



Financial Services Authority

Assessing possible sources of systemic risk from hedge funds

A report on the findings of the
Hedge Fund Survey and Hedge
Fund as Counterparty Survey

July 2010

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Introduction

This paper sets out the results of the Financial Services Authority's latest Hedge Fund and Hedge Fund as Counterparty surveys conducted in April 2010. These are designed to highlight the potential risks hedge funds could pose to financial stability through credit or market channels. We have an important role in assessing and mitigating systemic risk that market participants pose – including hedge funds – as we carry out our supervisory and regulatory functions.¹

We conduct these two surveys every six months, which aim to examine and identify these risks, and inform our supervisory work. The Hedge Fund Survey (HFS) began in October 2009 and the Hedge Fund as Counterparty Survey (HFACS) has been running since 2005. We have published a paper discussing the outcomes of the October 2009 surveys. www.fsa.gov.uk/pubs/other/hedge_funds.pdf

The Hedge Fund Survey (HFS)

The HFS was introduced in October 2009 to complement the HFACS. In this survey we ask approximately 50 FSA-authorized investment managers² about the hedge fund assets they manage and about the qualifying funds³ for which they undertake management activities. Questions cover asset class exposures, performance, borrowings, risk and operational measures. The HFS aims to help us better understand the use of leverage (through borrowing or derivatives), 'footprints' in various asset classes, the scale of any asset/liability mismatch and credit counterparty risks. It mainly focuses on the market channel for systemic risk; the potential for large scale forced liquidations by hedge funds to disrupt market liquidity and pricing.

1 For the purposes of this work, a systemic risk is a risk which, if it crystallised without any form of intervention by the authorities, would mean a high likelihood of major, rapid disruption to the effective operation of a core function of the financial system (and so leading to a wider economic impact).

2 This includes FSA-authorized firms acting as sub-advisor in other jurisdictions.

3 Qualifying funds for the purposes of the HFS are hedge funds with a Net Asset Value equal to or greater than US \$500 million.

The Hedge Funds as Counterparties Survey (HFACS)

The HFACS encompasses some of the largest FSA-authorized banks that have significant dealings with hedge funds either through prime brokerage and/or through businesses generating counterparty credit exposures. We ask about the size, channel and nature of the larger credit counterparty exposures that individual banks have to hedge funds, both individually and collectively. The HFACS focuses on the credit channel for systemic risk: the potential for hedge fund failures to lead to banking sector losses.

April 2010 HFS and HFACS results

About 50 investment managers participated in the April 2010 HFS. Together these firms had nearly \$345bn of hedge fund Assets Under Management (AUM) and approximately 90 qualifying funds. Some firms reported their global AUM, while others reported only on assets managed by their UK entity. This compares to the nearly \$320bn of hedge fund AUM and approximately 80 qualifying funds reported in October 2009's HFS. Again, the largest strategy types by qualifying fund AUM at April 2010 were multi-strategy, global macro, managed futures and equity long/short.⁴

Some of the managers surveyed and funds reported on differ between the October 2009 and April 2010 surveys.⁵ So, it is not possible to compare the two data sets exactly. However, the majority of managers and funds reporting are the same, meaning that broad changes can be identified.

Between the October 2009 and April 2010 surveys, hedge fund performance strongly recovered, with the Dow Jones Credit Suisse Hedge Fund Index rising by 7.3%. See the table below for sub-strategy performance.

Dow Jones CS Sub-strategy indices	% increases
Fixed Income Arbitrage	7.8
Multi-strategy	5.7
Long/Short Equity	6.7
Global Macro	6.3

Broader market indices also showed positive performance over the period with the S&P 500 Index up 15%, the FTSE 100 Index 10% higher and the MSCI World index increasing by 8%.

This backdrop helped inform our April 2010 survey data and results expectations, which showed increased risk appetite. It is worth noting that the April 2010 surveys took place before May's heightened market volatility, so the poor performance generally experienced by hedge fund strategies in that month will be reflected in the next survey's results.

4 Approximately 80% of qualifying fund AUM were attributable to these strategy types at April 2010.

5 For example, some funds that qualified in October 2009 no longer qualified in April 2010 and vice versa.

Our April 2010 findings on leverage, asset/liability mismatch, credit counterparty risk and other supervisory issues are presented below.

Leverage

Due to the range of trading strategies and products that hedge funds use, the concept of ‘leverage’ is difficult to define consistently. Therefore instead of asking hedge fund managers directly about their funds’ ‘leverage’, we asked for the basic data that could make up a risk assessment. By cutting the data in different ways, we have assessed leverage across strategies and groups of funds as well as in relation to individual qualifying funds.

