify and shed some light on the subject. We – despite the debate – still believe that long/short equity and equity market-neutral is not the same strategy and we also believe that this view is the consensus view.

Market-neutral Means Beta-neutral

Traditionally market-neutral investing has been the domain of arbitrageurs, looking for small pricing discrepancies between financial instruments. The basic idea was to make a profit without being exposed to swings in the general market, ie, beta-neutral. The underlying philosophy is that the securities on each side of the transaction have a proven interrelationship. A profit is made when a trade is put on when there is a gap and the gap closes, ie, prices converge to fair value. It is trading pricing discrepancies ahead of this eventual convergence that offers the investment opportunity, independent of what the market may be doing.

Long/short is not a conversion play

Some equity long/short managers have borrowed the market-neutral brand to describe a strategy of taking a long position in one stock against a short position of a similar size in another, whether or not they are in the same sector. This type of investing, while it may be implemented with every conceivable effort taken to minimise volatility, represents nonetheless, two separate strategies.

There is no proscribed convergence at some future date that will ensure that the stocks' values match one another. Indeed in this kind of trade the short could rise indefinitely, resulting in theoretically unlimited losses. The stocks could also exhibit different volatility characteristics. Both stocks could fall or rise significantly together, or indeed inversely but not in the desired direction, thus magnifying losses.

MARKET NEUTRAL

We understand a market-neutral strategy to be neutral at all times, ie, beta is kept close to zero and the performance is attributed to stock-specific risk and not market timing. The managers normally hold a large number of long equity positions and an equal, or close to equal, dollar amount of offsetting short positions, for a total net exposure close to zero. According to Nicholas (2000) a zero net exposure, referred to as 'dollar neutrality,' is a common characteristic of all equity market neutral managers. Some, but not all, equity market-neutral managers extend the concept of neutrality to risk factors or characteristics such

as beta, sector, investment style and market capitalisation. Their goal is to generate consistent moderate returns in both up and down markets. In equity market-neutral we distinguish between fundamental arbitrage and statistical arbitrage.

Difference between Fundamental and Statistical Arbitrage

Fundamental as well as statistical arbitrage are market-neutral strategies.¹ The former buys and sells shares based on a fundamental view, whereas the latter uses quantitative models to create long and short portfolios. The factors in the quantitative models of the statistical arbitrageur are fundamental variables as well. The overlaying theme is most often mean-reversion.

Statistical arbitrage involves creating groups of stocks that are fundamentally similar in some aspect, and then trying to exploit anomalous, statistical relationships between stocks within each group. Most common among these relationships is the tendency of the valuations of similar stocks to revert to the mean of the group. Stocks with valuations above the mean of the group are sold short, and stocks with valuations below the mean are held long. The expectation is that both sides will eventually converge on the mean of the group.

The basic assumption behind mean reversion strategies is that anomalies among stock valuations may occur in the short term, but, in the long term, these anomalies will correct themselves as the market processes information. The

reason we like the term ‘statistical arbitrage’ for this particular strategy is because the mean reversion does not always work but by doing it over and over again in a disciplined fashion it should work more often than not. Statistical arbitrage always has been the underlying theme for insurance companies, casinos and, in the recent history of finance, financial intermediaries and hedge funds. An insurance company selling life or car insurance will not make money on every policy. However, if it gets the statistics right, the proceeds from the profitable policies will exceed the losses from the loss-making accounts. The same is true for a casino. It does not win with every spin of the wheel. However, most people familiar with statistics would prefer being in the position of the casino owner than in the position of the gambler.²

Nicholas (2000) finds many mean reversion managers use a relative value system to determine buy and sell decisions. Stocks sold short are usually added to the portfolio when their prices are sufficiently higher than the rest of the group. They are covered when their price drops back closer to the mean of the group. On the long side, stocks that are valued below a certain level are held long until they rise above the mean of the group. Other managers may have more absolute targets for stocks. How managers choose to set up their rules determines how much trading they do, how much turnover the portfolio experiences, and what their transaction costs are. Transaction costs and trade impact on market price are often included in mean reversion models, allowing

managers to forgo trade opportunities when the cost of completing the transaction is greater than the potential gain.

