

Report on the Fourth IOSCO Hedge Funds Survey

Final Report



OICU-IOSCO

**The Board
OF THE
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Chapter 1 – Introduction

This paper represents the fourth iteration of the IOSCO Hedge Fund Survey (“Survey”) and is based on data as of September 30th 2016. These Surveys have been published biannually, starting with data from September 30th 2010. Over the course of that time, data collection has expanded, through enhanced regulatory reporting regimes in some jurisdictions and by overcoming some legal constraints around the use and sharing of data. As the survey has expanded through those iterations, it has become an increasingly useful source of information about the global hedge fund marketplace, and an integral part of the work of the IOSCO Committee on Investment Management (Committee 5).

This present iteration of the Survey uses data that was collected by the following authorities: AMF (France), BaFin (Germany), Central Bank of Ireland, CSSF (Luxembourg), FCA (UK), MAS (Singapore), SEC (United States) and SFC (Hong Kong), and with input¹ from the Cayman Islands Monetary Authority.

This report follows the same broad layout as the previous IOSCO Hedge Fund Survey (2015). Chapter 2 presents an overview, outlining the Survey’s objectives and the main improvements of this version. Chapter 3 considers relevant regulatory developments across a number of jurisdictions. And Chapter 4 presents the observations of the Survey. An outline of the methodology and structure of the Survey is included as an annex.

Highlights of this survey

The observations of the 2016 Survey can be highlighted as follows:²

- In the two years since the previous results, global assets under management (AUM) of hedge funds captured by the Survey rose 24% to \$3.2 trillion. This increase may reflect a combination of more widespread reporting across jurisdictions, market

¹ Data provided by the Cayman Islands Monetary Authority does not form part of the main dataset on which this Survey is based, but has been used to reference the net assets of Swiss-managed funds in Chapter 2. The data use used to capture some of the activity of the Swiss-managed funds that are domiciled in the Cayman Islands.

² It is important to note that data from previous Surveys may not be directly comparable given that the jurisdictions that have participated in the collection of data, as well as the composition of the underlying hedge funds themselves, have changed over time.

performance, and net fund subscriptions, however, this is not conclusive from the data.

- The Cayman Islands continues to be the fund domicile of choice, making up 53% of the global total by net asset value (NAV). This is largely unchanged from previous years.
- According to the data from the Survey, equity long/short was the most widely used investment strategy, followed by global macro and fixed income arbitrage.
- Gross leverage of the hedge funds in the Survey was 7.1x NAV. This figure includes the notional values of interest rate and FX derivative contracts. Removing those from the data, gross leverage was 3.1x and net leverage was 1.1x.
- At an aggregate level, there is a considerable liquidity buffer, suggesting that in normal market conditions hedge funds should be able to meet investor redemptions.
- As of the measurement date, 3.8% of hedge fund assets had constrained redemptions through the use of liquidity management tools, such as gates, suspensions, or side pockets.

Chapter 2 – Overview of the fourth IOSCO Hedge Funds Survey

Objectives of the IOSCO Hedge Funds Survey

The IOSCO Hedge Fund Survey is an international data exercise which assembles information from national competent authorities on hedge fund activities for the purpose of sharing data. The Survey enables the collection and sharing of information on the scope of hedge fund activities, the markets they operate and invest in, and their leverage and funding.

The aim of collecting such data enables IOSCO to:

- Gain a better insight into the global hedge fund industry;
- Promote global cooperation on possible risks in this sector; and
- Provide a forum for the discussion of potential regulatory options or recommendations if required.

Given the lack of public and global data on hedge fund activities, IOSCO believes that the regular collection and analysis of hedge fund data by regulators remains an important building block to observe trends in the sector and better understand any potential systemic risks that hedge funds may pose to the financial system. The current report also summarises key changes in the regulation of hedge funds since the 2015 report which assists IOSCO to better understand the global environment in which hedge funds operate. The Survey's methodology is outlined in Annex 1.

Focus of the Survey Data Comparability

Compared to previous surveys, this year's version examines a slightly narrower set of metrics to focus on the more relevant data points and to align the data set with regulatory reporting under Form PF in the US and AIFMD in Europe. As a general rule, the definitions and measured metrics have been kept as identical as possible to previous Surveys to facilitate comparisons through time. In making such comparisons, however, it is important to note that the jurisdictions that have participated in the collection of data for the Survey have changed over time, and in some jurisdictions, the data is collected from underlying hedge funds on a voluntary basis so the composition of those funds will not necessarily remain entirely consistent.

One of the elements of data collection that has proved challenging in the past is the issue of double-counting, where the same underlying hedge fund may have reported data in more than

one jurisdiction. For example, data collected in the US as part of Form PF pertains to hedge funds managed by those firms that are registered with the SEC. The SEC reporting thresholds are such that if hedge fund firms are large (more than \$1.5 billion in hedge fund assets) and have at least one qualifying hedge fund (more than \$500 million NAV), then any qualifying hedge funds the firm manages will be included within the US data. As a result, this requirement may pull in some funds that are managed outside the US. For the purposes of avoiding double counting in these cases, the Survey has removed from the data of all other participating countries any funds managed by firms that are likely to have reported to the SEC. Because this methodology may skew the geographic distribution of fund manager location somewhat towards the US and under-represent other countries, the Survey avoids showing a detailed breakdown of funds per jurisdiction of manager as has been shown in previous iterations.

One area that the data set has not fully captured are those hedge fund-like activities that are channelled through European Undertakings for Collective Investment in Transferable Securities (UCITS) funds, since some European countries included data only from funds recorded in AIFMD. These UCITS, which are sometimes known as ‘liquid alternatives’ and can be similar to hedge funds but with certain UCITS limits such as eligible assets and diversification, have emerged as a growing part of the market and are discussed more in the next chapter.

Chapter 3 – Regional Developments in the Hedge Funds sector

Introduction

This chapter provides an overview of some of the key changes in the external environment and regulatory regimes affecting hedge funds over the past two years.

Europe

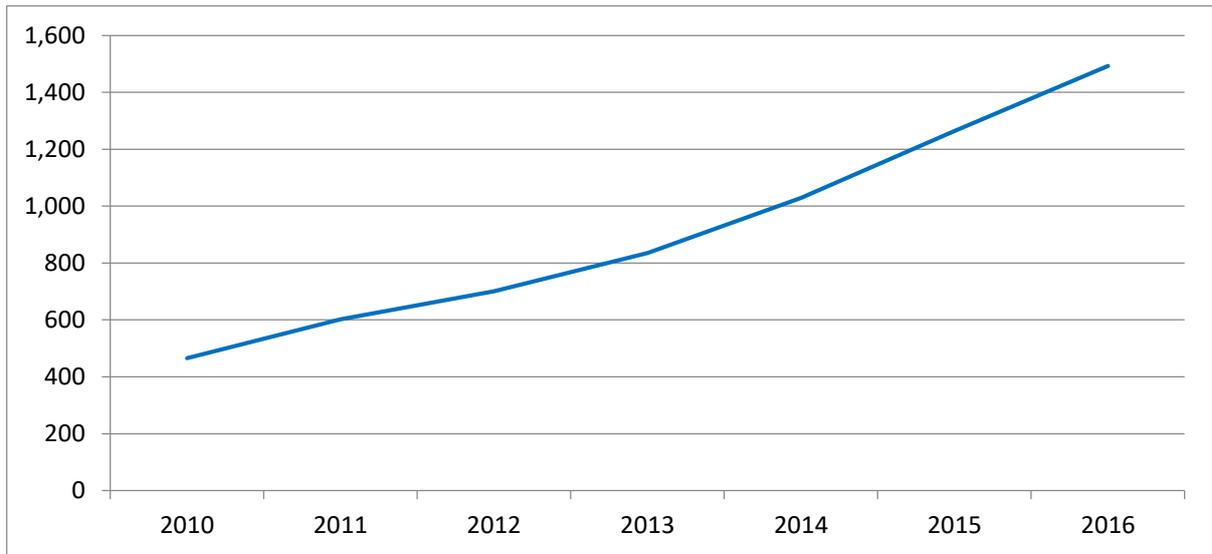
A prominent trend across Europe in recent years is the emergence of so-called ‘liquid alternative’ funds. These are regulated mutual funds implementing alternative investment strategies – often similar strategies traditionally employed by hedge funds, albeit within certain constraints – while providing daily or weekly liquidity. These funds are generally structured as UCITS. They can often be marketed to retail investors, although some European countries have sought to apply marketing restrictions.