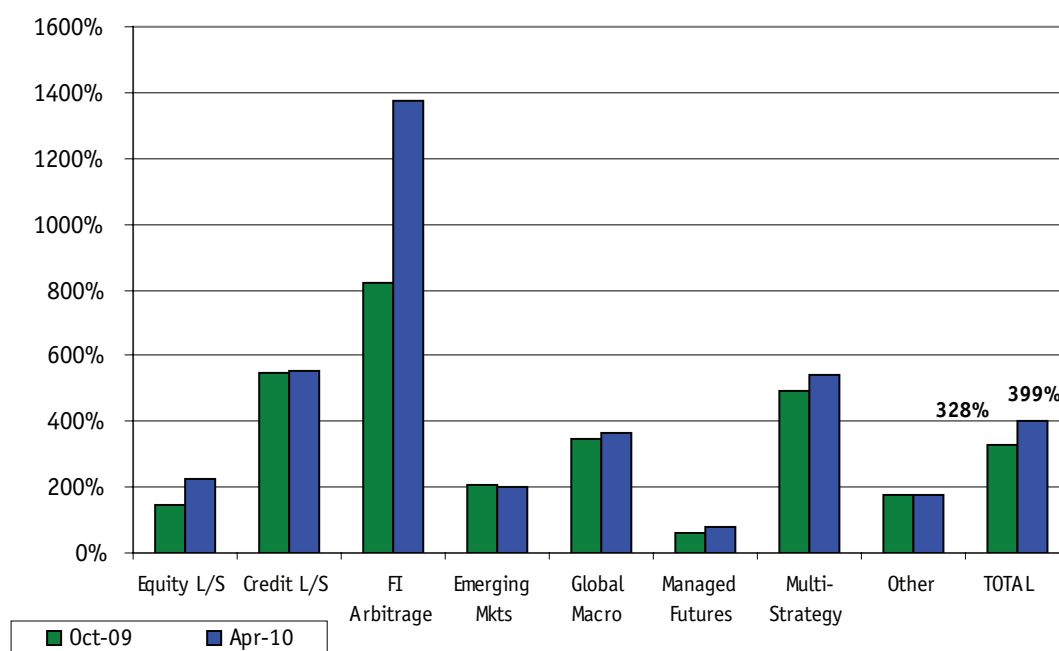
Footprint

To give an idea of the scale of a hedge fund’s presence in the market, we examine its total gross ‘footprint’ across asset classes, compared with equity raised from investors.

Chart 1 compares the size of qualifying funds’ overall footprint as a multiple of investor equity as at October 2009 and April 2010 by fund strategy⁶. We can see that since October 2009 leverage has increased as shown by this measure. Overall, leverage by ‘footprint’ at April 2010 of qualifying funds was 399% compared to 328% in October 2009. Funds with ‘spread-based’ strategies (e.g. fixed income arbitrage) can be expected to have a greater ratio of gross footprint to investor equity than those with ‘fundamental’ strategies (e.g. equity long-short). However, the increase in this measure for fixed income arbitrage funds is particularly noteworthy. This is in line with an increase since October 2009 in the amount of financing provided under global master repurchase agreements as a percentage of total borrowing by surveyed hedge funds.

⁶ A larger footprint does not necessarily equate to a larger risk as this metric takes no account of netting long and short positions or the volatility of the assets that make up the footprint.

Chart 1: 'Footprint' as a multiple of net equity



We have also looked at exposure data to identify asset classes in which hedge funds appear to have a large share. As before convertible bonds stand out, with managers reporting positions held by their funds equating to approximately 8% of the outstanding value of the global market.⁷ This compares to positions representing approximately 10% of the market reported in October 2009. Hedge funds were not significant participants in respect of their aggregated holdings in other asset classes at April 2010: for example, surveyed managers reported gross positions⁸ held by their funds equal to approximately 1.0% of the value of European equity markets⁹ (similar to 0.9% in October 2009).

Borrowing

Most concepts of hedge fund leverage involve borrowed money or increasing exposure to an underlying asset via derivatives.¹⁰

There are a number of channels through which hedge funds can borrow money. These include collateralised borrowing under prime brokerage agreements, repo agreements, or synthetically using instruments like swaps and contracts for difference. Chart 2 shows hedge funds' reported cash borrowing plus synthetic borrowing as a multiple of net equity.

Overall, this type of leverage has increased for qualifying funds from 244% at October 2009 to 272% at April 2010. This is most evident in respect of certain strategy types, including fixed income arbitrage and multi-strategy.