A key to success for any active manager is control of transaction costs. This requirement often leads hedge fund managers to recognise that too much money run by the strategy will generate adverse market impact. Some funds close for new money others increase the fee level or lengthen the redemption period.

Nicholas (2000) points out that as markets are everchanging, the factors that unified a group in the past may not always continue to do so. Statistical arbitrage managers must determine when and if to drop stocks from their groups and/or add new ones. For example, in the flight-to-quality situation of Q3 98, market capitalisation and credit quality became such powerful drivers in the market that they could confound formerly effective themes. If the goal is to create a model based on coherent groups with unifying themes, then keeping a model dynamic requires a certain level of vigilance. Deciding which factors are driving which groups, the essential component of model building, is a skill required of the individual manager.

We view pair trading as an example of fundamental arbitrage. In our view, a pair trade is more judgmental and involves qualitative aspects as well. A pair trade involves going long on a stock in a specific industry, and pairing that trade specifically with an equal-dollar-value short position in a stock in the

same industry. Philosophically, the strategy tries to insulate the portfolio from systemic moves in industries by being long in one stock and short in another. Profit is derived from the difference in price change between the two stocks, rather than from the direction in which each stock moves. A trade between different share categories of the same stock would be an extreme pair trade as market, industry as well as most of the company-specific risk is immunised. Recent examples of such pair trades included options where a conversion of one category was conditioned on the share price of the other. Other managers (long/short, event-driven) also put on pair trades.³

A further distinction between statistical and fundamental arbitrage is the human discretion the managers allow in their investment process. While statistical arbitrage is to a large extent model-based, the fundamental arbitrageur is essentially a stock-picker who wants to be market-neutral when he goes home in the evening. In a sense, the fundamental arbitrageur shares the goal of market neutrality with the statistical arbitrageur and the enjoyment and thrill of stock picking with the equity long/short manager.

<<< Table 1 around here >>>

Table 1 compares annual returns of market neutral and long/short hedge fund indices. HFR disaggregated its statistical arbitrage index from equity market-neutral in 1999 to more reflect the quantitative nature of this sub-strategy. The

most extreme difference between the statistical arbitrage sub-group and equity market-neutral was in 1999 where mean-reversion did not work as valuations kept climbing. However, the long-term annual return and risk characteristics are similar.

LONG / SHORT EQUITY

Long/short equity has volatility in its beta

Long/short equity has a variable beta, ie, can be neutral to the market, but also net long or net short. There is an element of market exposure. The mandate is more flexible, ie, more opportunistic. However, the managers in long/short equity are not a homogeneous group. Some have long biases, others are close to market-neutral or short or vary over time. The managers in the long/short equity sub-style, who are close to market-neutral are effectively pursuing a relative-value strategy and therefore are closer to the 'equity market neutral' camp. Hedge Fund Research (HFR), for example, has two indices for long/short equity. One category it calls equity non-hedge which has a long-bias and the second called equity hedge which is closer to market neutrality.

Difference between Equity Hedge and Non-hedge

Of all the hedge fund strategies, equity hedge strategies have the longest name lineage (Nicholas 1999). They are the typical long/short strategies. They are a direct descendent of A W Jones's original 'hedge' fund. However, as was the case in the initial hedge fund rush of the late 1960s, during the bull market of

the 1990s many practitioners have foregone the short exposure that was characteristic of the original funds. Thus, the long/short universe should be subdivided in two groups: equity hedge and equity non-hedge.

Equity hedge strategies combine core long holdings of equities with short sales of stock or stock index options. Their portfolios may be anywhere from net long to net short, depending on market conditions. They increase long exposure in bull markets and decrease it or even go net short in a bear market. The global equity market environment since March 2000 is a good showcase as many long/short managers reported above average cash positions, ie, having little exposure to the general swings of the equity market as a whole. We believe it is in markets as these where long/short excel when compared with their long-only peer group.

