

Financial Services Authority

Assessing the possible sources of systemic risk from hedge funds

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

February 2011

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Introduction

This paper sets out the results of the Financial Services Authority's (FSA) latest Hedge Fund Survey (HFS) conducted in September 2010 and the Hedge Fund as Counterparty Survey (HFACS) conducted in October 2010.¹ These surveys help us to analyse the systemic risk posed by hedge funds and are conducted every six months as part of our work on assessing risks to financial stability from outside the boundary of prudential regulation.² This, in turn, is a key part of our work to protect and enhance the stability of the UK financial system, one of our statutory objectives.

These voluntary surveys provide only a snapshot of hedge fund exposures and partial view of the hedge fund industry, and when examining the results it is important to consider the surveys' limitations. The analysis presented only covers the broad systemic conclusions and does not discuss individual firms or funds. Nevertheless, the surveys are important tools in providing us with a window into the hedge fund industry.

Risks to financial stability from hedge funds could crystallise through two potential channels: market dislocations that disrupt liquidity and pricing (the 'market channel'); and/or losses in hedge funds leading to losses by banking and other counterparties (the 'credit channel').

The latest results suggest that the footprint of surveyed hedge funds remains small within most markets and leverage is largely unchanged, so that risks to financial stability through the market channel seem limited at the time of the latest surveys. In addition, counterparties have increased margin requirements and tightened other conditions on their exposures to hedge funds since the crisis, increasing their resilience to hedge fund defaults. Nevertheless, some risks to hedge funds remain, particularly if they are unable to manage a sudden withdrawal of liabilities during a crisis period,

1 The timing of the Hedge Fund Survey was brought forward one month to September 2010 to coincide with similar surveys run by other regulators internationally. We are working actively with other regulators to monitor the global hedge fund industry and share survey results in aggregated 'anonymised' form.

2 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 and rapid disruption to the effective operation of a core function of the financial system (and so leading to a wider economic impact).

potentially resulting in forced asset sales. Forced asset sales during stressed market environments may exacerbate pressure on market liquidity and efficient pricing.

A discussion on the outcomes of previous surveys is available on our website.³

The Hedge Fund Survey and the Hedge Fund as Counterparty Survey

The HFS is a voluntary survey that began in October 2009 and is now in its third iteration. The HFS asks selected FSA-authorized investment managers⁴ about the hedge fund assets they manage and the Qualifying Funds⁵ for which they undertake management activities. It contains data used to assess potential threats through both the market and credit channels. The September 2010 survey captured about 50 investment managers with just over 100 Qualifying Funds. Together these firms reported approximately US\$380 billion of hedge fund assets under management. Qualifying Funds captured in the survey cover a broad spectrum of investment strategies and have a wide range of geographical exposures. Most Qualifying Funds are domiciled in offshore centres, such as the Cayman Islands. We estimate that the HFS captures approximately 20% of global hedge fund industry assets under management and consequently the results should not necessarily be assumed to reflect those for the broader hedge fund industry.

The HFACS survey has been running since 2005. This survey is voluntary and covers 14 large FSA-authorized banks which have significant dealings with hedge funds either through prime brokerage and/or through businesses generating counterparty credit exposures. The survey asks about the size, channel and nature of the larger credit counterparty risks that individual banks have for hedge funds, both individually and collectively. However, not all the data collected covers global exposures to the hedge fund industry and not all counterparties to hedge funds are surveyed. The HFACS is used to analyse the credit channel for systemic risk.

Latest results

Performance and current conditions

On balance, conditions for hedge funds surveyed remain positive. Returns for Qualifying Funds averaged 2% for the six-month period from April to end September 2010 (Chart 1). This is in line with estimates from global hedge fund databases⁶ and above the -0.6% return of the MSCI World equity index over the same period, although it is less than the average 7.5% return for the six months covered in previous HSF. The distribution of returns was favourable with approximately 75% of funds reporting positive returns. In addition, assets below

3 www.fsa.gov.uk/pubs/other/hf_report.pdf

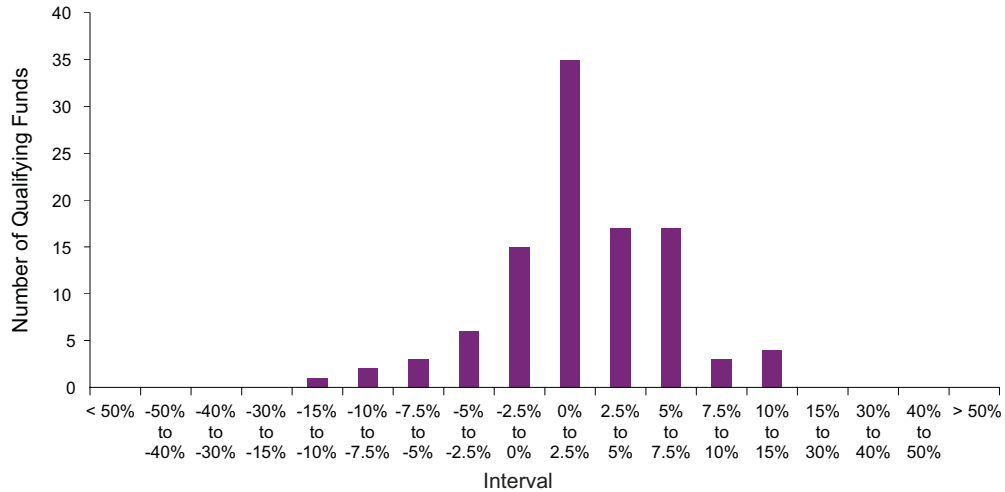
4 This includes FSA-authorized firms acting as sub-advisor in other jurisdictions.