The growth of this market is part of a wider trend towards the convergence between traditional asset managers and firms that have historically managed hedge funds. Liquid alternatives often represent the vehicle through which traditional managers are launching products that are more alternative in nature, and alternative fund managers are attempting to capture a wider audience for their investment strategies.

The following charts demonstrate the expansion of the liquid alternative universe within Europe over the last few years. There has been considerable growth both in the number of funds and in the total assets.

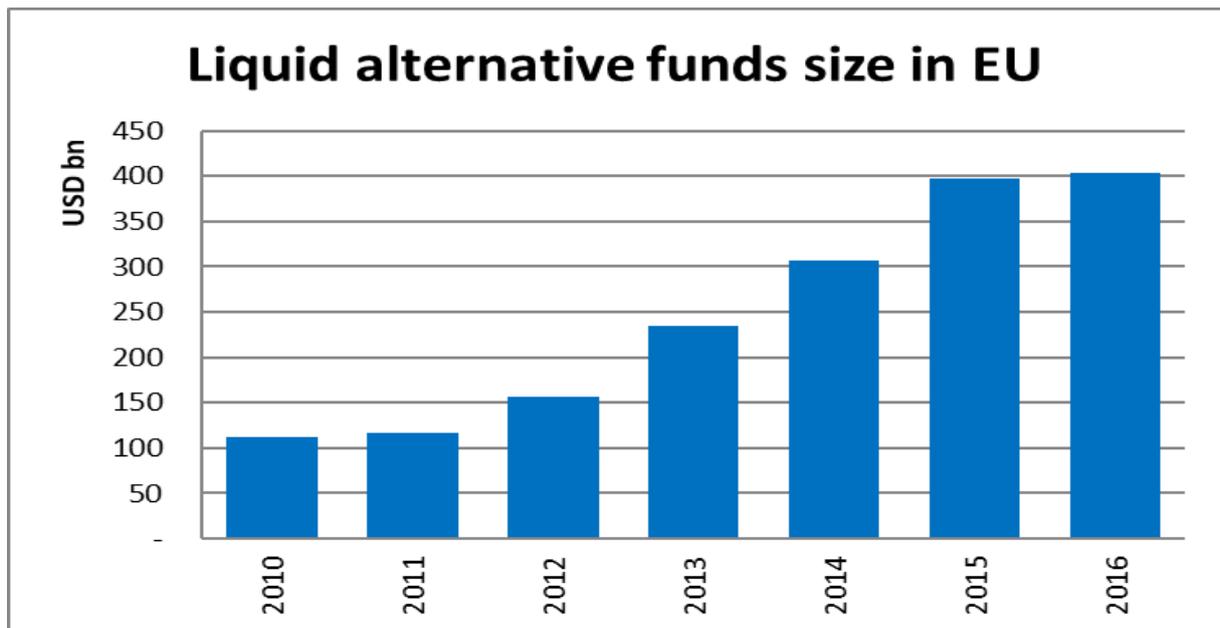
Another development across Europe is increased regulatory reporting for EU hedge funds. EU Member States, and the European Securities and Markets Authority (ESMA), have put significant efforts into implementing and exploiting captured data under the new AIFMD reporting requirements, which will allow regulators across Europe to better understand and assess risks stemming from hedge funds in the EU. Ongoing work at ESMA on the definition of risk indicators based on the AIFMD reporting, and the changes in the UK outlined below, are examples of these efforts.

Figure 1: Number of liquid alternatives in European Union



Source: Morningstar

Figure 2: Liquidity alternative fund size in the European Union



Source: Morningstar

United Kingdom

AIFMD reporting data has significantly improved the FCA's ability to monitor alternative investment fund information on a regular basis and its ability to reduce relevant risks with supervisory work, but it has identified some information gaps. This is especially the case with

master AIFs, some of which have large trading footprints in specific market segments, and also have significant leverage relationships with other market counterparties.³

To reduce this information gap, the FCA made changes to its AIFMD transparency reporting requirements in January 2017. These changes impact two types of alternative investment funds:

- Non-EEA AIFs that are not marketed in the EEA but are managed by a full-scope UK AIFM (e.g. a rest of world fund, managed by a UK fund manager) are now required to provide enhanced reporting to the UK regulator.
- Non-EEA AIFs that are master AIFs with one or more of their feeder AIFs marketed in the UK, where the master fund itself is not marketed in the UK (e.g. a rest of world fund, marketed in the UK through a feeder fund) are now required to provide master-level transparency data to the UK regulator.

The reporting changes apply only to UK AIFMs and non-EEA AIFMs that are required to report on a quarterly basis.

The additional collected data will make it possible to more effectively monitor and compare the risk-taking activities of AIFMs that will be required to report under the revised reporting requirements, with the aim of supporting increased financial stability and reducing systemic risk.

United States of America

Since October 2015, the US SEC's staff has released quarterly *Private Fund Statistics* reports which offer investors and other market participants insights by aggregating data reported to the Commission by private fund advisers on Form ADV⁴ and Form PF.⁵

³ A master AIF is a fund into which another AIF – the feeder AIF – invests at least 85% of its assets

⁴ Form ADV is the form used by investment advisers to register with the SEC and/or certain state authorities. Investment advisers must report on Form ADV general information about private funds that they manage, such as basic organisational and operational information, fund size and ownership.

⁵ Form PF is filed by SEC-registered investment advisers with at least \$150 million in private fund assets under management to report information about the private funds that they manage. Most advisers file Form PF annually to report general information such as the types of private funds advised (e.g. hedge funds or private equity), each fund's size, leverage, liquidity and types of investors. Certain larger advisers provide more information on a more frequent basis (including more detailed information on certain larger funds).

On 3 May 2017, the SEC staff published a suite of new data and analysis of private fund statistics and trends in its 3rd quarter 2016 *Private Fund Statistics* report.⁶ The new analyses include information about the use of financial and economic leverage by hedge funds, and characteristics of private liquidity funds.

This report, with 90 separate tables and figures, provides comprehensive analysis of hedge fund industry practices such as the use of economic and financial leverage, investment strategies, collateralisation of borrowings, and investment category exposures. These new statistics supplement information about the number and type of funds, the gross and net assets of funds, the distribution of borrowings, analysis of gross notional exposure to net asset value, and a comparison of average hedge fund investor and hedge fund portfolio liquidity.

