



# Global Equity Strategy

## Hubble-bubble toil and trouble

### Are hedge funds a bubble?

**Fads come and go in investment, just as they do in fashion. The current darlings of the investment world are the hedge funds. However, to us it appears hedge funds are a bubble, and one probably very close to its peak. Investors are chasing returns and underestimating the risks involved. The euphoria won't last forever.**

- ▶ The Kindleberger/Minsky model provides a useful framework for analysing bubbles. According to this view bubbles pass through five stages. We apply this approach to hedge funds.
- ▶ We suspect that hedge funds are currently in the euphoria stage (the third stage). Euphoria is accompanied by returns chasing behaviour, the overestimation of prospective returns and excessive gearing. We find evidence of all of these. Investors are clearly throwing money at funds that have had the best performance. In fact, there is a negative relationship between inflows and returns. This is consistent with overcrowded markets and alpha cannibalisation.
- ▶ Indeed, we find that hedge funds are still carrying a surprisingly high degree of beta (especially when this is corrected for stale prices and OTC). Many investors underestimate this risk. In addition, academic work shows hedge fund returns are easily replicated using options. So investors may well be overpaying for the returns they receive. Overpaying whilst understating risk certainly sounds like a bubble to us.
- ▶ Investment banks have followed the hedge fund lead, and stepped up their leverage massively. The average VaR is 32% higher than it was a year ago. Plus they are all counting on a large diversification reduction (on average reducing their VaR by almost 50%!). Given overcrowded, one way round markets, counting on diversification may not be the best strategy. If we are right about the demise of the global reflation trade, it may not be long before we slip into the fourth stage: - financial distress.

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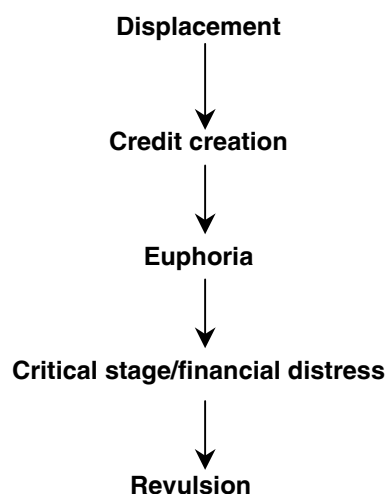


# Hubble-bubble, toil and trouble: A hedge fund bubble?

The word bubble seems to be banded around with alarming alacrity these days. Equity, bond, and housing markets have all been described as suffering a bubble at various points in the last few years. However, perhaps one of the most common allusions to bubbles we see is that hedge funds are currently a bubble.

As we noted in *Global Equity Strategy*, 13 January 2004, there are in fact multiple types of bubbles. In that note we identified four basic bubble types:- near rational, intrinsic, fads and informational. For our purposes, it is fads that provide the appropriate framework for assessing whether hedge funds are a bubble or not.

Our analysis of fads draws on the Minsky/Kindleberger model presented in *Global Equity Strategy*, 18 July 2002 and 6 November 2002. A diagrammatic outline of the bubble stages is presented below:



## Displacement

Displacement is generally an exogenous shock that triggers the creation of profit opportunities in some sectors, whilst shutting down profit availability in other sectors. It is frequently associated with periods of financial innovation. Thus the use of hedge fund vehicles in the late 1980s and 1990s could itself be the act of displacement. In particular, the high profile success of Soros in not only taking on the BoE but winning may have helped make hedge funds 'available' to the public's cognition.

Availability is an important concept in psychology. It is a rule of thumb (heuristic) which occurs when people estimate the probability of an outcome based on how easy that outcome is to imagine. As such, vividly described emotionally charged possibilities will be perceived as being more likely than those that are harder to imagine or picture.

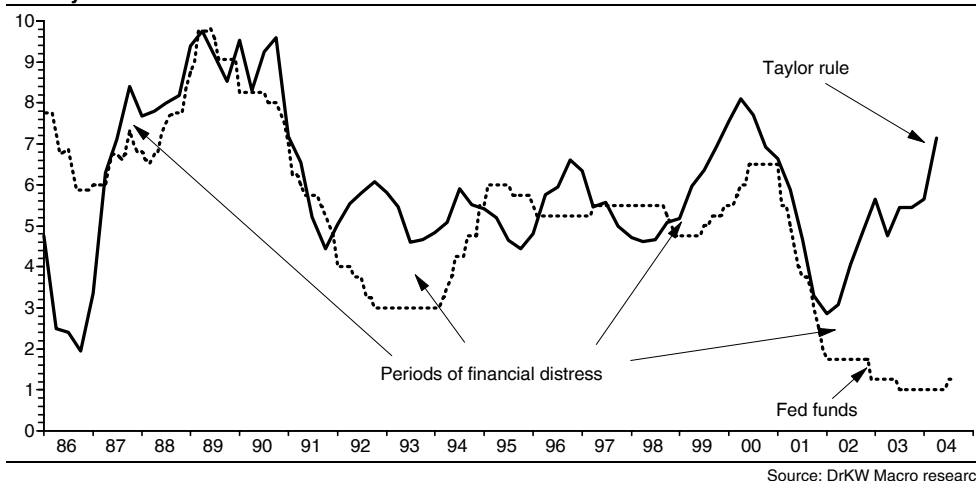
Hence, Soros' results against the BoE, and the high profile performance of Julian Robertson's Tiger funds could easily have made hedge funds an available concept to the market.