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

6 For example, the HFRI index return was 2.2% for the same period and the BarclayHedge index was 1.9%.

their highwater mark continued to decline, helping to improve the sustainability of the sector as a greater number of performance fees are levied. Assets below their highwater mark have declined to less than 5% of total surveyed assets, down from 43% reported in the October 2009 survey.

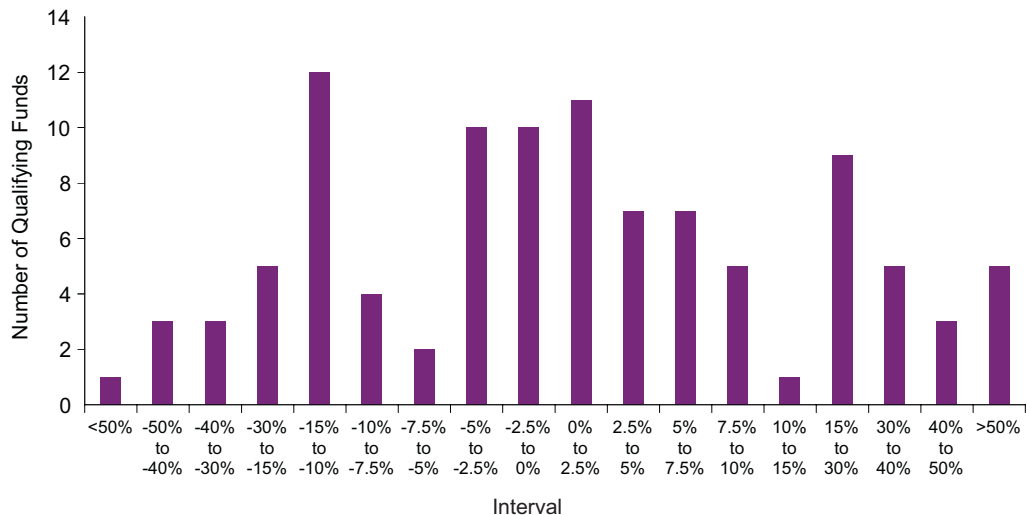
Chart 1: Fund Returns – Histogram of total returns for the 6 months to end September 2010



Source: FSA HFS

Aggregate assets under management increased in the survey period due to positive performance. But the picture of subscriptions and redemptions was more mixed. Approximately one half of Qualifying Funds in the September 2010 survey reported a decline in Net Asset Value (NAV) driven by negative net subscriptions (Chart 2). In aggregate, negative net subscriptions reduced assets under management by 0.8% (measured on the level of their aggregate assets at the start of the survey period). Assets under special arrangements due to their illiquid nature, such as in ‘side pockets’, remained largely unchanged at 11% of aggregate NAV, suggesting no improvement in the quality of these assets.

Chart 2: Change in NAV – Histogram of change in NAV for the 6 months to end September 2010



Source: FSA HFS

Market footprint

The potential for any stress within the hedge fund sector to be transmitted through the ‘market impact channel’ will be directly affected by the extent of hedge funds’ presence within those markets. One method of assessing the size of hedge funds is to measure their gross exposures or ‘footprint’, calculated as the sum of their long market value and short market value. Changes in footprint can be illustrated relative to the equity raised from investors (i.e. NAV); these measures have remained fairly stable over the different surveys in aggregate (Chart 3). There was a sizable increase in footprint to NAV for fixed income arbitrage strategies in the April 2010 survey, but that has since reduced. Funds with ‘spread-based’ strategies (such as fixed income arbitrage) can be expected to have a greater ratio of gross exposures (footprint) to investor equity than those with ‘fundamentals-based’ strategies (such as equity long-short).

Chart 3: Qualified Fund Footprint as a percent of NAV⁷



Source: FSA HFS

Of particular importance is the relative size of hedge funds’ ‘footprint’ compared with the size of the global markets they trade in. These measures are generally low and have not changed significantly between the different surveys (Chart 4), suggesting the hedge funds we surveyed are not the biggest category of players in most markets when measured by the value of their holdings. As noted above, however, we estimate that the HFS captures approximately 20% of global hedge fund assets and so globally hedge funds will have a significantly higher footprint in some of these markets. The convertible bond market may be an exception where the hedge funds we surveyed continue to have a big presence. The firms surveyed are estimated to hold

⁷ Footprint is measured as the sum of long market value (LMV) and short market value (SMV). The measure of footprint reported does not include interest rate, FX and commodity derivatives. Footprint to NAV has been illustrated to show changes over time as this helps to control for changes in participants between surveys.

approximately 8% of the outstanding value of the global convertible bond market.⁸ The HFS also suggests that hedge funds are possible material players in the much larger and more systemically important interest rate and commodity derivatives markets.