Generally, the short exposure is intended to generate an ongoing positive return in addition to acting as a hedge against a general stock market decline. In a rising market, equity hedge strategies expect their long holdings to appreciate more than the market and their short holdings to appreciate less than the market. Similarly, in a declining market, they expect their short holdings to fall more rapidly than the market falls and their long holdings to fall less rapidly than the market.

One of the great advantages of spread-related strategies such as long/short equity or equity market neutral strategies is the doubling of alpha. Although not entirely uncontroversial⁴, there is the argument that a long-only manager who is restricted from selling short only has the opportunity to generate alpha by buying or not buying stocks. A ‘not-only-long-manager’, however, can generate alpha by buying stock as well as selling stock short. Some market observers argue that this ‘double alpha’ argument is faulty because an active long-only manager can over- and underweight securities, which means he is short relative to benchmark when underweight. We do not share this view because we believe there is a difference between selling short and being underweight against a benchmark. Long/short strategies can capture more alpha per unit of risk. If a stock has a weight of 0.02% in the benchmark index, the possible opportunity to underweight is limited to 0.02% of the portfolio. We would even go as far as portraying short selling as a risk management discipline of its own.

PERFORMANCE COMPARISON

Although there are some reservations with respect to an upward bias of hedge fund indices,⁵ Figure 1 shows what it really means not to be ‘long and wrong’ when markets fall.

<<< Figure 1 around here >>>

One of the main differences between long/short equity and market neutral strategies is performance. Long/short equity has outperformed all major stock indices. We believe investing in long/short equity is similar to investing in equities in general. Correlation with equity is high. The difference between long-only and long/short is that the long/short industry, in the past, did not give back profits to the market when the market declined. Long/short equity might have a long-bias. However, the long-bias seems to be significantly reduced when markets fall. One long/short manager was once quoted saying ‘we were not hired to lose money.’⁶

Equity market-neutral did not outperform equity indices as the strategy is not designed to do so in one of financial history’s most stupendous bull phases. The main aim is generating positive returns in the low-teens regardless of direction of the market. In other words, it has appeal to investors who want to preserve wealth more than to investors who want to create wealth by taking more risk.

According to Nicholas (2000) equity market-neutral has grown from 1.7% in 1990 to over 10% in 1999 of all hedge funds. This compares with a growth in long/short equity from 6% in 1990 to 26% in 1999.

Table 2 shows difference between correlation with equity indices and among the four hedge fund strategies.

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Long/short equity has similar correlation coefficients as to stock market indices. In other words, correlation is high. Off-diagonal correlation of equity hedge and non-hedge is 0.59 and 0.63, respectively. This compares with 0.62 for S&P 500, 0.55 for MSCI World, and 0.61 for the Nasdaq Composite.

On the most general level of portfolio construction, market neutral strategies serve the purpose of reducing portfolio volatility due to its low volatility and correlation characteristics whereas long/short equity strategies should be viewed as ‘return-enhancers’ as opposed to ‘volatility-reducers’. Schneeweis and Spurgin (2000) distinguish between ‘risk reducer,’ ‘return enhancer,’ total diversifiers,’ and ‘pure diversifiers.’ The authors classified market neutral strategies as risk reducer and long-only and long-short hedge fund strategies as return enhancer.⁷

Figure 2 shows the rolling two-year total return and two-year rolling volatility for market neutral, equity hedge and equity non-hedge. The chart should, in our opinion, make it clear that market-neutral is a different strategy than long/short equity.

<<< Figure 2 around here >>>

An interesting observation is that the last few data points for two-year returns of both long/short equity indices are pointing downwards whereas rolling two-year returns are rising with market-neutral. This can not be explained by capacity constraints because new funds are flowing into both strategies. The explanatory factor, we believe, is correlation with equities in general. In addition, there is the suspicion that quality might be deteriorating as the barriers to entry have been torn down and institutional demand for hedge funds has started to materialize at an accelerating rate.

Many hedge fund strategies experience difficulties in dislocating markets as spreads widen and liquidity dries up. Figure 3 shows the three-month performance of the MSCI World and the three hedge fund strategies during the US rate rise in 1994, the Asian crisis in 1997, the Russian default crisis in 1998 and the recent Nasdaq fall.