## Credit creation

Just like a fire can't develop without a source of oxygen, so a bubble requires credit creation. Effectively the Minsky bubble model holds that money/credit is endogenous to the system, such that for any given banking system, monetary means of payment may be expanded not only within the existing system of the banks, but also the formation of new banks, the development of new credit instruments and the expansion of personal credit outside the banking system.

In the general bubble process, this is where the monetary authorities become complicit. We suspect that the Fed has had a hand in creating a hedge fund bubble as well. Ever since 1987, the Fed appears to have had one eye on financial market developments. For instance, in 1998 when LTCM went bankrupt the Fed deliberately kept policy on the accommodative side, plus it helped orchestrate the eventual bail out of LTCM itself.

### US Taylor rule and actual Fed funds



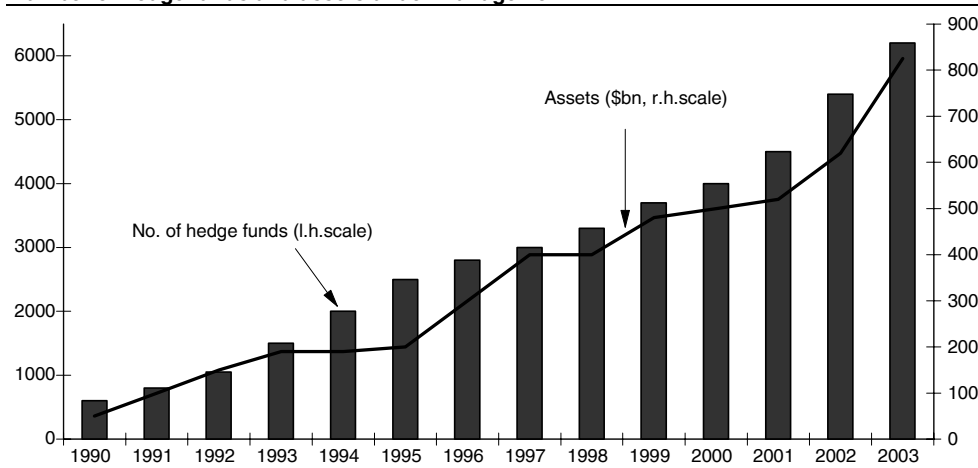
This policy of responding to financial markets has led to the situation widely known as the 'Greenspan put'. Miller<sup>1</sup> et al note survey evidence suggestive of investor faith in the authorities' abilities to support the market. Indeed a survey conducted by the Securities Investor Protection Corporation revealed only 16% of respondents knew that there was no insurance against losing money in the stock market or as the result of investment fraud.

<sup>1</sup> Miller, Weller and Zhang (2001) Moral Hazard and the US stock market: Analysing the 'Greenspan put', CSGR Working paper

Although professional investors are unlikely to have been quite so gung-ho, there certainly was (and to a large extent still is) an unshakeable faith in Greenspan's ability to steer a perfect course through exceedingly treacherous waters.

Of course, the low interest rates of the post bubble years and falling equity markets have made hedge funds all the more attractive. Indeed, as the chart below shows they have been enjoying near exponential growth over the last decade or so.

**Number of hedge funds and assets under management**



Source: DrKW Macro research

## Euphoria

Euphoria is the term used when everyone starts to buy into the ideas behind the bubble. Belief in a new era or paradigm becomes wide spread. In our current context, institutional allocations to hedge funds perhaps represent this stage of the process.

The euphoria stage is frequently associated with 'overtrading', which may involve pure speculation, an overestimate of prospective returns or excessive gearing (or any combination thereof).

Euphoria is accompanied by momentum trading or the "greater-fool theory of investment". Returns chasing behaviour becomes the norm. A recent paper by Agarwal, Daniel and Naik (2004)<sup>2</sup> finds that "money-flows chase good recent performance... money-flows are significantly higher (lower) for funds that are persistent winners (losers)... both larger hedge funds as well as funds experiencing greater flows are associated with worse future performance, lower returns and lower probability of showing persistently good returns in the future."