Chart 4: Hedge Fund Footprint Within Selected Markets

Footprint (LMV + SMV) as a % of market size; derivatives measured based on gross notional value

	Oct 09 Survey	Apr 10 Survey	Sep 10 Survey
Listed Equities	0.5%	0.6%	0.6%
Corporate Bonds	0.3%	0.3%	0.3%
G10 bonds with a 0-1 year duration	1.2%	0.6%	0.7%
G10 bonds with a 1+ year duration	0.8%	1.0%	1.3%
Non-G10 sovereign bonds	0.1%	0.2%	0.2%
Financial institution bonds	0.2%	0.1%	0.0%
Convertible bonds	10.1%	8.1%	8.3%
Structured/secured products	0.2%	0.3%	0.3%
Credit derivatives	0.8%	1.0%	1.1%
<i>Additional Derivative Markets</i>			
Foreign exchange	0.3%	2.4%	0.8%
Interest rate derivatives	2.9%	4.7%	4.0%
Commodity derivatives	2.5%	4.8%	3.7%

Market presence can also be thought of in terms of the proportion of trade volumes, but this is much harder to measure on a consistent basis across multiple markets. The latest HFS also suggests that individually, most surveyed hedge funds do not account for a significant proportion of trade volumes. As a group, however, hedge funds are considered to be more significant in providing market liquidity in normal market conditions.⁹

The source of borrowings and extent of leverage

Because of the potential impact of hedge funds on financial stability through both market and credit channels, it is also important to consider the amount and sources of hedge fund borrowing. Most concepts of hedge fund leverage involve borrowed money or increased 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, repurchase agreements (repo), and using synthetic instruments such as total return swaps or contracts for difference. The latest HFS indicates that hedge funds continued to rely heavily on borrowing via repos in aggregate, with roughly 53% coming from this

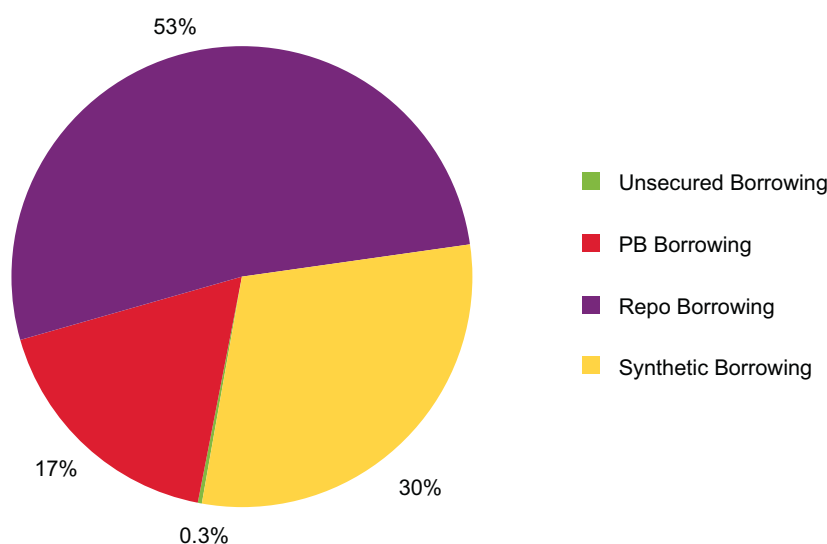
⁸ The size of the global convertible bond market is sourced from the Bank of America/Merrill Lynch All Convertible Index.

⁹ See, for example, *An Update on the FSF Report on Highly Leveraged Institutions*, FSF 2007.

¹⁰ Measuring 'synthetic' or 'embedded' leverage that is derived through the use of derivatives can be difficult given the complex nature of derivatives.

source (Chart 5). This represents a decline from 60% recorded in the April 2010 survey, with hedge funds' use of synthetic borrowing increasing. Data from the October 2010 HFACS shows that over 77% of cash-out reverse repo financing between firms and their hedge fund counterparties comprised G10 government bond collateral.¹¹ The latest HFACS data also shows that the majority of fixed income reference assets for synthetic financing were loans, while most reference assets for equity synthetic swaps comprised G10 equities.