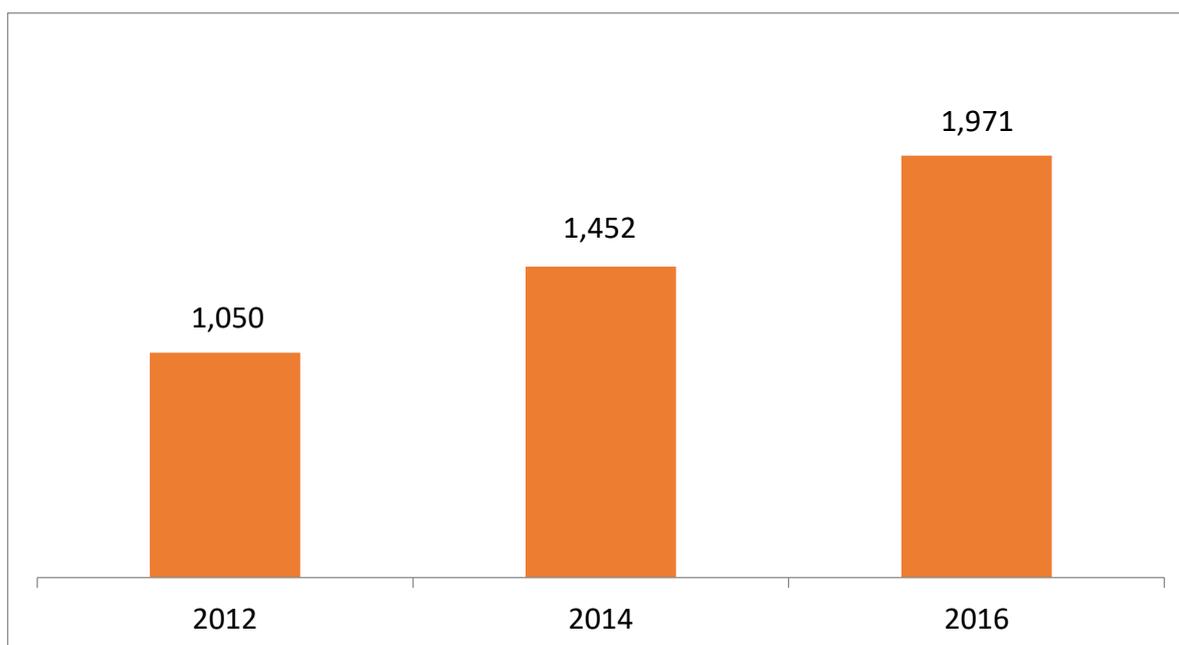
⁶ Private Fund Statistics, Staff Report, Third Calendar Quarter 2016, available at <https://www.sec.gov/divisions/investment/private-funds-statistics/private-funds-statistics-2016-q3.pdf>. Form PF information provided in this report is aggregated, rounded, and/or masked to avoid potential disclosure of proprietary information of individual Form PF filers.

Chapter 4 – Global Hedge Fund Industry Analysis

Results

The Survey captured data from 1,971 qualifying funds⁷ as of September 2016, compared with 1,452 funds captured in the previous Survey showing data from September 2014 and 1,044 in the Survey showing data from September 2012. The significant increases over time are likely reflective of more widespread reporting to regulators related to the various data sets.

Figure 3: Number of Funds



Source: 2016 IOSCO Hedge Funds Survey

Some of the increase may also be due to consolidation of smaller funds into larger ones that meet the minimum size threshold (the Survey has defined qualifying hedge funds as those with at least \$500 million of net assets), for example as hedge fund managers seek added scale to service an institutional client base that may be structurally or practically prohibited from investing in very small funds. In such cases, this would be pre-existing AUM only now captured within the survey, rather than growth in the hedge fund market.

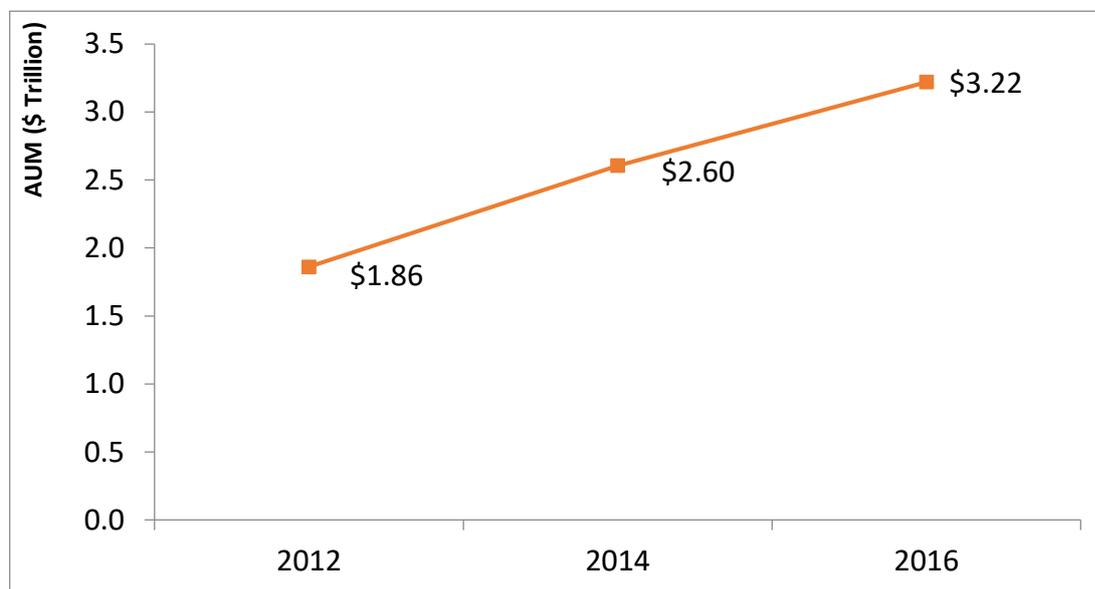
Assets Under Management

The total net assets under management of the funds captured in the survey is \$3.2 trillion, which represents an increase of 24% from the September 2014 figure of \$2.6 trillion and 73% from 2012, or an average of 14.7% year on year growth. That increase likely represents a

⁷ Qualifying criteria are set out in Annex 1.

combination of improved data collection, fund performance, an increase in the universe of funds meeting the minimum size threshold, and growth in the market through net new investment.

Figure 4: Growth in Assets Under Management



Source: 2016 IOSCO Hedge Funds Survey

As an approximate indication of the role investment performance may have played in that increase, we can look at some high-level data from third-party providers. The Hedge Fund Intelligence Global Composite Index produced a cumulative return of 21.2% in the four years to 30th September 2016.

This total AUM figure of \$3.22 trillion, while including only those funds above the minimum size threshold, is likely to cover a significant portion of the global total. Recent industry reports have put the global aggregate AUM of hedge funds at between \$3.02 trillion⁸ and \$3.22 trillion,⁹ implying that the headline observations of our Survey are consistent with industry estimates, noting however that such industry estimates are based on voluntary disclosures and therefore not directly comparable to data from the Survey.

As set out in Chapter 2, to avoid double counting, the Survey has scaled down the data sets of other jurisdictions where hedge funds were likely to have also reported to the SEC under Form PF. This might create the appearance of more of the universe being within the US jurisdiction and understating the hedge fund activity in other countries. For that reason, the

⁸ HFR Global Hedge Fund Industry Report, 2016

⁹ Preqin, November 2016

Survey does not show a breakdown of the aggregate AUM by the country where the manager is based, as have past iterations of the Survey, but focuses instead on the global total. That said, data from the US indicates that 89.4% of the total AUM captured within the US data set comes from hedge funds whose manager's main office is in the US, implying that 76% of the global total, or \$2.4 trillion, is with primarily US-based hedge fund managers. Funds managed primarily in the UK accounted for roughly 10% of the global total.