7 Source: Bank of America/Merrill Lynch All Convertible Index as at 30/04/2010.

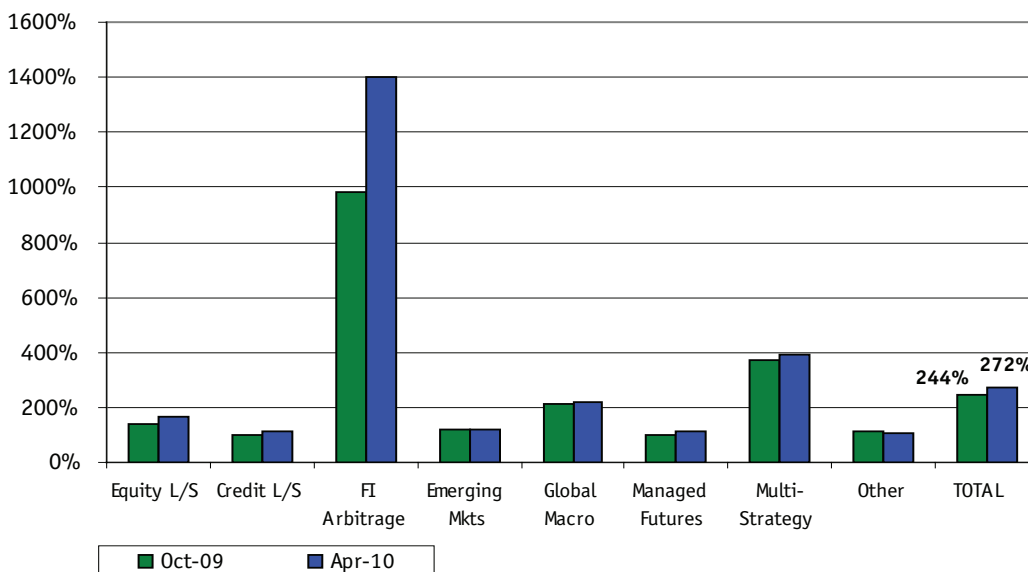
8 Longs and shorts plus exposure through derivatives (delta adjusted for options and gross notional for futures).

9 Source: www.world-exchanges.org/statistics/ytd-monthly.

10 Measuring leverage using the increased exposure to an underlying asset via derivatives is particularly hard to assess given the complex nature of options.

Borrowing under repo has increased as a source of financing for qualifying funds since the previous survey date, particularly when compared to borrowing through prime brokerage. The HFACS April 2010 survey shows that over 70% of cash-out reverse repo financing between firms and their hedge fund counterparties comprised G10 government bond collateral. Synthetic financing has also increased between the HFS dates, but not in the same proportion as financing through repo.¹¹ April 2010 HFACS data shows that most fixed income reference assets for synthetic financing were loans, while most reference assets for equity synthetic swaps comprised G10 equities.

Chart 2: Borrowings as a multiple of net equity



The proportion of borrowing on an unsecured basis continued to be negligible with the amount outstanding in April 2010 even lower than that reported in October 2009.

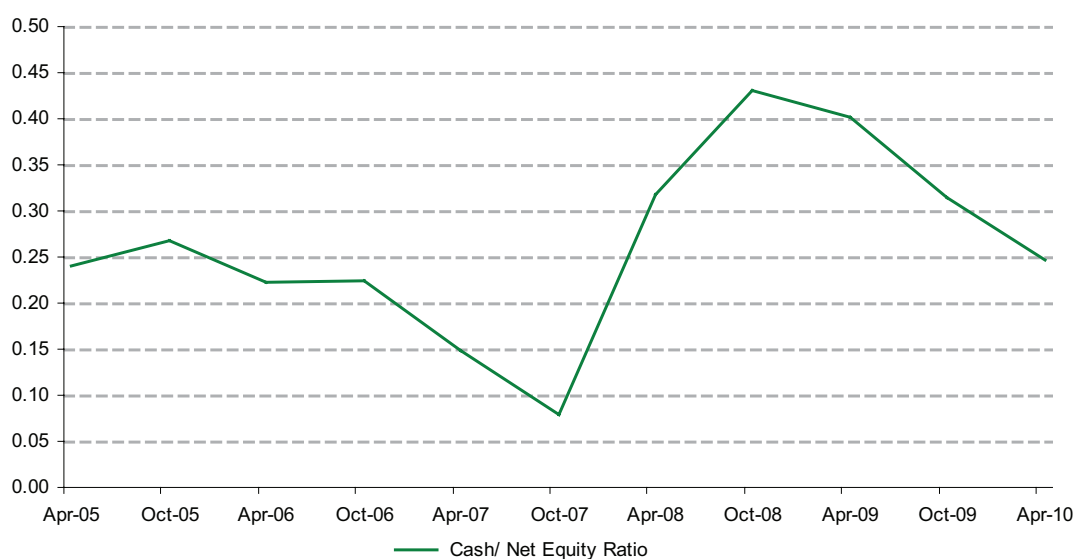
Borrowing by funds with a fixed income arbitrage strategy is the highest among the hedge fund sub-strategies and has risen markedly since the October 2009 survey. However, reported levels of unencumbered cash for fixed income arbitrage – funds are relatively high – on average 85% of net asset value at April 2010. This should provide some liquidity buffer for these funds in the event of a sudden or rapid deleveraging.