Chart 5: Source of Hedge Fund Borrowings – September 2010



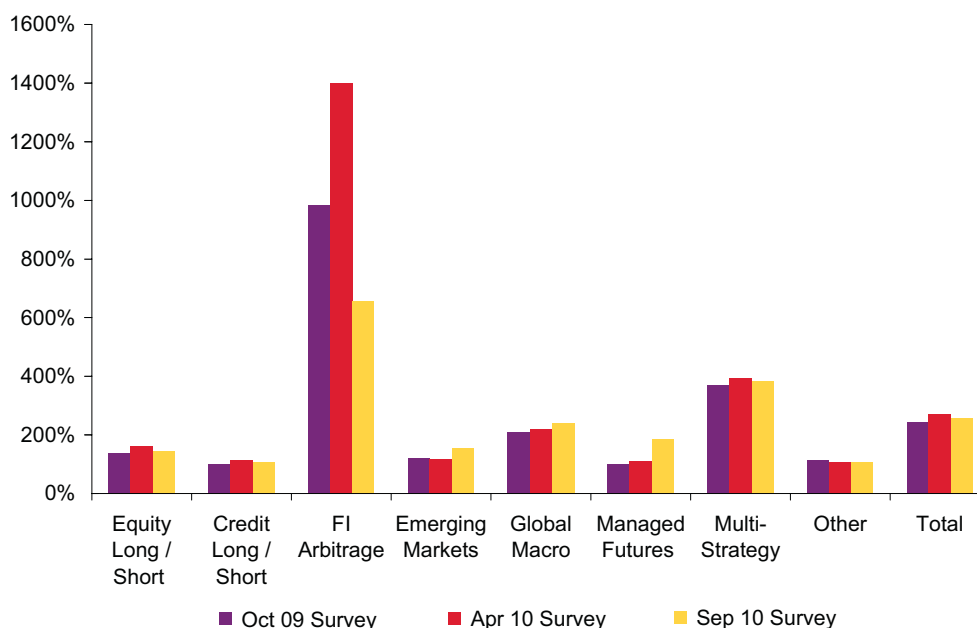
Source: FSA HFS

When the provision of finance is withdrawn rapidly – which can potentially occur for all forms of borrowing – hedge funds may be forced to liquidate their portfolios quickly resulting in a disorderly fire sale of assets. While hedge fund holdings are generally small in most markets, forced selling still has the potential to impact market liquidity and efficient pricing if it occurs during periods of heightened market stress or where hedge funds make up a significant proportion of market liquidity. Repo borrowing may be a particular risk as it has to be continually rolled, especially if it is short term. The rolling over of repo borrowing may be difficult in a stressed market environment. The source of hedge funds' borrowings continues to be an area of interest.

There are many methods to measure the extent of leverage. One method is to measure footprint (gross exposures) as a multiple of NAV, which was shown earlier when examining changes in footprint over time. But this does not take into account netting arrangements that may serve to reduce market exposures. An alternative, also used within the HFS, is to measure total borrowings expressed as a multiple of NAV. This measure paints a similar picture of leverage remaining fairly constant between the survey periods (Chart 6). We also analyse leverage and other survey measures on a fund-by-fund basis, looking for outliers that may be of systemic importance individually.

11 The G10 is made up of 11 industrialised countries: Belgium; Canada; France; Germany; Italy; Japan; the Netherlands; Sweden; Switzerland; the United Kingdom; and the United States of America.