Let's put that into non-academic speak, hedge fund investors tend to buy funds that have delivered strong performance in the past, this is particularly the case when that strong performance has been consistent. They chase returns, and effectively become momentum investors.

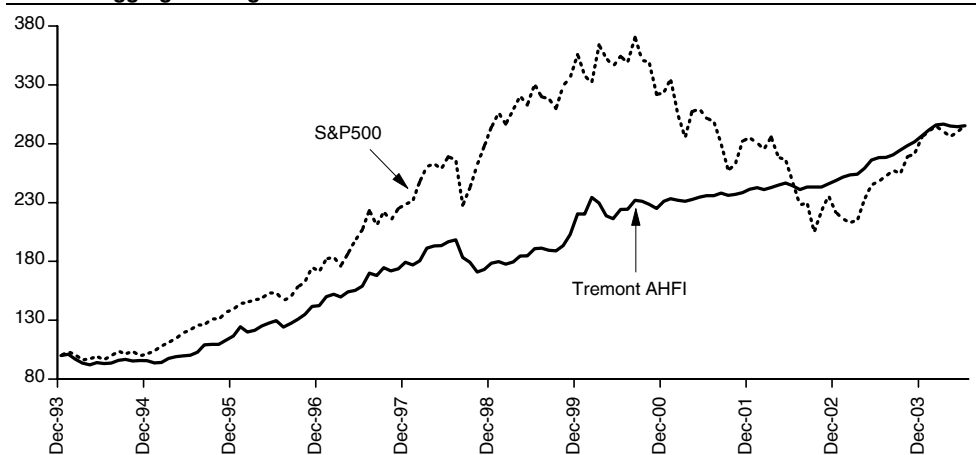
<sup>2</sup> Agarwal, Daniel and Naik (2004) Flows, performance and managerial incentives in hedge funds available from [www.ssrn.com](http://www.ssrn.com)

Sadly, this doesn't pay. Those funds that receive the largest inflows suffer the worst future performance and seem to have problems maintaining the consistency of performance as well. This is consistent with overcrowding of markets and alpha cannibalisation. As Barton Biggs put it in an interview with Kate Welling<sup>3</sup>: "instead of 6 horses drinking huge gulps of alpha, there are now 30 or 40 big greedy horses drinking of that same alpha pool".

We haven't come across any surveys of investors that reveal their expected returns on hedge funds, so it is a little hard to prove that people have overly optimistic expectations. However, piling into funds that have done well is certainly consistent with simple extrapolative behaviour i.e. what has done well in the past will do well in the future.

The chart below shows the return on the S&P500 and the return on the Tremont hedge fund index. Hedge funds in aggregate haven't exactly trounced the equity market. The risk-adjusted picture would be more favourable (in aggregate, but not individually), but even so, the hype of hedge funds seems to be running slightly ahead of their delivered performance.

**Tremont aggregate hedge fund index vs. S&P500**



Source: DrKW Macro research

Indeed one of the charges frequently levelled against hedge funds is that they are really selling repackaged beta at alpha prices. In *Global Equity Strategy*, 22 May 2003, we presented evidence drawn from the work of Asness et al<sup>4</sup> to illustrate this point.

Asness et al point out that many funds hold difficult to price OTC securities or illiquid assets. In order to account for these, they suggest using a lagged beta approach. So instead of using just the current market return, previous months' market returns are included as well, and the beta is summed over all its current and lagged values. For the record, beta is measured against the S&P500. Their original findings are shown in the first table overleaf:

<sup>3</sup> Welling@Weedon, 30 July 2004

<sup>4</sup> Asness, Krail and Liew (2001) Do hedge funds hedge? Journal of Portfolio Management.



### Do hedge funds hedge?

1994:01-2000:09	Annualized alpha	Contemporaneous beta	Sum of all betas	Probability	
				All Beta=0*	Lagged betas=0
Aggregate Hedge fund index	-4.45	0.40	0.84	0.00	0.01
Convertible arbitrage	-0.98	0.08	0.43	0.00	0.00
Dedicated short bias	11.59	-1.01	-1.27	0.00	20.00
Event driven	-2.12	0.31	0.61	0.00	0.00
Emerging market	-16.20	0.79	1.25	0.00	12.00
Equity market neutral	3.36	0.13	0.20	1.00	11.00
Fixed income arbitrage	-3.78	0.05	0.36	0.00	0.00
Global macro	-6.64	0.41	0.98	0.00	7.00
Long short equity	-2.83	0.57	0.99	0.00	0.01
Managed futures	1.72	-0.01	-0.19	38.00	34.00

\* p-values for the F-tests versus zero  
Source: Asness et al (2001)

The results show an alarming lack of alpha, and a disturbing presence of beta. Indeed, when one corrects for the role of lagged beta, the risk of investing in hedge funds essentially doubles!