A potential source of gaps in the Survey's numbers is that not all jurisdictions where hedge funds are managed have provided data for this report. In most cases, this represents a relatively small number of funds, and it is possible that some have nonetheless reported to the SEC and will therefore be reflected in the data.

One instance where there might be a more meaningful gap is hedge funds based in Switzerland. According to figures provided by the Cayman Islands Monetary Authority (CIMA), there were 231 Cayman Islands-domiciled hedge funds managed in Switzerland as of 31st December 2015, with a total NAV of \$71 billion.¹⁰ These numbers are not directly comparable to the rest of the dataset, first because they refer to a different date, second because they are not filtered to exclude funds below the minimum size threshold or to exclude funds of funds, and third because they include only those Swiss-managed funds domiciled in the Cayman Islands. Moreover, we do not know how many of these funds have also reported data to the SEC. However, the figures from the CIMA provides some sense of the potential magnitude of this gap in the total.

Parallel Accounts

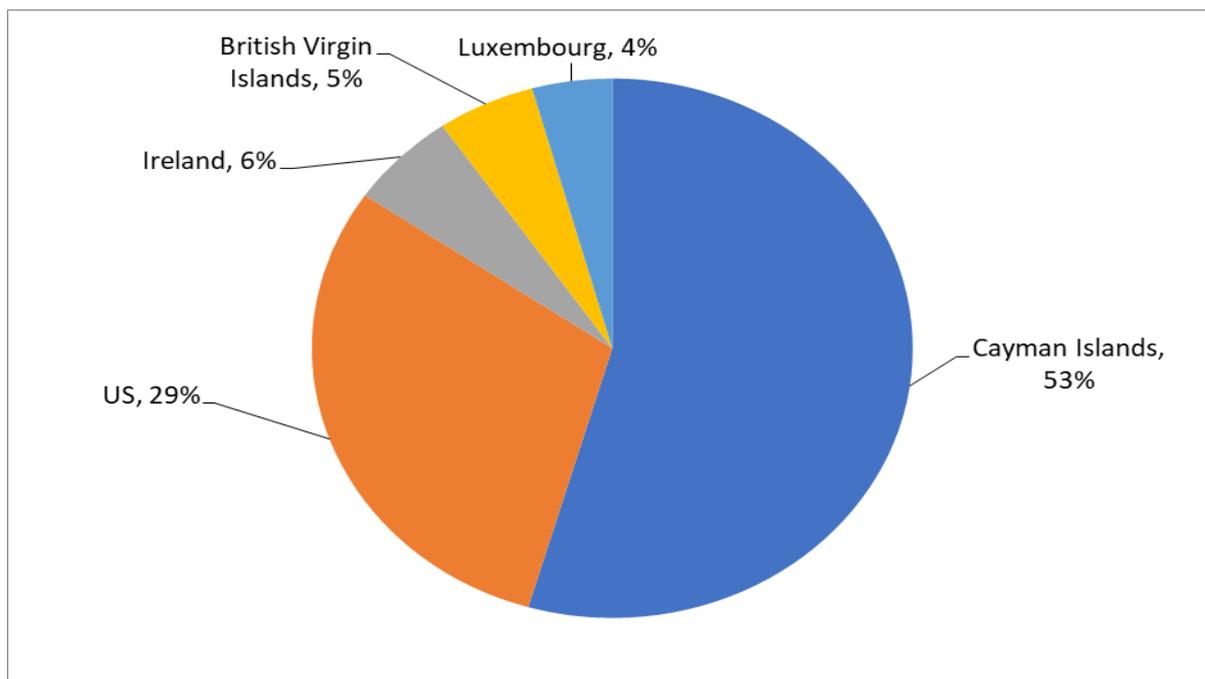
Data from Form PF in the US indicates that above and beyond the aggregate AUM of the funds themselves, there was an additional \$436 billion in managed accounts reported to the SEC, run in parallel to qualifying hedge funds. Adding this figure to our total, for a more comprehensive picture of the hedge fund universe, would give us a total AUM of \$3.66 trillion. It is important to note, however, that the corresponding data from the countries using AIFMD returns does not necessarily include such parallel managed accounts as they are not required to report them.

¹⁰ Cayman Islands Monetary Authority Investments Statistical Digest – 2015.

Fund Domiciles

Hedge funds remain mostly domiciled in the Cayman Islands, and to a lesser extent the US. The portion of funds domiciled in Europe and Asia remains very limited, as indicated in Figure 5. The domicile percentages are largely unchanged from the previous Survey.

Figure 5: Top Fund Domiciles by Assets Under Management



Source: 2016 IOSCO Hedge Funds Survey

Note: Only top 5 reported domiciles graphically represented

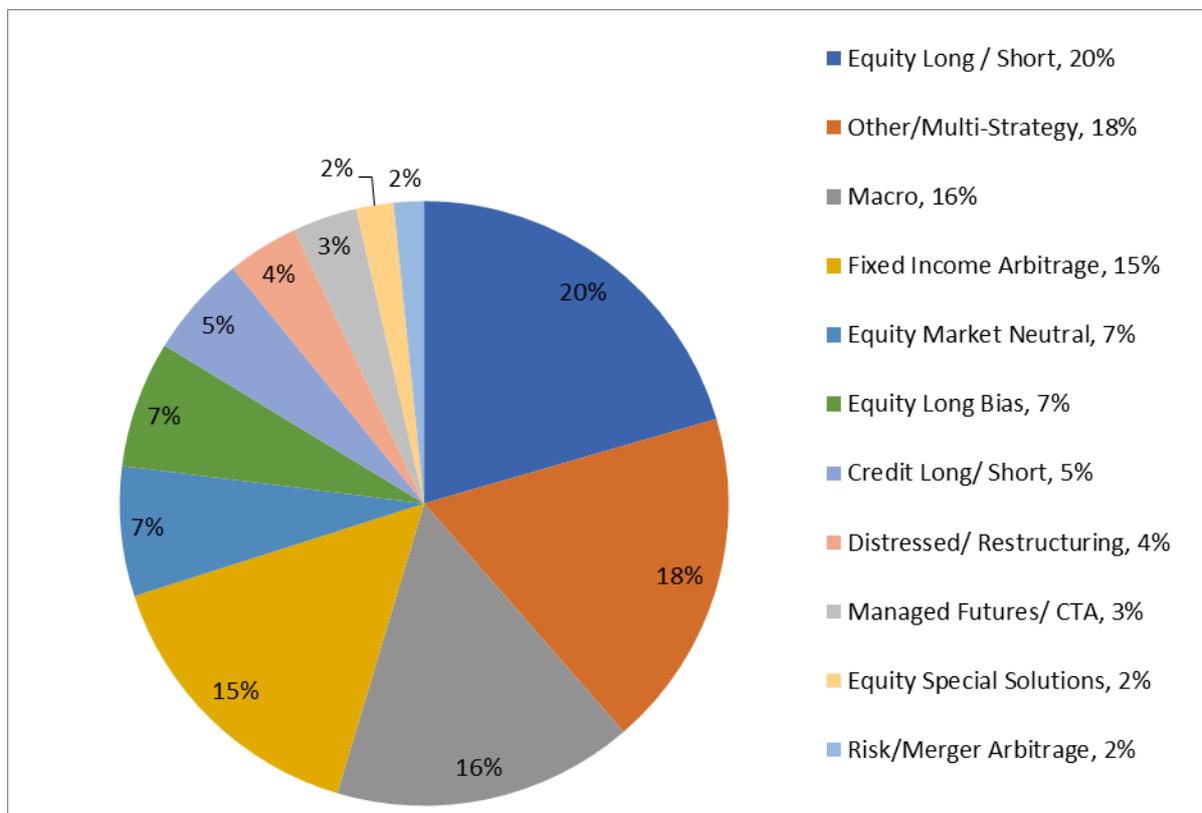
Investment Strategies

‘Hedge fund’ is an umbrella term, and within that broad group funds will pursue one or more specific investment strategies. In most cases, these fit within a dozen or so major categories of strategy. Figure 6 provides a breakdown of global hedge fund assets by investment strategy.