Chart 6: Qualified Fund Leverage: Cash + Synthetic Borrowing as a percent of NAV

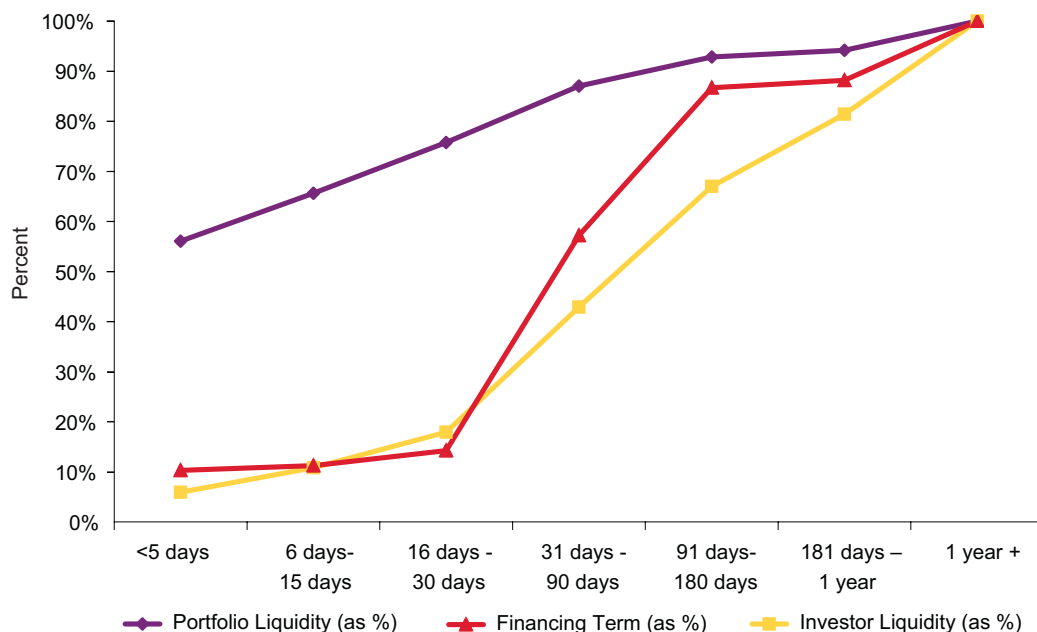


Source: FSA HFS

Maturity transformation

Hedge funds continue to report a high level of portfolio liquidity relative to financing terms and investor liabilities (Chart 7). For example, approximately 55% of aggregate portfolios are estimated to be capable of being liquidated in less than five days, in contrast to 10% or less of investor or financing liabilities falling due over the same period. However, there are important caveats. The assessment of portfolio liquidity is, to a degree, a subjective assessment and will be based on recent expectations and experience of market liquidity. In a stressed market environment, market liquidity may deteriorate significantly and rapidly relative to the current portfolio liquidity reported in the HFS. Further, the assessment of the term of any financing (borrowings) does not take into consideration break-clauses and other methods that finance providers could use to change their terms. It is also possible that conditions may be attached to term financing agreements that would be triggered in stressed environments.

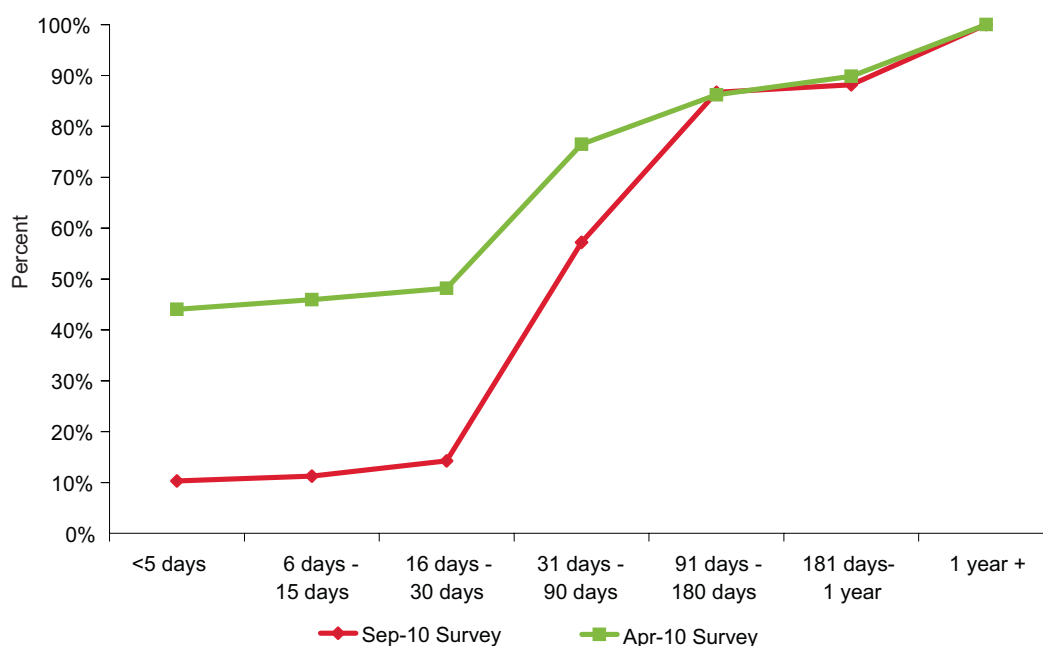
Chart 7: Asset/Liability Mismatch – September 2010



Source: FSA HFS

Portfolio and investor liquidity remains largely unchanged relative to the April 2010 HFS. In contrast, the term of financing has been ‘pushed out’ in aggregate, with a reduction in short-term financing of between 5 and 30 days and an increase in financing terms of 31 to 180 days (Chart 8).¹² By pushing out the financing terms, hedge funds have potentially reduced the risk of a sudden withdrawal of finance from their leverage providers (usually prime brokers).