In the table below, we have updated Asness et al's work to encompass the most recent period. The good news is that the hedge fund alphas are all up over the original sample, and in general, the betas are down. This is perhaps suggestive of the fact that many hedge funds deliberately loaded up on beta during the tech bubble<sup>5</sup>.

### Do hedge funds hedge?

1994:01-2004:06	Annualized Alpha	Contemporaneous Beta	Sum of all Betas	Probability*	
				All Beta=0	Lagged betas=0
Aggregate Hedge fund index	4.20	0.24	0.43	0.00	0.00
Convertible arbitrage	4.76	0.03	0.16	0.00	0.00
Dedicated short bias	1.16	-0.86	-0.94	0.00	65.00
Event driven	4.08	0.21	0.37	0.00	0.00
Emerging market	-1.40	0.53	0.65	0.00	37.00
Equity market neutral	5.40	0.08	0.10	0.00	83.00
Fixed income arbitrage	2.16	0.00	0.10	0.00	0.00
Global macro	9.00	0.16	0.31	2.00	8.00
Long short equity	3.72	0.40	0.61	0.00	7.00
Managed futures	4.68	-0.17	-0.29	5.00	27.00

\* p-values for the F-test versus zero  
Source: DrKW Macro research

The bad news is that the use of lagged beta terms still significantly increases the measured risk of hedge funds. For instance, using the Tremont aggregate hedge fund index, the contemporaneous beta between Jan 1994 and June 2004 is 0.24. With the use of lagged beta terms the sum rises to 0.43. So hedge funds are still carrying a significant amount of market risk.

Furthermore, academic work by David Hsieh<sup>6</sup> and a variety of co-authors has shown that the returns to hedge funds can be replicated via option strategies. For instance, the payoff to trend following hedge funds can be reproduced via a basket of look back

<sup>5</sup> See Brunnermeier and Nagel (2004) Hedge funds and the technology bubble, Journal of Finance, 59 for more evidence of the destabilising nature of hedge funds during the tech bubble.

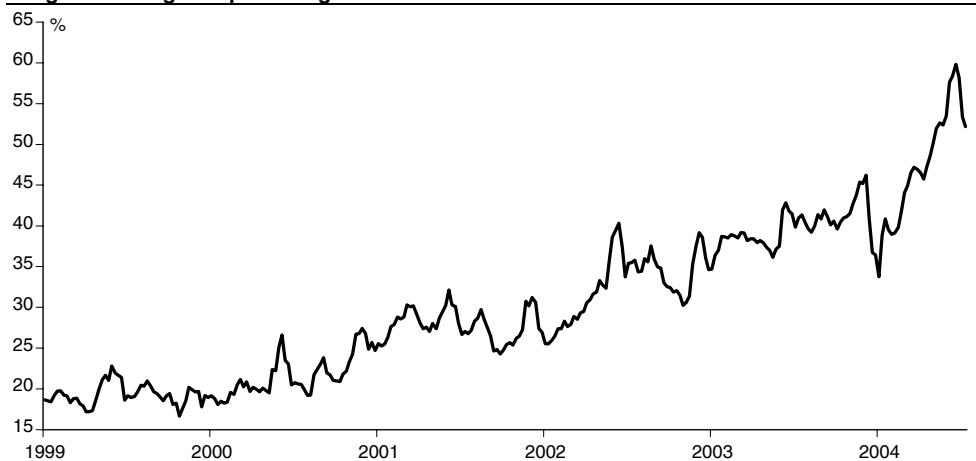
<sup>6</sup> See Hsieh and Fung (2004) Hedge fund benchmarks: A risk based approach, forthcoming, Financial Analysts Journal

straddles, the returns to merger arbitrage are generally replicated by a short position in out of the money puts, and fixed income arbitrage is replicated by the credit spread. If 'easy' option replication is possible then why do investors end up paying exorbitant fees?

Combine this overpayment with the understatement of risks outlined above and perhaps you have more evidence of the faddish nature of hedge funds. After all a bubble can be defined as a situation whereby prices depart from fundamental value, overpaying for easily replicable strategies, whilst understating the risk involved certainly sounds like a classic bubble to me.

Possible evidence of overtrading can be seen from the chart below which shows the percentage of volume on the NYSE which is accounted for by program trading. Over half of all the trading on the NYSE is program trading business! The peak in the raw weekly data was an astounding 70.5% during the week 21-25 June. Whilst there is nothing bad about program trading per se, it does perhaps hint at the scale of black box wizards currently operating in the US market.