<<< Figure 3 around here >>>

There are differences between market-neutral and long/short equity when markets dislocate. Market-neutral is not necessarily affected when the market dislocates – as the strategy name market-neutral would suggest.

Based on data from HFR, long/short equity with a long bias (equity non-hedge) seemed leveraged and long during the last two stress periods. This is an

indication that risk management philosophy and skill is a key determinant when picking a hedge fund manager involved in market timing.

Note that market-neutral and equity hedge outperformed the stock market in all four three-month periods of stress.

CONCLUSIONS

Market-neutral is not synonymous with long/short equity. From the managers' perspective, the primary risk factor in market-neutral strategies is stock specific risk. Long/short equity involves stock-specific risk as well as market timing.

However, the market exposure can be the result of a directional bet on the market or simply a portfolio tilt, ie, a mismatch between longs and short positions. From the investors perspective, market-neutral strategies reduce the return volatility of any portfolio combinations due to its low volatility and correlation characteristics. Long/short equity, in the past, has enhanced portfolio returns. At the most general level, we therefore view market-neutral strategies as 'volatility-reducers' and long/short equity as 'return enhancers.'

Appendix

LONG/SHORT CONTROVERSY

There is a controversy whether long/short or market-neutral strategies are advantageous when compared with long-only strategies. The main bones of contention are whether there are more inefficiencies on the short-side, whether there are diversification benefits, and whether there are efficiency gains. In the following table we summarise a selection of what we believe are the main papers on the subject. We have chosen ‘The Fundamental Law of Active Management’ (Grinold 1989) as an appropriate starting point.

Chronology of Long/Short Versus Long-only Debate

Grinold (1989)	Author showed that the information ratio depends on the strategy's information coefficient and its breadth where the information coefficient measures correlation between forecast and realisation (essentially skill) and where breadth measures the number of independent bets per year. The author basically showed that strategies earn high information ratios by applying forecasting edge many times over.
Michaud (1993)	<p>Short selling: Author observes that conventional active management involves de facto 'short selling', in the sense that the active strategy is short any assets that compose less of the portfolio than the benchmark.</p> <p>Alpha: Long/short strategies can capture more alpha per unit of residual risk, for portfolios with significant residual risk, than long-only strategies. Author makes the observation that, if the correlation between long-alpha and short-alpha approaches 1, a 'long-short strategy may not substantially improve upon the investment characteristics of a long portfolio.'</p> <p>Fixed costs and efficiency: Author cites the increased costs of long-short management as a serious impediment to successful long-short management.</p> <p>Suitability and correlation: 'given the current state of investment technology and implied levels of risk, the suitability of the strategy for long-term institutional investors is an open issue.'</p> <p>Portable alpha: not limited to long-short strategies.</p>
Arnott and Leinweber (1994)	<p>Short selling: Authors note that the long-only manager can only be underweight by the weight of the stock in the benchmark. Thus, long-only managers can take on a significant short position in only the largest holdings of the benchmark.</p> <p>Alpha: Authors criticise Michaud for failing to point out that the correlation between the long portfolio and the short portfolio will always be less than 1, and consequently, a long-short strategy will always improve upon the investment characteristics of a long portfolio, albeit often only slightly, as long as the long and the short alphas are positive.</p> <p>Fixed costs and efficiency: Authors regard Michauds' argument as irrelevant because they would apply identically to long-only management.</p> <p>Suitability and correlation: Authors point out that the returns from long-short strategies are,</p>

unlike long-only strategies, not highly correlated with core assets (such as stocks and bonds). The contribution of even an extremely risky long-short strategy to total portfolio risk may be small or negligible.

Portable alpha: Authors observed that alpha of long-only strategies is normally not ported. They regard this as probably the most significant unexploited opportunity in the institutional investment world to date.

Michaud (1994)

Short selling: 'Surely, they do not believe that I intended to mislead by not explicitly citing such an obvious point.' Author dismantles criticism by pointing to a footnote and unveiling a contradiction in Arnott and Leinweber (1994).