Chart 8: Financing Term – Percent of financing by days

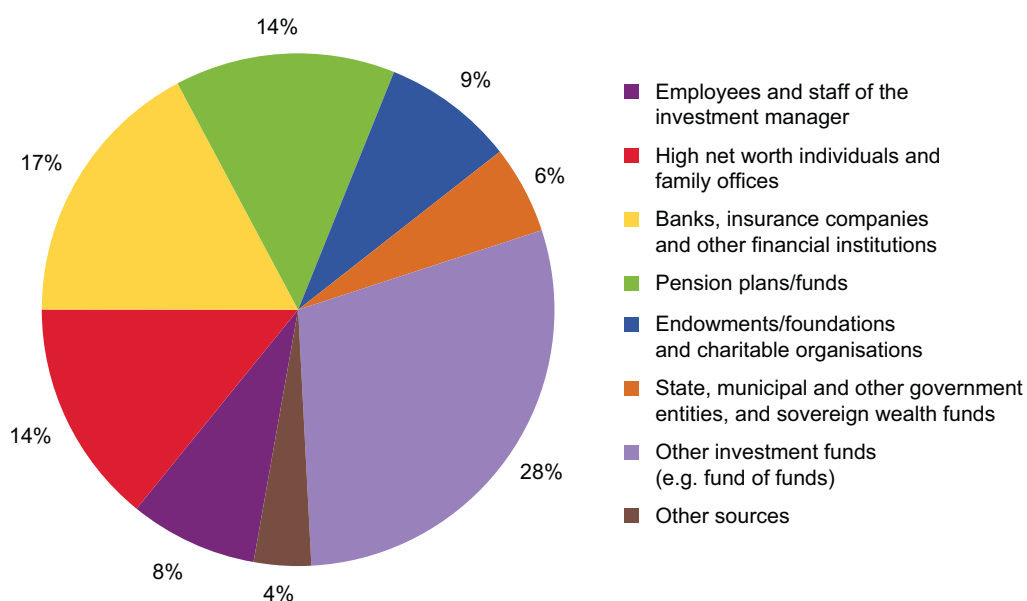


Source: FSA HFS

12 It is possible that the change in term financing could be due to seasonal effects, rather than a fundamental shift by hedge funds (or finance providers). We cannot determine this until additional surveys are completed in the future and a longer time series of responses is developed.

The HFS also suggested that investors in hedge funds comprise a diverse range of entity types, which may reduce the risk of a sudden withdrawal of an investor’s capital (Chart 9). In addition, approximately 90% of funds surveyed have the ability to suspend investor redemptions or side pocket, which provides a ‘last option’ method for funds to manage assets whose liquidity profile suddenly changes.¹³ Nevertheless, the potential for asset fire sales during stressed markets remains, as restricting investor redemptions is likely to be seen as a last resort option by many managers and because finance providers are likely to maintain the ability to withdraw finance during stressed markets (whether this is by not rolling repo borrowing or by changing financing terms).

Chart 9: Aggregate Source of Investors – September 2010



Source: FSA HFS

The source of investors also indicates potential channels through which distress in hedge funds can spread to other parts of the finance industry and to the real economy.

Counterparty exposures

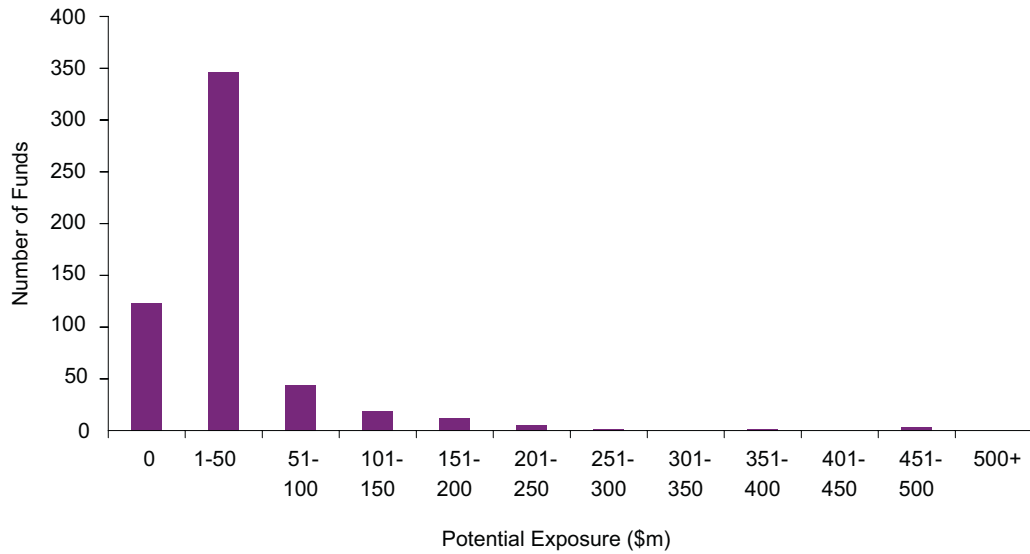
An important function of the two surveys is that they allow us to examine the credit counterparty risks that exist between banks and hedge funds. This helps us understand the possible transmission mechanisms for systemic risk through the ‘credit channel’.

Anecdotally, the range of counterparties used by hedge funds since the financial crisis is said to have broadened, such as in the use of multiple prime brokers. Despite some widening, however, the HFS still suggests that counterparty exposures of the hedge fund industry as a whole remain fairly concentrated, with just five banks accounting for over 60% of aggregate net credit counterparty exposure. For banks, the size of exposures are generally small relative to their capital, which should mitigate some of the high level aggregate concentration risk. The HFACS

¹³ Side pockets are separate funds typically created to house illiquid assets. Investors receive a pro-rata share of the illiquid assets removed from the main fund and placed in the side pocket. Side pockets are used to manage illiquid assets that cannot be sold at the same pace as other assets in the main fund without incurring significant price discounts. Side pockets generally wind down over a much longer time period relative to the main share classes of funds.

suggests that the maximum potential credit exposure¹⁴ of any one bank in the survey to any one hedge fund is less than US\$500 million, while the average exposure reported is less than US\$50 million (Chart 10).