Data from the HFACS also indicates that the ratio of cash balances to net equity in prime brokerage has decreased between October 2009 and April 2010, following a peak in October 2008. Chart 3 is based on total aggregate net equity and total aggregate cash balances data over the life of the survey. The green line shows the ratio of cash balances to net equity in prime brokerage accounts (net equity = cash + LMV – SMV).¹² This ratio represents the proportion of cash held within prime brokerage relative to net equity. Outliers are followed up using the regulatory toolkit.

11 We note that the HFS does not capture data in respect of UCITS III funds which, if included, may significantly alter the synthetic financing figures.

12 LMV = long market value. SMV = short market value.

Chart 3: Prime brokerage cash balances to net equity ratio



Asset/liability mismatch

The HFS helps us understand the degree to which hedge funds may routinely engage in maturity transformation and examine the scale of any asset/liability mismatch. Participants were asked to assess, in relation to the qualifying funds they managed, the liquidity of the investments being made compared with the liquidity of liabilities to investors and finance providers.¹³ A caveat to this assessment is that data on portfolio liquidity is to a degree a subjective assessment and will be based on recent expectations and experience of market liquidity.

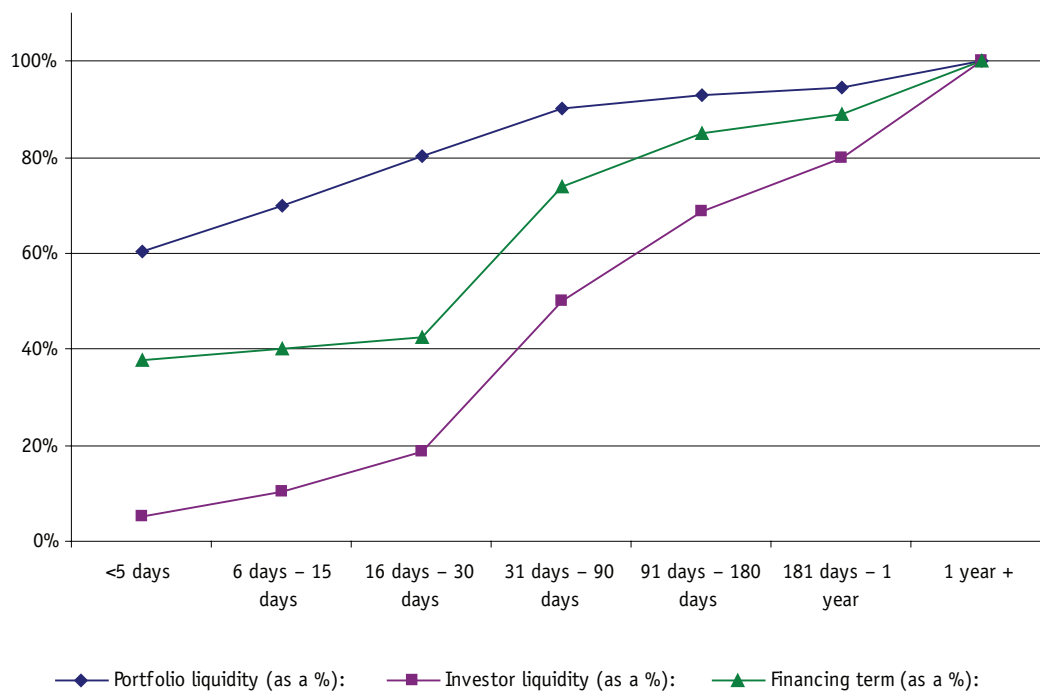
Chart 4 shows the reported liquidity of the qualifying fund's assets and liabilities. It appears that hedge fund assets can be liquidated more quickly than their liabilities fall due. Results also suggest hedge fund managers have improved portfolio liquidity and financing profiles vs. investor redemption terms since the October 2009 survey.¹⁴ However, in a stressed market environment the portfolio liquidity reported in the HFS may not hold, and conditions may be attached to term financing agreements that would possibly be triggered in such a situation.

In terms of investor liquidity, we note that a higher proportion of assets surveyed in April 2010 (12%) were subject to special arrangements, when compared with October 2009 (8%). This should mean there is less pressure in a stressed market environment from investor liabilities coming due.

13 Participants were asked to calculate Portfolio liquidity based upon average 90-day trading volumes and on the basis of trading a maximum of 25% of this amount in a single day. For less liquid positions, participants were asked to use best estimates for liquidity, assuming no fire-sale discounting, based on market conditions over the six months prior to the survey date. Investor liquidity was calculated in a 'worst case' scenario, where gates were enforced, although funds not suspended.