Alpha: Author argues that the long-short portfolio will not always improve the investment characteristics of a long portfolio even when correlation is less than 1. Long-short strategy entails additional costs and risks. When these are considered, improvement of the after-cost active return-risk ratio with respect to the long-only portfolio may be minimal or negative.

Fixed costs and efficiency: Author argues that the after-costs reward-to-residual-risk ratio is not superior for long-short strategies if one uses more realistic assumptions.

Suitability and correlation: 'Are they seriously claiming that long-short strategies are attractive because they have low correlation with stock and bond returns? Should institutional investors brace for a wave of managers touting lotteries, baseball cards, and postage stamps?'

Portable alpha: Author argues that the impact of alpha portability on the active risk-return trade-off is irrelevant because porting alpha does not alter the portfolio's relationship of active return to active risk.

Jacobs and Levy (1995)

Short selling: Authors argue that Michaud's formal analysis ignores the added 'flexibility' the long-short strategy offers over the long-only strategy. A properly constructed long-short portfolio can control risk by offsetting long and short positions; it does not have to hold neutral positions in order to control exposure to an arbitrary market index.

Alpha: The relaxation of index constraints in an integrated long-short portfolio provides added flexibility that translates into improved return and/or diminished risk vis-à-vis index-constrained long and short portfolios. Authors argue that Michaud (1993) concedes this by stating 'a long-short strategy may be less 'index-constrained' than a long-only portfolio.... Consequently, a long-short portfolio may enhance the impact of forecast information.'

Fixed costs and efficiency: Authors argue that whether the level of information the manager possesses is enough to justify the risks and costs of long-short investing, or active long investing, is an empirical question. While Michaud focuses on the many investors who do not possess sufficient information, the authors draw their attention to the few who do.

Suitability and correlation: Authors also raise some questions about Michaud's analytical framework, eg, integrated optimisation. With integrated optimisation, there are no separately measurable long and short alphas. And because long and short alphas are not separately measurable in an integrated long-short strategy, the correlation between long and short alphas is not a meaningful concept, hence cannot provide a meaningful gauge of the desirability of the strategy. What are meaningful are the extent and quality of the manager's information and the incremental costs associated with shorting.

Jacobs and Levy (1996)

Authors demystify long-short investing by commenting on 20 myths. Some demystification is drawn from Jacobs and Levy (1995). Other examples include:

Myth 16: Long-short management costs are high relative to long-only. Authors argue that if one considers management fees per dollar of securities positions, rather than per dollar capital, there is not much difference between long-short and long-only fees. To the extent that a long-only manager's fee is based on the total investment rather than just the active element, the long-only fee per active dollar managed may be much higher than that of a long-short manager.

Myth 18: Long-short portfolios are not prudent investments. The responsible use of long-short investment strategies is consistent with the prudence and diversification requirements of ERISA.

Myth 19: Shorting is 'un-American' and bad for the economy. As Bill Sharpe noted in his 1990 Nobel laureate address, precluding short sales can result in 'a diminution in the efficiency with which risk can be allocated in an economy... More fundamentally, overall welfare may be lower