#### Program trading as a percentage of total NYSE volume



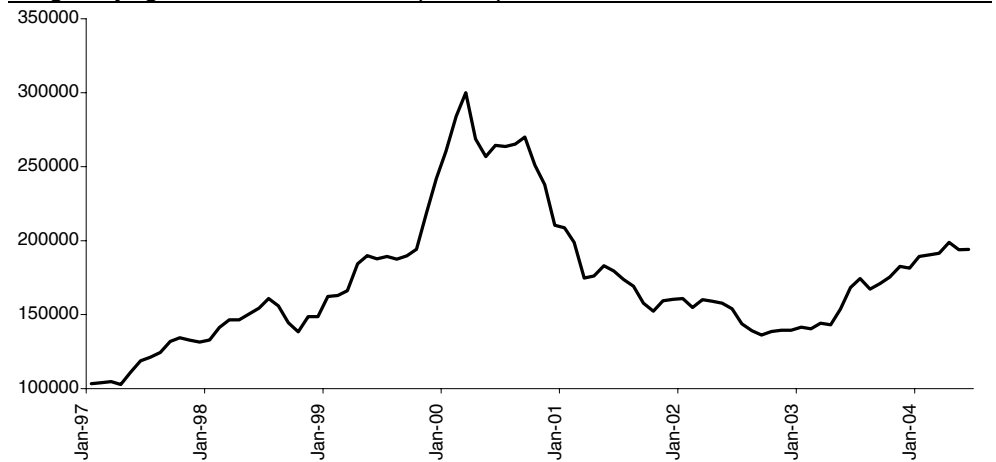
Source: DrKW Macro research

So, what of the final element of euphoria, excessive leverage? Well if ever there was a candidate for the home of leverage it must surely be the hedge community. Over the last six months, we have regularly explored issues surrounding leverage in the financial markets. Let us briefly recap on some of our measures.

The first chart overleaf shows the level of buying of equities on margin from the NASD and the NYSE. Whilst we remain a long way from the dizzy heights of \$300bn of margin buying, today's \$193bn of buying on margin is not to be ignored.



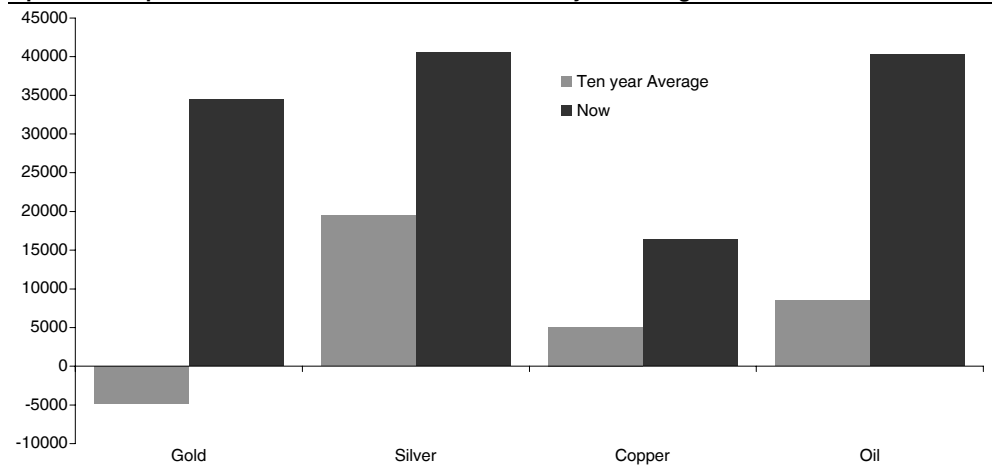
**Margin buying on the NYSE AND NASD (US\$m)**



Source: DrKW Macro research

Commodities have also witnessed an influx of speculative interest. Price weakness in a broad range of commodities forced many speculators to cut their positions in April/May. For instance, speculative net long positions in gold are down some 76% since their peak in April this year, silver down 31% and copper down 66%. However, despite these declines positions, remain massively higher than their ten year averages (see chart below).