14 HFACS data from April 2010 indicates that over 40% of financing provided through prime brokers is subject to margin lock agreements.

Chart 4: Liquidity of assets and liabilities – April 2010



Credit counterparty risk

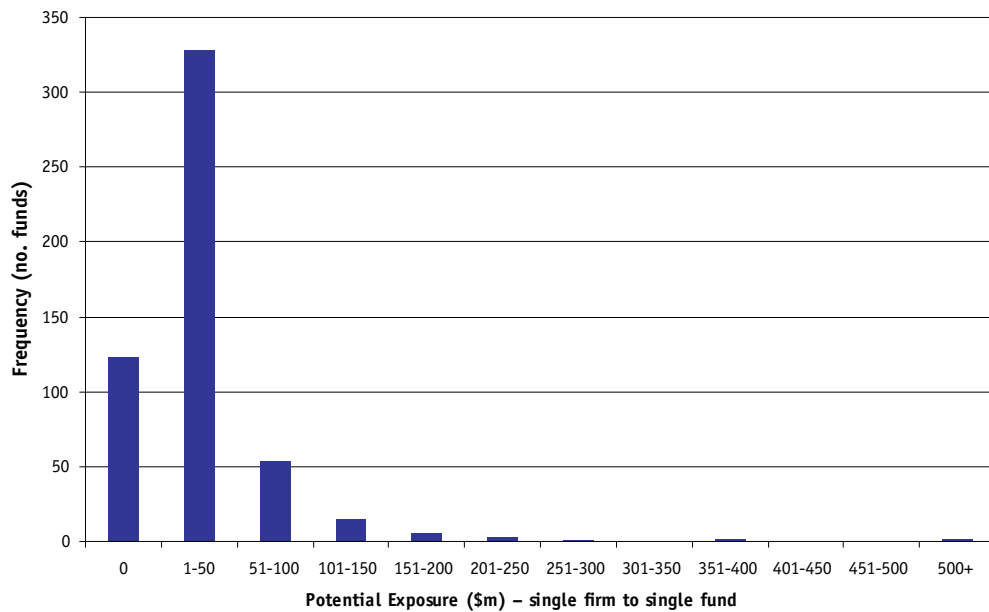
The two surveys allow us to examine the credit counterparty risks that exist between banks and hedge funds, helping us understand the possible transmission mechanisms for systemic risk through the ‘credit channel’.

The HFACS identified individual funds that posed the greatest counterparty credit risk across banks, while the HFS gave us information about the funds’ activities.

HFACS data suggested that the maximum potential credit exposure¹⁵ of any one bank in our survey to any one hedge fund was approximately \$600m. Chart 5 shows most potential credit exposures of single banks to single hedge funds amounted to less than \$51m.

15 ‘Potential Exposure’ is defined as an unsecured exposure plus a risk based element (typically VaR-based) standardised to a 99% confidence interval and 10-day holding period.

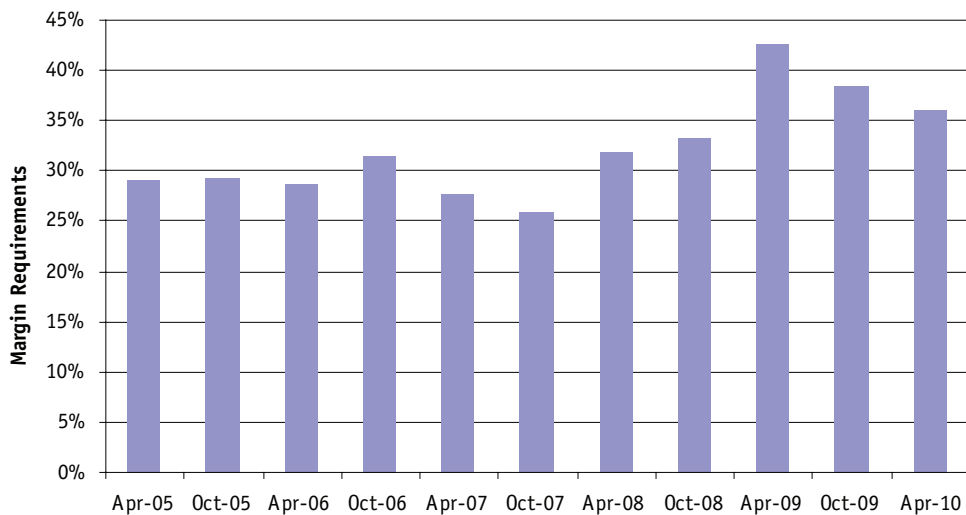
Chart 5: Distribution of funds – April 2010



Average margin requirement and excess collateral

Chart 6 shows the average margin requirement of surveyed prime brokers has increased¹⁶ since October 2007 in a pro-cyclical way. To avoid this strong pro-cyclical effect firms and supervisors will need to make sure that margins do not fall to unsustainably low levels during benign market conditions in the future.