	than it would be if the constraints on negative holdings could be reduced or removed.'
Jacobs and Levy (1997)	Authors calculate some practical examples of long-short strategies and filter in their justifying arguments for long-short strategies outlined in Jacobs and Levy (1996).
Brush (1997)	Abstract: Market-neutral long/short strategies get their returns from alphas and short rebates; long strategies get their returns from alpha and the market. Differing return and risk sources complicate their comparison, partly because of the strong market-referenced focus of conventional performance analysis. Compelling theoretical advantages of active return per unit of active risk suggests that long/short strategies are better able to deliver excess return than are conventional institutional long strategies. Long/short strategies, even with tiny positive alphas, are seen to improve investors' efficient frontiers when added to a traditional T-bill/long portfolio mix, mostly because their risk sources are uncorrelated. Surprisingly, the improvement occurs even if long/short strategies are Sharpe-ratio inferior to long strategies. These results provide theoretical support for including long/short strategies in most investors' mix of assets.
Freeman (1997)	An active managed portfolio is essentially a 'core' consisting of the benchmark index and an 'active' portfolio consisting of the differences between the benchmark index and the subject portfolio. To the extent that active managers charge their fees for all assets under management, the index core can be thought of as 'dead weight'.
Jacobs and Levy (1998)	Abstract: We consider the optimality of portfolios not subject to short-selling constraints and derive conditions that a universe of securities must satisfy for an optimal active portfolio to be dollar neutral or beta neutral. We find that following the common practice of constraining long-short portfolios to have zero net holdings or zero betas is generally suboptimal. Only under specific unlikely conditions will such constrained portfolios optimise an investor's utility function. We also derive precise formulas for optimally equitising and active long-short portfolio using exposure to a benchmark security. The relative sizes of the active and benchmark exposures depend on the investor's desired residual risk relative to the residual risk of a typical portfolio and on the expected risk-adjusted excess return of a minimum-variance active portfolio. We demonstrate that optimal portfolios demand the use of integrated optimisations.
Grinold and Kahn (2000)	Authors view short-side inefficiencies difficult to prove and highlight the issue of the high implementation costs. They view the diversification argument as misleading, or even incorrect. Authors focus on efficiency gain through loosening the long-only constraint. Abstract: We analysed the efficiency gains of long-short investing, where we defined efficiency as the information ratio of the implemented strategy (the optimal portfolio) relative to the intrinsic information ratio of the alphas. The efficiency advantage of long-short investing arises from the loosening of the (surprisingly important) long-only constraint. Long-short and long-only managers need to understand the impact of this significant constraint. Long-short implementations offer the most improvement over long-only implementations when the universe of assets is large, asset volatility is low, and the strategy has high active risk. The long-only constraint induces biases (particularly toward small stocks), limits the manager's ability to act on upside information by not allowing short positions that could finance long positions, and reduces the efficiency of traditional (high-risk) long-only strategies relative to enhanced index (low-risk) long-only strategies.

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Tables

Table 1: Yearly Returns of Market Neutral and Long/Short Equity

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	1990-2001*
MSCI World	-16.5	19.0	-4.7	23.1	5.6	21.3	14.0	16.2	24.8	25.3	-12.9	-9.9	8.4
Market neutral	15.5	15.6	8.7	11.1	2.7	16.3	14.2	13.6	8.3	10.8	14.6	3.5	11.7
Statistical arbitrage	11.2	17.8	10.8	12.6	4.7	14.2	19.6	19.4	10.1	-1.3	8.9	1.7	11.1
Equity hedge	14.4	40.1	21.3	27.9	2.6	31.0	21.8	23.4	16.0	46.1	9.1	1.4	21.5
Equity non-hedge	-7.2	57.1	22.8	27.4	5.1	34.8	25.5	17.6	9.8	41.8	-9.0	3.7	18.4

Source: HFR, Datastream

All returns are total returns in US\$, 2001 returns until June inclusive.

* Annualised annual return January 1990 - June 2001.