**Speculators' positions in various commodities and ten year averages**

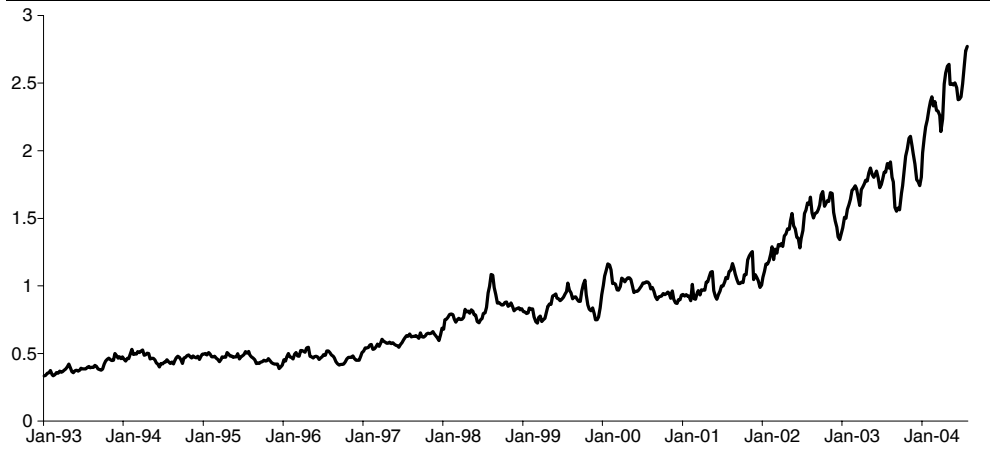


Source: DrKW Macro research

The next chart shows the open interest in US 5 & 10 year government bond futures. Far from any reduction in bond market leverage, it continues to soar. The latest data show just under 2.8mn contracts of open interest!



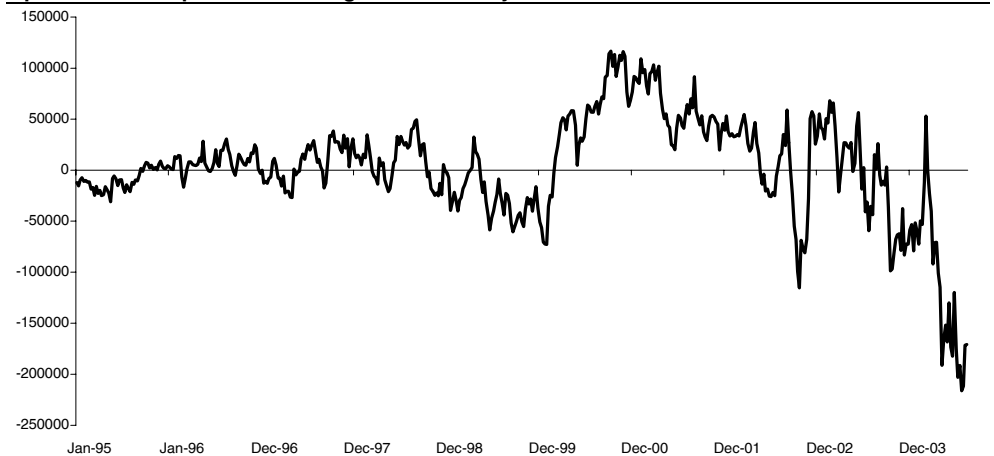
**Open interest in US 5 & 10 year government bond futures**



Source: DrKW Macro research

Just for the record, speculators are running a massive net short on 10-year government paper. In fact, it is the largest short position ever run!

**Speculators' net positions in US government 10 y bond futures**



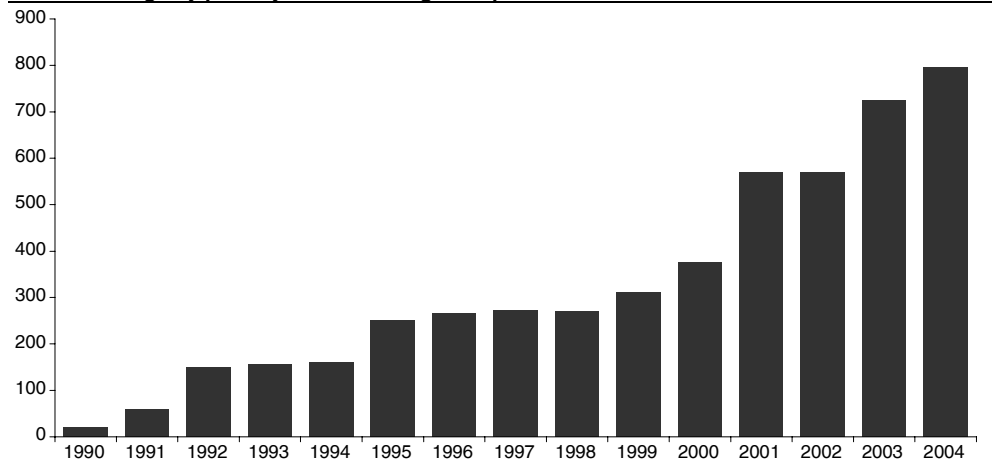
Source: DrKW Macro research

Of course, hedge funds themselves are only one facet of the leverage in the financial system. Every investment bank has its very own little hedge fund, affectionately known as the prop trading desk. Investment banks have been busy spiriting up the risk curve encouraged by good old uncle Alan's promise of a never ending punch bowl of very cheap money.