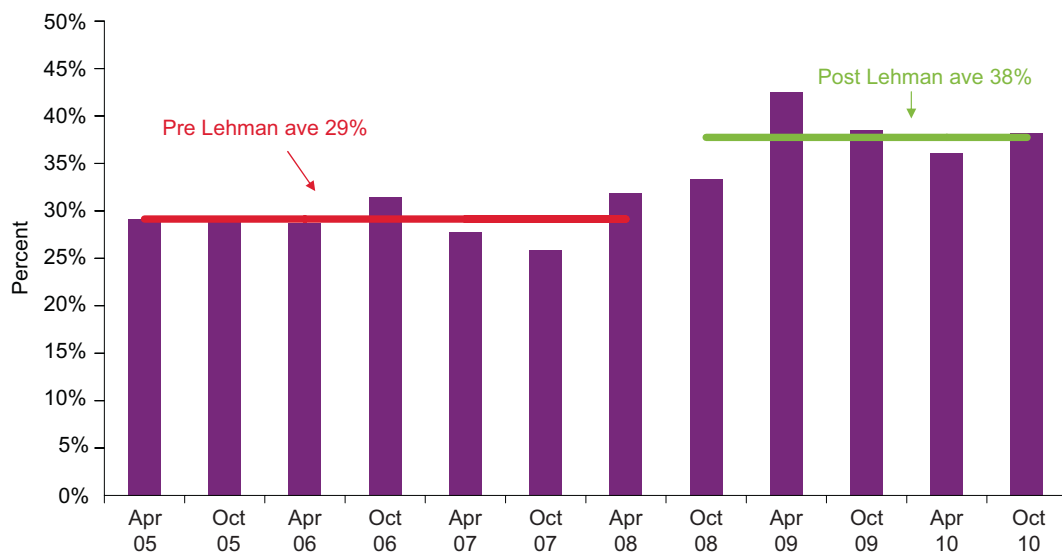
Chart 10: Potential Exposure by Banks to Hedge Funds – October 2010



Source: FSA HFACS

The average margin requirement of surveyed prime brokers in the HFACS has increased since the financial crisis (Chart 11), providing banks with a degree of protection from a hedge fund default. It is also possible that higher margins reflect the longer maturity of financing being provided, as evident from Chart 8. To avoid a strong pro-cyclical effect, firms and supervisors will need to make sure that margins do not fall to unsustainably low levels if exuberant market conditions return in the future.

Chart 11: Average Prime Brokerage Margin Requirements – Margin requirement/LMV

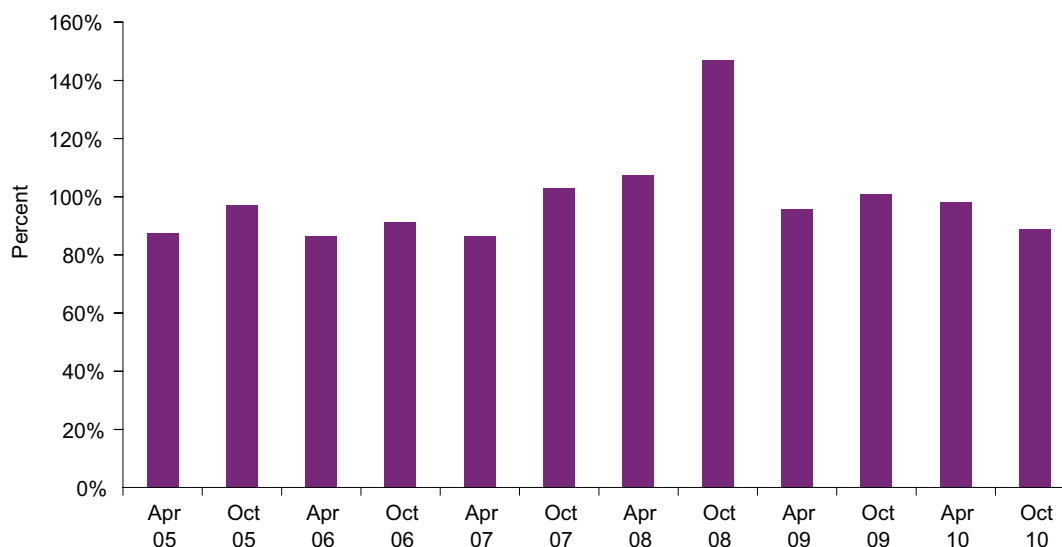


Source: FSA HFACS

14 '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.