Table 2: Correlation Matrix

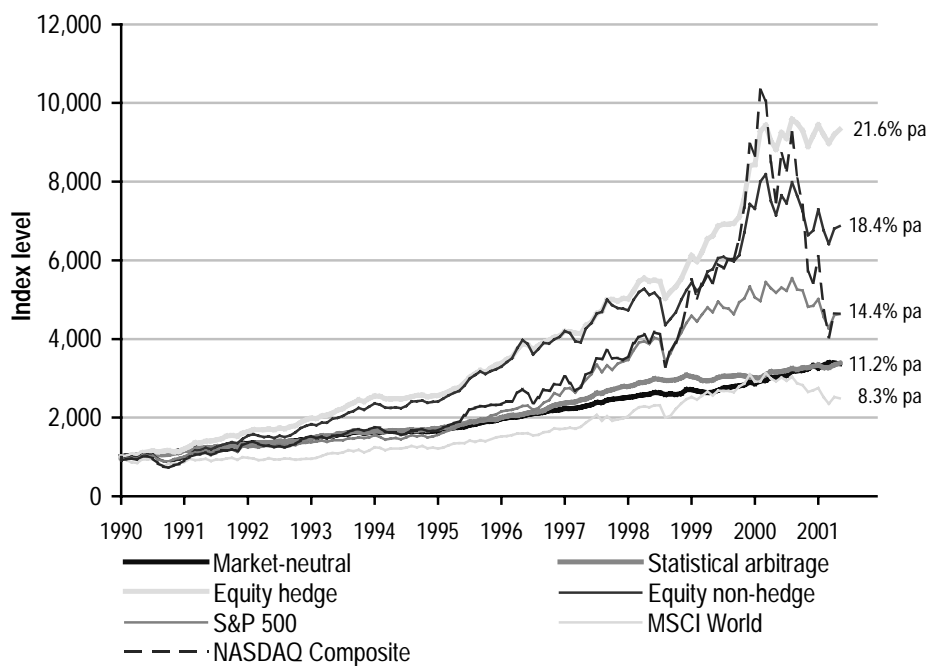
	S&P 500	MSCI World	NASDAQ Comp	Equity market- neutral	Statistical arbitrage	Equity hedge	Equity non- hedge
S&P 500	1						
MSCI World	.83	1					
NASDAQ Composite	.79	.68	1				
Equity market neutral	.15	.12	.15	1			
Statistical arbitrage	.53	.41	.31	.52	1		
Equity hedge	.64	.59	.82	.33	.24	1	
Equity non-hedge	.78	.69	.91	.19	.32	.89	1
<i>Off-diagonal average</i>	0.62	0.55	0.61	0.24	0.39	0.59	0.63

Source: HFR, Datastream, UBS Warburg calculations

Based on monthly US\$ total returns, January 1990 – May 2001.

Figures

Figure 1: Performance Comparison Long/short Equity, Market-neutral and Long-only

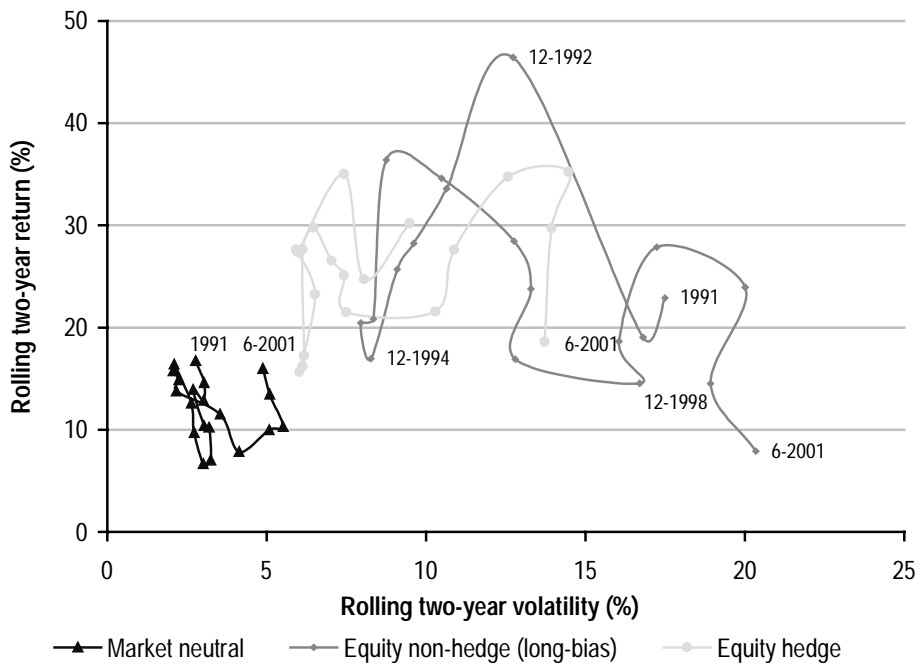


Source: HFR, Datastream

Based on total US\$ returns from January 1990 – May 2001

Equity hedge and equity non-hedge both measure the performance of long/short equity. The latter has a stronger long-bias