The first chart overleaf shows the net borrowings by primary dealers (all 24 of whom are essentially large investment banks). The first chart shows the long-term perspective, and clearly illustrates how aggressively investment banks have stepped up their positions. The 2004 data point is the latest reading, which is for the end of July.



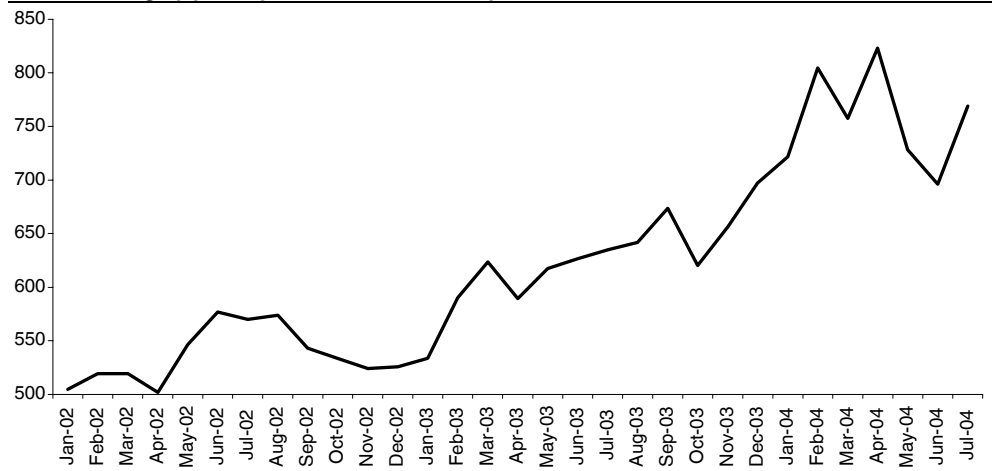
**Net borrowings by primary dealers – long-term picture**



Source: DrKW Macro research

A shorter-term version of this chart shows the development of net borrowing over the last two years or so. Net borrowing is down just over 4% since its all time peak seen in April this year. So there is precious little evidence of these quasi hedge funds pulling in their horns for the time being.

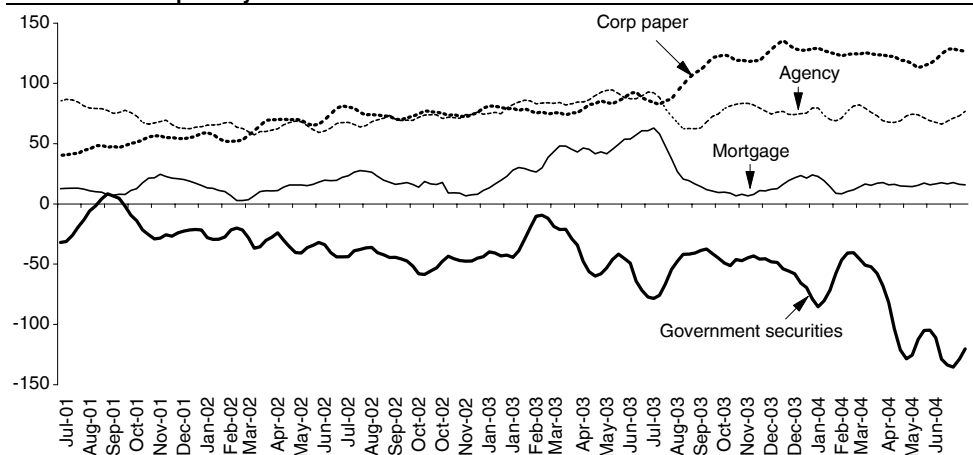
**Net borrowing by primary dealers – short-term picture**



Source: DrKW Macro research

Much like their hedge fund cousins, the primary dealers seem to be running a truly awesome short in government bonds, offset by sizeable longs in the corporate paper and agency markets.

### Positions of the primary dealers



Source: DrKW Macro research

The final piece of evidence we have on just how risk loving these investment banks have become is from examining their value at risk calculations. The table below shows the state of play as of the end of Q2 for those banks who have reported. The average VaR has increased some 32% over the last 12 months! Only two of the banks we examined have actually seen a decline in their VaR.

A further cause for concern is the size of the diversification reduction. One of the basic tenets of modern finance is that diversification reduces risk. Risk managers are well aware of this, and hence calculate the likely offset across the portfolios of positions being run. However, as we have noted before, today's markets are characterised by overcrowded one way round trades across a massive variety of assets. If a problem erupts in one market it is likely to spill over to other markets rapidly. Hence the diversification benefits may disappear just when they are most needed.