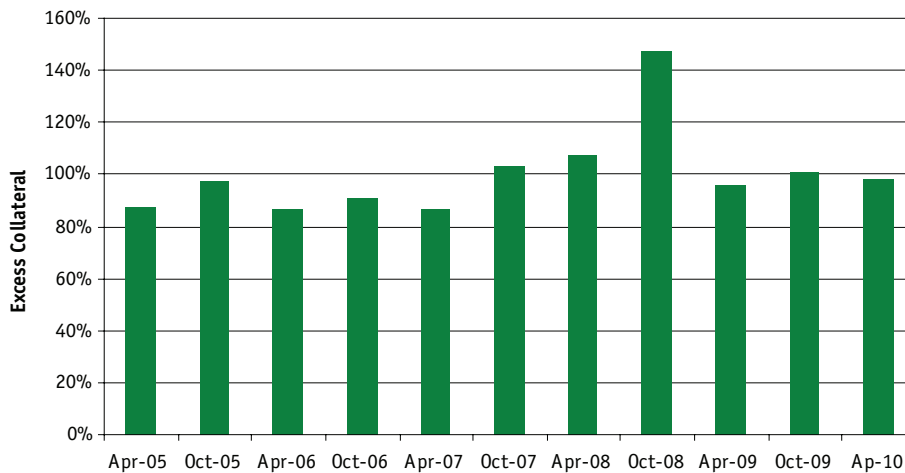
Chart 6: Average prime broker margin requirement



16 We note that there may be other drivers of increased margins beyond heightened risk aversion, such as a change in the composition or volatility of assets within prime brokerage accounts.

The HFACS also focuses on excess collateral, which is defined as the buffer remaining in prime brokerage accounts above the base margin requirement. Chart 7 shows that surveyed prime brokers have excess collateral in these accounts, although there are other factors that could influence these numbers, including developments in hedge funds' cash management, such as an increased use of custody accounts. Furthermore, if this excess collateral can be moved rapidly it may not provide the level of protection it suggests.

Chart 7: Average prime broker excess collateral¹⁷



Informing supervisory activities

The surveys give us information that helps when supervising FSA-authorized firms, and the data will be used to inform our regulatory meetings with firms. It will enable us to make peer comparisons and identify any outliers. It will be useful for testing the consistent application of strategies and used, in conjunction with future survey data, to develop a time series and highlight any trends.

Results of the April 2010 HFS suggest that the proportion of qualifying fund's assets under their High Water Mark (HWM) has decreased to about 10% from around half in October 2009. This implies that performance fees were charged on a greater proportion of AUM than before. However, further information on each investor's HWM would be needed to confirm this.

This information, coupled with data on fund performance (Chart 8) and changes in value of assets under management (Chart 9) can help supervisors identify emerging risks to hedge funds business models. It will also indicate where hedge fund managers may be incentivised to take greater risks; including getting their funds' assets back above the HWM and charging the associated performance fees.

Chart 8 shows that qualifying funds' had an overall positive performance during the six months to the end of April 2010. Since this survey was conducted, hedge

¹⁷ Excess Collateral: the net equity held in a prime brokerage account, in excess of the margin requirement.

funds' overall performance during May was negative, and this will be picked up from data in the next survey round. In terms of performance by fund strategy, most multi-strategy qualifying funds reported positive returns in the six month period to April 2010, generally returning between 6% –10% and credit long/short funds also reported positive performance, often in the 6–15% range. Conversely, the majority of equity long/short funds reported relatively flat or slightly negative performances.