Figure 2: Equity Market-neutral versus Long/short Equity

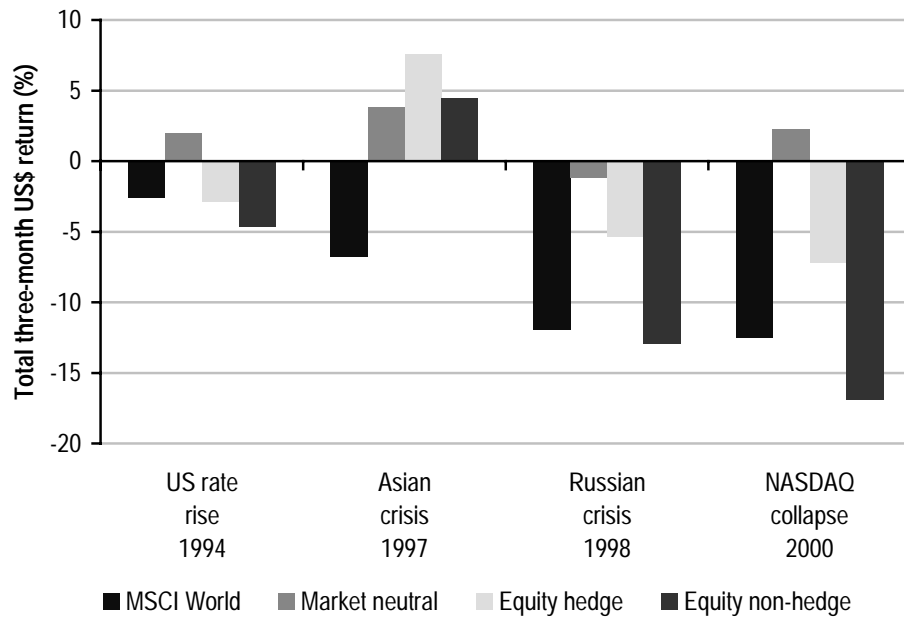


Source: HFR, UBS Warburg

The three lines in the graph show the chronological path of three hedge fund strategies in half-year increments. A reading in the lower right hand corner means high volatility and low returns.

Figure 3: Market Neutral and Long/short Equity in Dislocating Market

Conditions



Source: HFR, Datastream, UBS Warburg

US rate rise: 1 February – 29 April 1994; Asian crisis: 1 August – 31 October

1997; Russian crisis: 1 July – 30 September 1998; NASDAQ implosion: 1

September – 30 November 2000.

Endnotes

¹ The classification of hedge fund strategies is not unambiguous. Note that some call - what we refer to as 'statistical arbitrage' - 'risk arbitrage'. We use the term risk arbitrage as a slightly broader classification for merger arbitrage, which includes mergers as well as special (corporate) situations.

² What comes to mind is the institutional investor quoted in the March 2000 Ludgate AIS survey (Ludgate 2000) saying: "No, we don't (currently invest in hedge funds)! It is completely obvious that hedge funds don't work. We are not a casino."

³ This is a further example of classifying hedge fund strategies being a challenge. There is large overlap between strategies and managers.

⁴ We discuss parts of the controversy in the Appendix.

⁵ Liang (1999) found survivorship bias in hedge fund return data from January 1992 through to December 1996. However, the author concluded that, on a risk-adjusted basis, the average hedge fund outperformed the average mutual fund and that the outperformance cannot be explained by survivorship bias. Probably most aggregate fund return data contains an upward bias. Grinblatt and Titman (1989); Brown, Goetzmann, Ibbotson, and Ross (1992); Malkiel (1995), and Elton, Gruber, and Blake (1996) found that survivorship biased upward mutual fund returns by between 0.5-1.4% a year.

⁶ Needless to say that neither are long-only managers hired to lose money. However, the absolute return focus puts more weight on preserving wealth.

⁷ Using data from Evaluation Associates, Schneeweis and Spurgin (2000) found the correlation between S&P 500 and equity hedge to be 0.20 for the period from 1990 to April 2000. This compares with a correlation of 0.64 we found between S&P 500 and equity hedge using data from Hedge Fund Research (HFR). This extreme difference is most likely because of a selection bias, eg, HFR including more funds with a long bias or Evaluation Associates including more non-US funds.