It is important to note that data from the US, which makes up the bulk of the Survey’s total dataset, discloses a strategy breakdown by gross asset exposure rather than net asset value. This will have the effect of giving more weight to those strategies that are more highly leveraged. It also means that the total allocated across all strategies will be greater than the total global NAV. Nonetheless, it can show the proportion of assets – gross exposure for the

US funds, net assets for the rest of the data set – within each investment strategy category. Approximately 10% of the global AUM was not attributed to any investment strategy.

Figure 6: Top Investment Strategies by Assets Under Management



Source: 2016 IOSCO Hedge Funds Survey

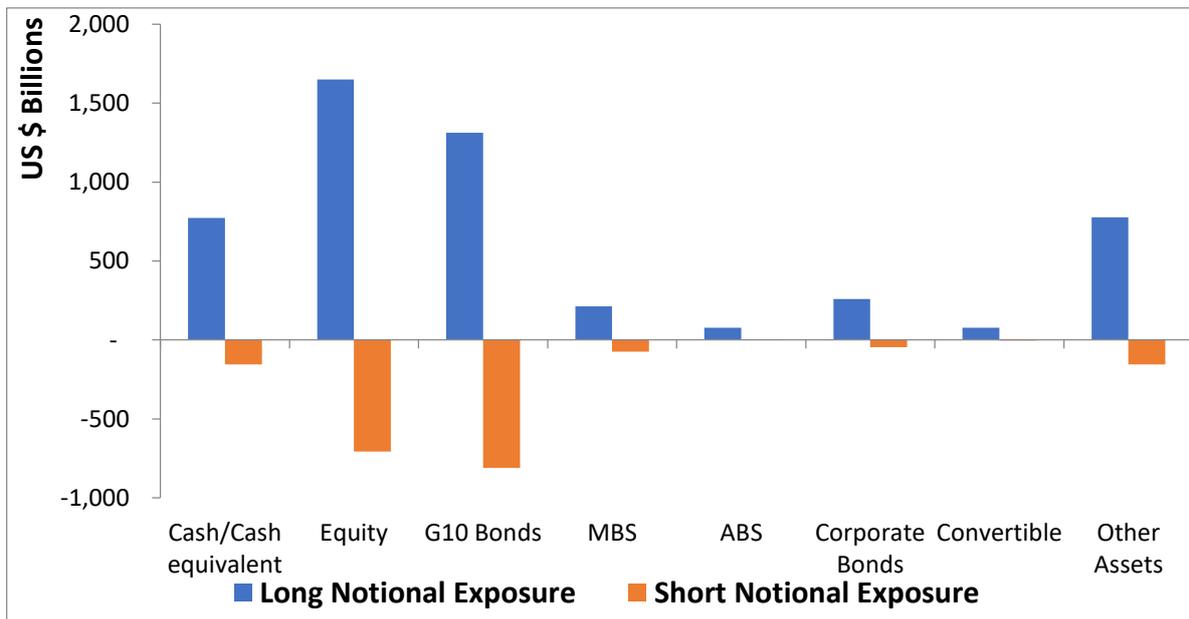
Note: Only top 11 reported investment fund strategies graphically represented

Investment Exposures

The Survey looked at hedge funds' exposure to different asset classes, and this can be charted for both their long and short exposures.

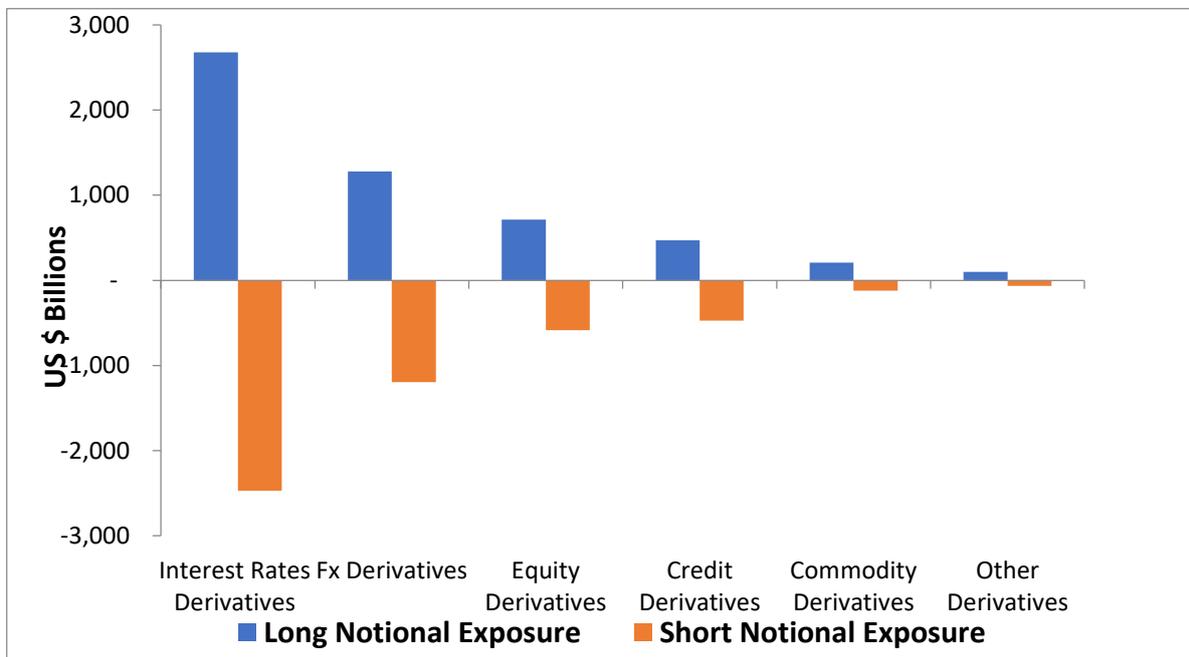
The gross exposure per asset class, shown below, adds the short positions to the long positions. The first thing to note on the gross exposures is that the values for interest rate derivatives dominate the results. While data from the US reports interest rate derivatives in terms of 10-year bond equivalents, other jurisdictions report them based on the notional values of the contracts, which may far outweigh the amount really at risk in these transactions. The same is true of FX derivatives, and to a lesser extent, equity derivatives, which appear high relative to other asset classes.