A further factor that may mitigate any potential systemic risks from hedge funds is the posting of excess collateral by hedge funds. The HFACS suggests that the average excess collateral is currently around 90% of the base margin required, in line with the long-run average over previous surveys (Chart 12). There are potentially other factors that could influence these numbers, including developments in hedge funds' cash management, such as an increased use of custody accounts for excess collateral. Also, if this excess collateral can be moved rapidly, it may not provide the counterparty with the level of protection it suggests.

Chart 12: Average Excess Collateral Held by Prime Brokers – Collateral as a percent of base margin¹⁵



Source: FSA HFACS

Portfolio concentration

As part of our analysis we also look at operational and portfolio measures, in particular, looking for outliers and changes over time. Portfolio concentration – measured as the top 10 positions as a percent of total Gross Market Value (GMV) – declined slightly for the median Qualifying Fund relative to the previous survey. The largest number of funds report that their top 10 positions account for between 1-15% of total GMV, with 50% of funds reporting it as less than 30% (Chart 13).

15 'Excess collateral' is defined as the net equity held in a prime brokerage account, in excess of the margin requirement

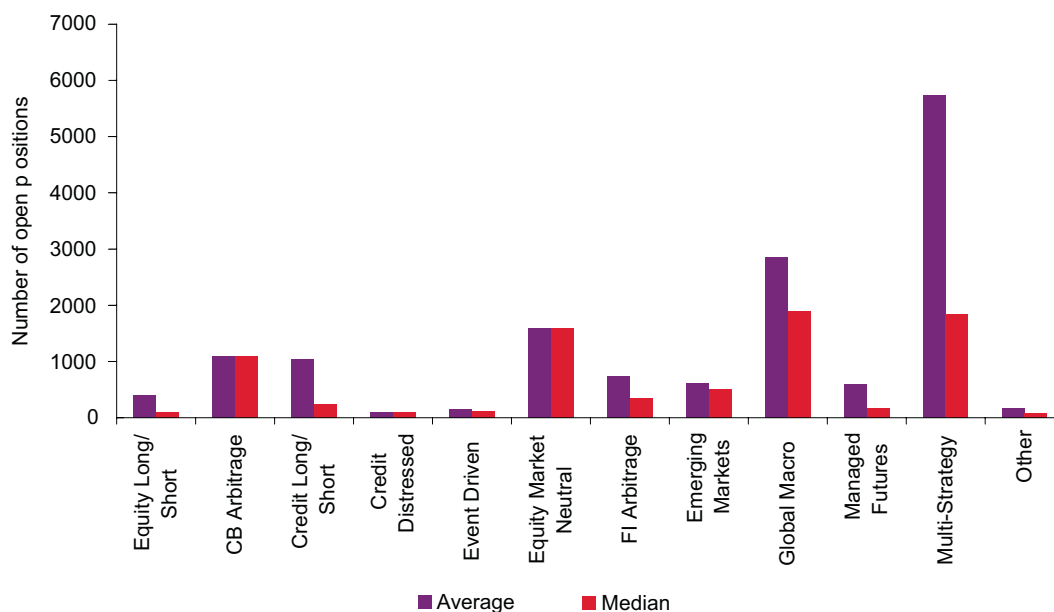
Chart 13: Top 10 Positions as a Percent of GMV – September 2010



Source: FSA HFS

The number of open positions can also vary considerably by fund. Multi-strategy and global macro type funds have the highest number of open positions on average (and for the median), while credit, distressed and event-driven have the lowest (Chart 14).

Chart 14: Number of Open Positions by Strategy – September 2010



Source: FSA HFS

Concluding remarks

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

- Most surveyed hedge funds had positive returns over the survey period. Assets below their high-water mark declined, enhancing the sustainability of the sector.
- The footprint of surveyed hedge funds within markets is generally small when measured by the value of their holdings, suggesting that in aggregate they do not have a major presence in most markets. Convertible bonds, interest rate and commodity derivatives are potential exceptions.
- Leverage has not changed significantly relative to previous surveys. Understanding leverage and the source of borrowings is one of the keys to assessing systemic risk.
- Hedge funds have ‘pushed out’ their financing terms recently. But the risk of a sudden withdrawal of liabilities during stressed markets (particularly financing) is likely to remain with an associated risk of fire sales of assets.
- Despite some signs of change, counterparty credit exposures to hedge funds remain concentrated amongst a small number of banks. Aside from the apparent extension of average maturities, banks appear to have tightened financing terms for hedge funds post-crisis, increasing their resilience to hedge fund defaults.

Our survey work highlights the importance of regularly collecting such data from hedge fund managers and their counterparties. It informs our supervisory work and allows for a better understanding of any systemic risks that might arise through the activities of hedge funds. In particular, building a time series of data should provide us with a valuable insight into the changing nature of these activities and help us to identify whether risks are emerging.

Our intention is to repeat this survey work in March 2011. We will also continue to work closely with the International Organisation of Securities Commissions (IOSCO) and other national regulators to ensure that a clearer identification of global risks can be achieved through a consistent and proportionate global approach to systemic risk data.

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