Chart 8: Fund performance (NAV per share basis) – 6 month period to April 2010

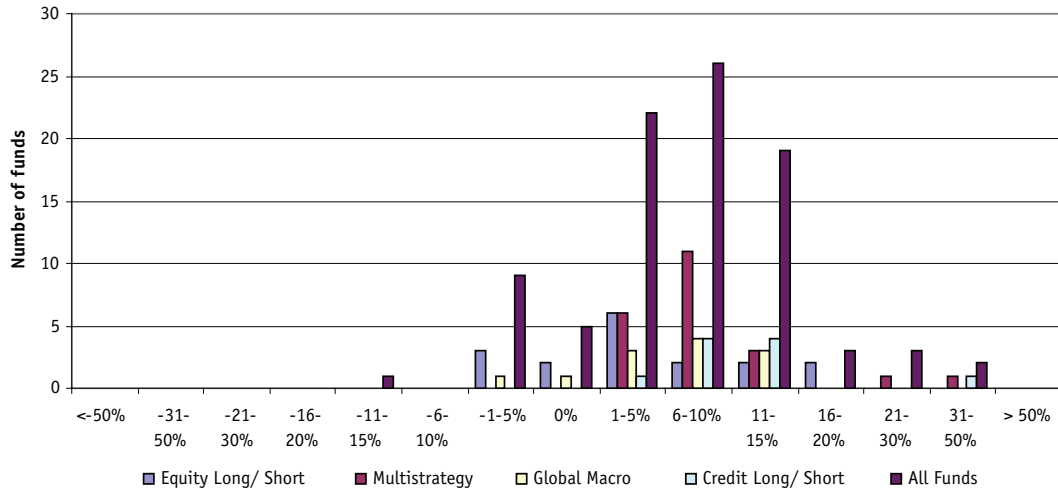
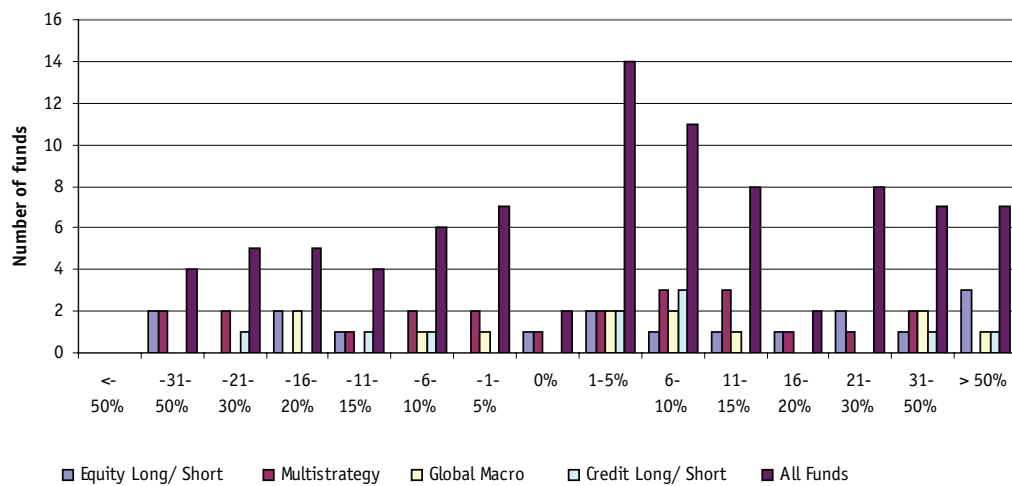


Chart 9 shows a change in Net Asset Value (NAV) and that some investors were still withdrawing money from qualifying funds during the six months to April 2010. However, relative to October 2009, more increases in fund NAV were reported, driven by performance and/or investor inflows.

Chart 9: Change in fund NAV – six months to April 2010



In Chart 10 we can see the total number of open positions reported by qualifying funds at April 2010. The survey results suggest more polarisation since October

2009 concerning the number of open positions that funds had (few vs. many) at April 2010.

The results from the April 2010 HFS also show that those qualifying funds with a large number of positions¹⁸ usually report a relatively high proportion of their trades being traded on exchange and cleared centrally.