Figure 7: Cash Securities – Long and Short Notionals



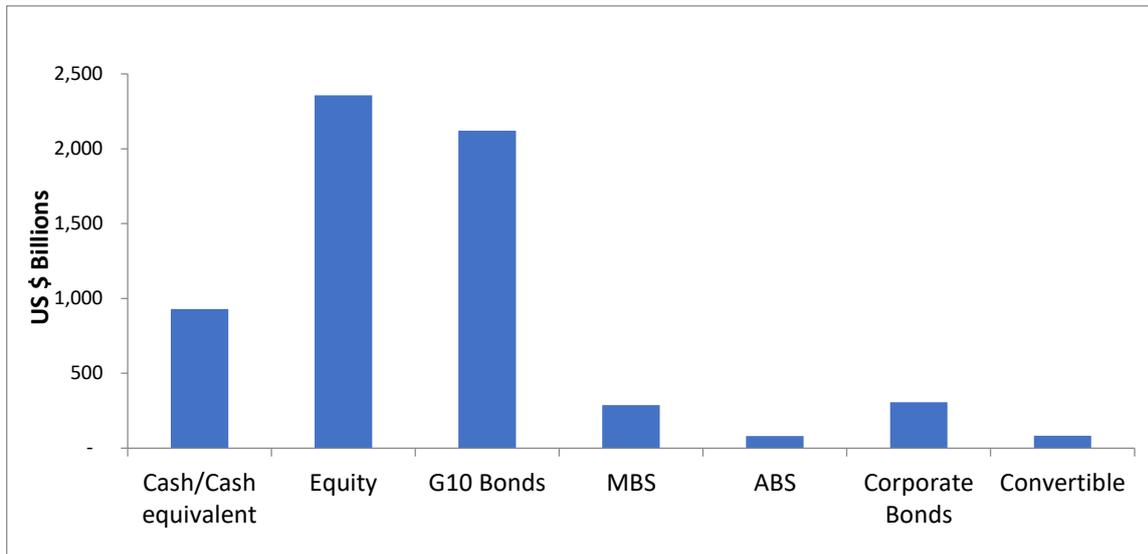
Source: 2016 IOSCO Hedge Funds Survey

Figure 8: Derivatives – Long and Short Notionals



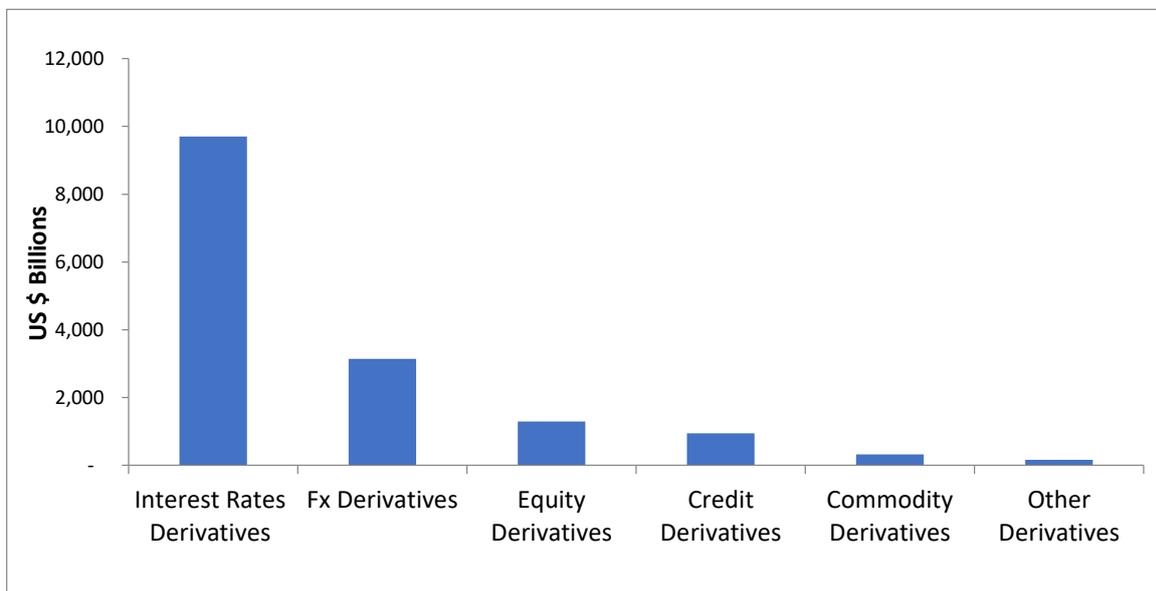
Source: 2016 IOSCO Hedge Funds Survey

Figure 9: Cash Securities Gross Exposure



Source: 2016 IOSCO Hedge Funds Survey

Figure 10: Derivatives – Gross Exposures



Source: 2016 IOSCO Hedge Funds Survey

After derivatives, equities represented the next highest total in both long and short exposure, and this corresponds with the earlier chart showing Equity Long/Short as the predominant investment strategy. G10 fixed income securities represented the next highest for long and short, and this is perhaps also unsurprising given the next two most prevalent strategies of

global macro and fixed income arbitrage, both of which might be expected to make extensive use of government bonds.

To put these numbers into context, the gross exposure to cash equities of \$2.4 trillion is relative to an estimated global total market capitalisation of approximately \$62 trillion.¹¹ The Bank for International Settlements has estimated the total open interest of exchange traded derivatives, as of 31 December 2016, to be approximately \$66.9 trillion for interest rate derivatives and \$0.3 trillion for FX derivatives. It has estimated the total notional value of OTC derivative contracts, as of the same date, to be approximately \$368 trillion for interest rate derivatives, \$69 trillion for FX derivatives, \$10 trillion for credit derivatives, \$6 trillion for equity-linked derivatives, and \$1 trillion for commodity derivatives.¹²

Leverage

In general terms, leverage refers to any situation where a fund achieves an exposure larger than the capital it invests, and in practice, hedge funds obtain this leverage either through borrowing money or securities directly from counterparties such as prime brokers and repo markets (financial leverage), or indirectly by using derivative instruments such as options, futures, and swaps (synthetic leverage). Aggregating the long and short exposures to each asset class allows the calculation of total leverage across the hedge fund universe. This can be calculated both on a gross leverage basis, where the absolute value of short positions is added to the value of long positions, and the total is divided by the NAV. Or it can be calculated on a net leverage basis, where the value of short positions is netted off from the value of long positions. The net basis tends to give a more reasonable estimate for the degree of market risk the funds are exposed to, while the gross basis, in theory, speaks more to the funds' systemic footprint, although notional values of derivative contracts can give an inflated view of this, as described earlier.

Across the sample, total gross notional exposure to all asset classes – adding short positions to long positions – was \$22.7 trillion. When we divide this number by the global NAV of \$3.2 trillion, we see a gross leverage of 7.1x. Looking at changes to leverage levels over time, the data from the previous Survey indicates a corresponding gross leverage of 5.1x NAV in

¹¹ This is from data published by the US Central Intelligence Agency, using figures from 2014 – 2016, depending on the country.

¹² http://www.bis.org/statistics/about_derivatives_stats.htm

2014. While that appears to suggest a meaningful increase in leverage, on its own, it is a misleading figure. One of the factors impacting those numbers is the inclusion of notional values of interest rate and FX derivatives, which may exaggerate the level of exposure, as discussed previously.

Re-calculating the figures to exclude those particular categories leaves us with a gross exposure of \$9.8 trillion, implying a more modest gross leverage of 3.1x. The data from previous Surveys does not allow us to calculate a corresponding figure from 2014, but looking at data from the US over a slightly shorter time period shows gross leverage excluding interest rate and FX derivatives was unchanged at 3.1x NAV on both September 30th 2016 and December 31st 2014 (the earliest date for which there is corresponding Form PF data). What appears to be an increase in gross leverage can be explained -- probably to a large extent -- by higher notional amounts on derivative contracts.

Data from the Survey allows the calculation of net leverage excluding interest rate and FX derivatives, but not net leverage including interest rate and FX derivatives since, as previously noted, data outside the US includes these derivative values only on a gross basis without further breaking them down into long and short. Excluding these derivative exposures, the net exposure to all other asset classes – subtracting short positions from long – was \$3.4 trillion, implying an aggregate net leverage of just 1.1x.