In the table below, we have shown the scale of the VaR reduction achieved by the application of diversification. If we are right, and the low correlation and covariances are illusory, then just about all the banks are massively understating the true risk that they are facing.

#### YoY increases in VaR at various investment banks (end of Q2 2004)

	YoY	Diversification reduction (%)	Share price (US\$)
JP Morgan	74	41	36.99
Deutsche Bank	72	54	67.46
Goldman Sachs	54	54	85.31
Lehman Brothers	34	24	70.84
Morgan Stanley	33	69	48.15
UBS	27	8	65.28
Bear Stearns	20	23	84.21
CSFB	-4	47	30.97
Merrill Lynch	-20	100	48.34

Source: DrKW Macro research



## Critical stage/financial distress

The fourth stage of the bubble process is labelled the critical stage or the financial distress phase. This is the stage where the insiders generally start to sell out. Of course, a number of hedge funds contain large amounts of their managers' capital, so this may be less relevant than in previous bubbles. However, the sheer number of people flooding into the hedge fund world does suggest that in some respect the insiders are indeed selling out, or at least floating hedge funds to meet investors' demands just as they did with IPOs in both the US and Japanese stock market bubbles.

At some point (if only we knew when) a reality check occurs. Perhaps hedge funds begin to disappoint in terms of their returns. Indeed, we saw that in April all hedge fund styles lost money, largely because they have all been playing trend following strategies and as such are massively vulnerable to trend reversals such as the one witnessed in April.

Because so many 'styles' of hedge funds lost money, investors began to raise their eyebrows about the supposed diversification benefits of hedge funds. Questioning an investment style or category even when short-term performance turns against them is a classic sign of a market where investors have been following momentum style strategies<sup>7</sup>.

Alternatively a hedge fund could easily blow up, revealing the scale to which investors had underestimated the risk involved in investing in such vehicles. This would be an example of financial distress. The term is borrowed from the finance literature where it refers to a situation where a firm must contemplate the possibility that it may not be able to meet its liabilities. From the financial system as a whole, the equivalent condition is an awareness on the part of a considerable segment of the speculating community that a rush for liquidity may develop. As the distress persists, so the perception of crisis increases.

Effectively the events that led to the demise of LTCM were a first run attempt at entering the critical stage/financial distress. However, the Fed helped to organise a bailout of LTCM. As noted earlier this has potentially fostered an environment of moral hazard, as market participants anticipate a policy response to market problems. This is nothing other than Minsky's incomplete adjustment hypothesis, which states that the longer the crisis is artificially staved off, the worse the resulting end game becomes, because the moral hazard has engendered even higher leverage in the intervening period.

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<sup>7</sup> See Barberis and Schleifer (2003) Style Investing, Journal of Financial Economics or Montier (2002) Behavioural Finance, Chapter 3 for more details



## Revulsion

Revulsion is the final stage of the bubble cycle. Revulsion refers to the fact that people are so badly scarred by the events in which they were embroiled that they can no longer bring themselves to participate in the market at all.

This will be the perfect point at which to set up a hedge fund, and the most difficult time to do so. No one will want to come near such a creature, and you will be shunned by all and sundry. But in the perverse way in which markets so often work, it is also likely to be the greatest opportunity for returns.

## Conclusions

Hedge funds as an investment category certainly seem to fit the general bubble framework that we have utilised before in analysing other bubbles. Investors seem to be ploughing money into the most successful funds, without any evidence that success is persistent in the hedge fund area. In addition, there is a very real possibility that they are overpaying for the privilege of doing so, and underestimating the risks involved.

To us, the hedge fund bubble looks like it is in the euphoric stage, but any unravelling of the global reflation trade could easily drive us into the critical stage, and indeed financial distress. Because of the widespread leverage employed by the hedge funds, any reduction in their number could drastically affect market prices.



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#### DRESDNER KLEINWORT WASSERSTEIN RESEARCH – RECOMMENDATION DEFINITION

(Except as otherwise noted, expected performance over next 12 months)

Buy	10% or greater increase in share price	Reduce	5-10% decrease in share price
Add	5-10% increase in share price	Sell	10% or more decrease in share price
Hold	+5%/-5% variation in share price		

#### Distribution of DrKW equity recommendations as of 1 Jul 2004

	All covered companies		Companies where a DrKW company has provided investment banking services (in the last 12 months)	
	Count	Percentage	Count	Percentage
Buy/Add	343	55%	51	59%
Hold	192	31%	28	32%
Sell/Reduce	91	15%	8	9%
Total	626		87	

Source: DrKW