Chart 10: Total number of Open Positions

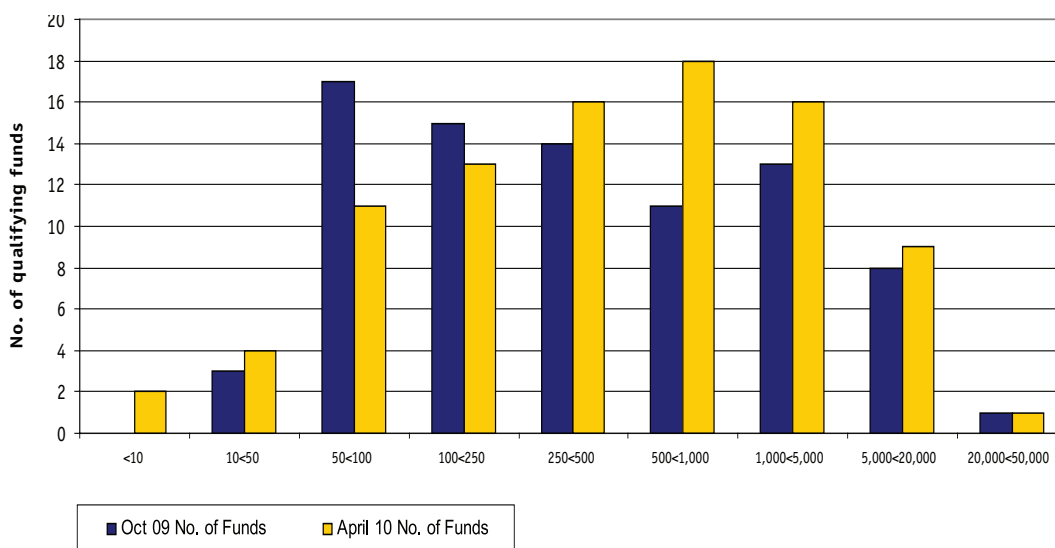
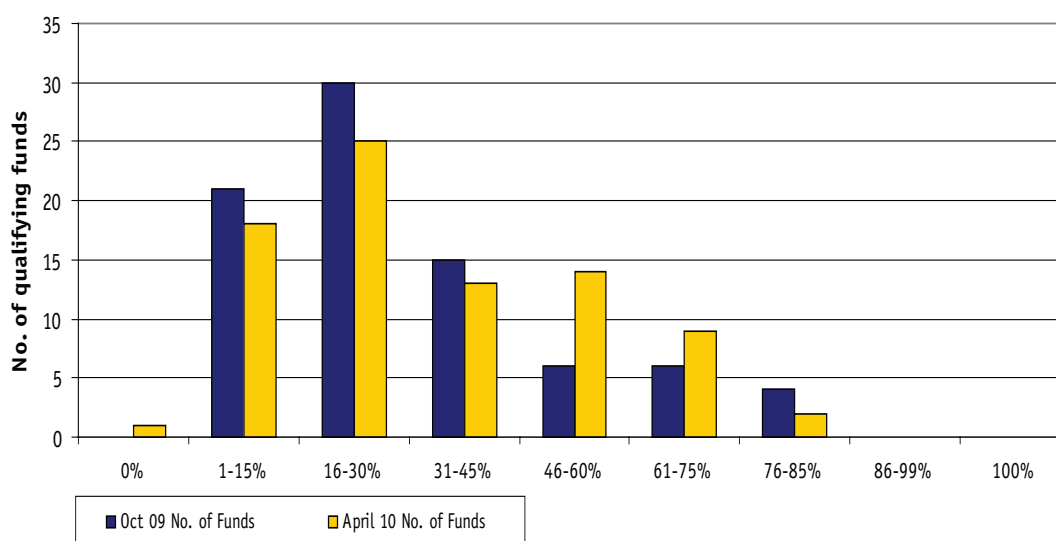


Chart 11 shows the top ten positions as a percentage of a fund’s Gross Market Value (GMV) and indicates an increase in the position concentration of qualifying funds. This may suggest a higher degree of conviction by managers in April 2010 compared to October 2009.

Chart 11: Top 10 positions as a percentage of fund’s GMV



18 Such as those with a global macro strategy (average > 3,000 positions) or which are multi-strategy (average >5,500 positions).

Concluding Remarks

To summarise, the key findings of the April 2010 surveys were:

- hedge funds are using more leverage on all measures we used,¹⁹ reflecting an increased risk appetite since October 2009;
- hedge funds are borrowing more through repo and less through prime brokerage;
- positions held by surveyed hedge funds did not comprise a particularly large proportion of any total asset class, apart from convertible bonds;
- measures such as performance, open positions, concentration of positions, overall exposure of funds by LMV vs. SMV and prime brokerage cash balances to net equity ratio suggest hedge funds have a higher risk appetite at April 2010 compared to six months earlier; and
- hedge funds appear to have further diversified their credit exposures to bank counterparties.

These results aligned with our expectations of an increase in risk appetite and improved market conditions since the survey in October 2009.

However, it is important to note the relatively quick return to higher leverage levels and risk taking behaviour, as shown in the April 2010 survey data, particularly among fixed income funds and associated with a pickup in repo financing. That is consistent with some increase in the risk profiles of certain funds, however, we do not currently consider that there has been a material change in risks to financial stability since October 2009.

Our surveys highlight the importance of regularly collecting such data from hedge fund managers and their counterparties, as they inform our supervisory work and allow for a better understanding any systemic risks that might arise through the activities of hedge funds. In particular, building a time series of data should give us a valuable insight into the changing nature of these risks.

We intend to repeat these surveys in September 2010. We will also continue to work closely with IOSCO²⁰ and other national regulators bilaterally to ensure that we can more clearly identify global risks through a consistent and proportionate global approach to systemic risk data requirements for hedge funds.

19 The HFACS April 2010 survey shows that average long leverage has slightly increased to around the 1.78x mark (from 1.67x) and there has been a slight reduction in excess collateral to an average of 98% (from 101%).

20 International Organization of Securities Commissions (IOSCO).
Please see: www.iosco.org/news/pdf/IOSCONEWS179.pdf

The Financial Services Authority
25 The North Colonnade Canary Wharf London E14 5HS
Telephone: +44 (0)20 7066 1000 Fax: +44 (0)20 7066 1099
Website: <http://www.fsa.gov.uk>

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