Table 1 summarises the aggregate leverage values under the different methodologies, and compares them to those in the previous IOSCO Survey where possible.

The values above represent global aggregates and the amount of leverage used by hedge funds may vary considerably depending on the investment strategy they are employing. Some strategies call for more leverage because they involve efforts to capture small variances between instruments or spreads. This is often the case in fixed income arbitrage that focuses on G10 government bonds or short-term interest rate futures contracts. Other strategies may require less leverage because they are looking for large changes in high-beta securities or spreads between instruments that are less tightly correlated. This is often the case in distressed debt strategies or equity long/short investing, for example.

Table 1: Leverage figures by selected metrics

	Sept. 30, 2016	Sept. 30, 2014
Gross leverage, including interest rate and FX derivatives	7.1x	5.1x
Gross leverage, excluding interest rate and FX derivatives	3.1x	
Net leverage, excluding interest rate and FX derivatives	1.1x	

Source: 2016 IOSCO Hedge Funds Survey

The amount of synthetic leverage being employed by the hedge funds in the sample can be calculated by aggregating their total gross exposure to derivatives, plus NAV, divided by their NAV. Under this methodology, global gross synthetic leverage was 5.8x. Using the same formula but looking at net exposure to derivatives instead of gross, the global net synthetic leverage was 1.2x. (The next section looks at financial leverage).

Borrowing

Table 2 shows the levels of secured and unsecured cash borrowings of the hedge funds in our sample and compares these values to the data from two years ago.

Table 2: Borrowing summary – secured and unsecured

		Sept. 30, 2016		Sept. 30, 2014	
		\$ billions	% NAV	\$ billions	% NAV
Unsecured cash borrowing		11.88	0.4%	11.09	0%
Secured/collateralised	via PB	1,155.69	35.9%	1,055.15	41%
	via repo	977.66	30.4%	589.91	23%
	via other	362.14	11.2%	287.66	11%
Securities borrowed and reverse repo (where disclosed separately)		225.59		n/a	
Total		2,732.96		1,943.81	

Source: 2016 IOSCO Hedge Funds Survey

Prime brokers continue to represent the largest source of financial leverage for hedge funds, but compared with 2014, there is an increased reliance on repo markets.

For the value of securities borrowed and done under reverse repo, there is data only from outside the US as this data point is not broken out separately in Form PF. This total was \$225.6 billion, representing 47% of the NAV of those funds that reported the figure.

Adding together cash and securities borrowing (\$2.7 trillion) with of the NAV (\$3.2 trillion) yields a total of \$5.9 trillion, or 185% of global NAV. This equates to financial leverage of 1.8x. Data from the previous Survey indicates that as of September 30th, 2014 the financial leverage was 1.7x.

Table 3: Synthetic and financial leverage

	Sept. 30, 2016
Gross synthetic leverage	5.8x
Financial leverage	1.8x

Source: 2016 IOSCO Hedge Funds Survey

Collateral

The Survey looked at the aggregate value of collateral that hedge funds had posted with counterparties. This collateral could take the form of cash (for example, in cases where the fund has borrowed securities), cash equivalents, securities (excluding cash equivalents), or other forms of credit support (for example, letters of credit). Collateral can mitigate counterparty risk, although its value can fall.

In aggregate, hedge funds across the sample had posted, at September 30th, 2016, \$858.6 billion of collateral in the form of cash and equivalents, and \$1,848.8 billion of other collateral, including securities and credit support, for total collateral of \$2,707.4 billion. That mix has changed over time: in 2014, 39% of collateral posted by hedge funds was in the form of cash and equivalents, whereas in 2016 it had fallen to 32%.

Data from outside the US also included the amount of the hedge funds' collateral that has been re-hypothecated by their counterparties. Re-hypothecation refers to situations where the entity to which one has posted collateral then posts it with, or lends it to, another counterparty. It adds links in the chain separating the party with ultimate beneficial ownership of a security from the party that is actually holding the security or who has temporary legal ownership of it. In theory, all transactions of a multiple re-hypothecation can be unwound if and when the beneficial owner needs the security returned. In practice,

however, re-hypothecation adds complexity to the system because it can be operationally difficult to unwind multiple transactions and return collateral to its source. It also adds counterparty risk each time one entity passes it along to another.

Of the funds for which this data was collected, there was a weighted average of 29% of the collateral that hedge funds have posted, which has been re-hypothecated. This represents a meaningful increase from two years earlier. Observations from the previous Survey indicated that in September 2014, only 12% of the collateral posted by hedge funds had been re-hypothecated by their counterparties. However, this data point is from a small sample as it does not include figures from the US, since this data is not published as part of the SEC's Private Fund Statistics.

Trading and Clearing

The survey looked at the mechanisms by which the securities invested in by hedge funds were traded and cleared. Not all jurisdictions were able to gather this information for the funds they surveyed. Like the re-hypothecation figures, the trading and clearing mechanism data is not published through the SEC's Private Fund Statistics, so this does not include data from the US and therefore represents a limited sample size.

Of those that did report these figures, the split was fairly even on the portion of cash securities traded on exchange versus over-the-counter (OTC), with a weighted average of 52.8% on a regulated exchange and 47.2% OTC. Of the derivatives within funds, a weighted average of 38.2% were traded on exchange, versus 61.8% OTC. And within the subset of OTC derivatives, an average of 18.2% was cleared by a central counterparty, versus 81.8% bilaterally transacted with no central clearing. Table 4 shows how these numbers compare with those of the previous Survey.

The data indicates that between 2014 and 2016 there was a decrease in the proportion of on-exchange trading of cash securities and derivatives, though this could have been driven by a change in the asset classes being traded. For example, fixed income securities are more often traded OTC.

Table 4: A comparison of trading and clearing statistics across IOSCO Hedge Fund Surveys¹³

		On-exchange	OTC
Cash securities	2016	52.80%	47.20%
	2014	58.09%	41.91%
		On-exchange	OTC
Derivatives	2016	38.24%	61.76%
	2014	39.09%	60.88%
		Centrally cleared	Bilateral
OTC derivatives	2016	18.16%	81.84%
	2014	16.21%	81.21%

Source: 2016 IOSCO Hedge Funds Survey

Directly following the global financial crisis, the G20 countries committed to reduce systemic risk in banks and other financial firms. This included a commitment that all standardised OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties. That commitment has since made its way into legislation across different parts of the world, including through the Dodd-Frank Act in the US and the European Market Infrastructure Regulation (EMIR), which means the trading and clearing mechanism numbers may change in future iterations of the IOSCO Survey as these pieces of legislation are implemented. In Europe, EMIR's mandatory clearing obligation started in July 2016, so it is possible that development had an impact on the numbers from this year's Survey, although the application of those obligations was designed to be phased in over time, depending on the nature of the derivative and the counterparties involved. Therefore, it might have more of an impact in the next biannual Survey.

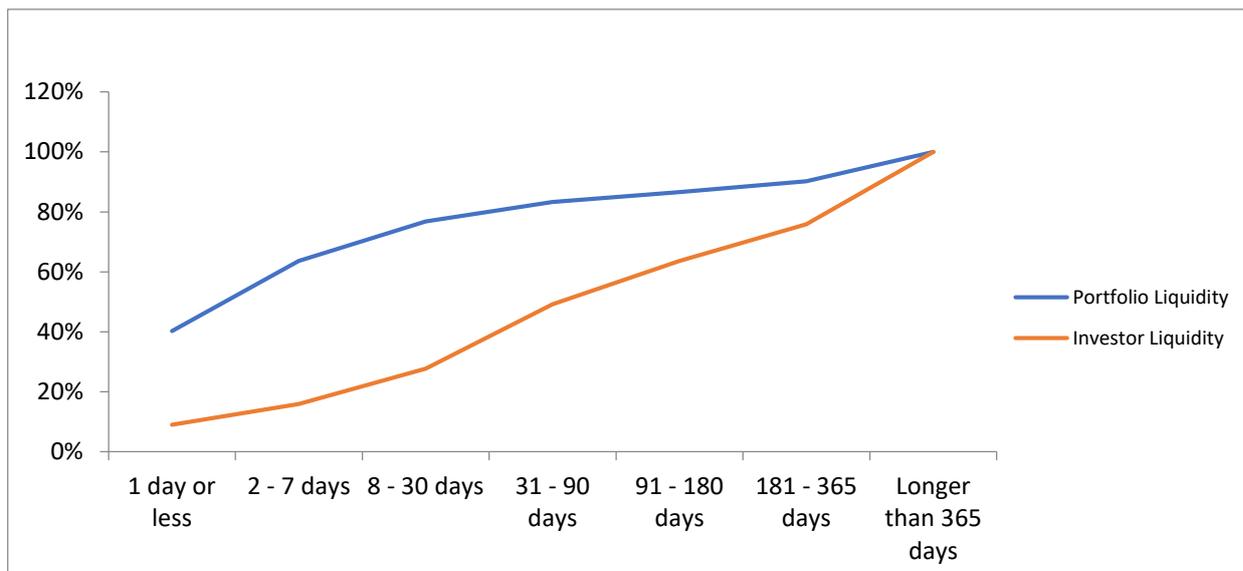
The portion of centrally cleared OTC derivatives may also be impacted by the mix of different derivative types, such as, for example, interest rate versus equity derivatives.

¹³ The data from this table combines two slightly different methodologies. Two countries, comprising roughly 2% of the total data, computed these metrics on the basis of trading volume where the other three countries (representing approximately 13% of the total) computed them on the basis of market value. Separating these methodologies, the % of cash securities traded on-exchange was 49% based on market value and 77% based on trading volume. Derivatives traded on exchange were 38% based on market value and 39% based on trading volume. And the % of OTC derivatives centrally cleared was 19% based on market value and 12% based on trading volumes.

Liquidity

The liquidity profile of a fund compares the liquidity of its underlying holdings (‘portfolio liquidity’) with the value that could normally be redeemed by the fund’s investors (‘investor liquidity’) over various time periods. Portfolio liquidity is designed to measure the value of holdings that could be sold under normal market conditions – that is, not at fire sale discounts.

Figure 11: Average liquidity profile



Source: 2016 IOSCO Hedge Funds Survey

At a global aggregate level, portfolio liquidity exceeds investor liquidity by a wide margin across the different time periods, as demonstrated by the area between the curves in Figure 11. This area is sometimes referred to as the liquidity buffer. The presence of a considerable liquidity buffer would suggest that, in aggregate, most hedge funds should be able to meet investor redemptions through the orderly liquidation of assets.

That aggregate view may provide some comfort at a systemic level, but it would not necessarily highlight liquidity mismatches within the underlying funds that make up this aggregate.

It is also important to recall here the discussion in Chapter 3 about the rise in liquid alternative funds, which pursue similar strategies to hedge funds but offer daily or weekly redemption terms to investors. Such funds have not in all cases been caught within this Survey; if they were fully included in the aggregate liquidity profile, however, the graph

above might look somewhat different, potentially with a higher proportion of investor liquidity and portfolio liquidity at the very short end of the time axis. The UCITS legislation does require such funds to take measures necessary to ensure that facilities are available for making payments to unitholders that are redeeming units.

The graph above also does not include funds of funds, which were outside the scope of the Survey. Funds of funds will have their own liquidity profiles, as the redemption terms of the hedge funds they invest in are managed against the redemption terms on the fund of funds itself.

Special Arrangements for Managing Liquidity

The Survey looked at hedge funds' use of liquidity management tools. These tools, which may be used to manage those situations where investors have requested the return of their funds, can include suspensions, gates, and side-pockets. Suspensions and gates limit investors' ability to redeem, and side-pockets carve off the particularly illiquid part of the underlying portfolio and allow redemptions only on the portion outside this part.

As of September 30th, 2016, a total of \$20.1 billion, or 0.62% of global AUM, was under suspended redemptions. Another \$61.1 billion, or 1.90%, was in funds with a gate in place.¹⁴ And another \$39.7 billion of assets, or 1.23%, was within side pockets. A further \$775 million of assets were under some other form of arrangement for managing illiquid assets. In aggregate, there was \$121.6 billion of assets under liquidity management tools, representing 3.78% of the global universe.

The total value under special arrangements has stayed fairly consistent over time. The figure from the 2014 sample was 2.90% and 4.10% in 2012. These are all, however, just snapshots at particular points in time. It is also worth noting that of the \$20.1 billion under suspended redemptions, more than one-fifth of this came from a single fund.

¹⁴ For the purposes of this survey "Suspended redemptions" means redemptions are entirely forbidden, while gated redemptions implies investors can only get a portion of their money back.

Appendix A – Methodology and Structure

Methodology

The 2017 iteration of the IOSCO Survey was conducted following the same methodology and using a similar template to the one used in 2015, to allow the data to be comparable over time. In recent years, changes in the regulatory environment have led to an increasing harmonisation of data collection across hedge funds and across different reporting streams. An example of this harmonization is the data collected under Form PF and the AIFMD.

The firms and funds captured in the Survey met the following conditions. They must:

- Qualify as a hedge fund, either based on criteria defined in its local jurisdiction, based on its own declaration to its regulator or based on a combination of criteria, such as the use of leverage, the complexity of strategies, and the application of performance fees;
- Be at least partially managed by a regulated entity within their jurisdiction or marketed in that jurisdiction;¹⁵
- Be managed by a single manager, i.e. fund of funds (or multi-manager funds) are excluded; and
- Be able to demonstrate that it manages at least USD 500 million of total global net assets (net AUM or NAV). This includes the sum of all accounts managed under the same strategy (for example including pooled funds and separately managed accounts), to ensure the product is fully captured.

Structure of the survey

The fourth version of the survey was made up of 21 questions over two sections. Section 1 is based on information collected at the *firm* level and Section 2 comprises information at the *fund* level. The latter section forms the majority of the questionnaire, as more granular data on hedge fund risks and activities is identified at this level. Details of what is included in each section of the questionnaire are outlined in the following table.

¹⁵ In many cases, the funds are not domiciled (and sometimes not marketed) in the reporting jurisdictions. The information is then provided by the manager of the given hedge fund.

Section 1	<p>Management company information</p> <p>This section includes general questions about the regulated entity and the group/parent it relates to. Additionally, it includes questions on the assets under management for the group/global entity, and assets under management for the local entity, broken down into total group net AUM and total group net hedge fund AUM. This section is used to provide a context for the fund level data.</p>
Section 2	<p>Qualifying fund information</p> <p>This section was completed for each qualifying hedge fund that the firm manages. It includes detailed questions about qualifying funds, limiting all data provided to the vehicle in question, whilst considering a fund in its entirety, embedding all structures (master and feeders) and share classes. The section includes fund-level information about asset class exposure, leverage details, liquidity profile, collateral details, and information about trading and clearing mechanisms.</p>