How Big is the Hedge Fund Industry?

Over the past 20 years, hedge funds have gained almost mythic status. Loved and loathed, they are held to be sharply distinct from the broader asset management industry. The fortunes of the best-known firms are followed with great interest.

There is nothing that definitively marks hedge fund managers apart from other investment managers, however. Instead, all asset management firms sit on a spectrum, whether in terms of fees charged, strategies employed, or the types of vehicles offered to investors. The idea that hedge funds represent a clear, separate grouping has never been more dubious.

Depending on the definition of a hedge fund, the assets managed could range anywhere from $800bn to $3.6tn. Furthermore, we find that the $800bn figure accords more closely with the common perception of a hedge fund.

Finding a meaningful number is not only a definitional exercise but also a statistical one, subject to uncertainty. Flows into or out of what others define as the industry should therefore be viewed in the context of such error, which should be calculated and reported.
Introduction

How many assets are under the management of the hedge fund industry? This is a straightforward-sounding question, and it is common to see a straightforward-looking answer: $3.6tn according to the Securities and Exchange Commission (SEC) [1], say, or $3.1tn according to Hedge Fund Research Inc. (HFR), a data provider [2].

This masks the fact, however, that there is no unambiguous boundary between what could be considered a “hedge fund” and an active fund manager. No distinct “hedge fund industry” exists.

This matters on at least two counts. First, pension schemes and other big institutional investors usually have a discrete asset allocation bucket for hedge funds. Given the definitional mess that surrounds the relevant firms, it seems probable that sub-optimal investment decisions may be being taken as a result.

A second issue concerns how asset management firm performance is assessed. There are many different hedge fund indices against which firms are benchmarked. Many of these indices, however, face similar definitional problems and can as a result be poor yardsticks for the firms that use them as a reference.

For any given definition of a hedge fund, it is not possible to determine the assets managed by that group of firms at a given moment with arbitrary precision. It is, therefore, appropriate to report the statistical errors on the estimate. Reports of the magnitude of flows of capital into and out of different types of asset management firms should be viewed in the context of these errors.

Those attempting to define hedge funds usually do so by referring to a collection of characteristics. Comments submitted for an SEC “Roundtable on Hedge Funds” in May 2003 set out a range of definitions, highlighting the ambiguity around the term [3].

Generally, “hedge funds” are seen as:

1. Flexible in the strategies they use, with their managers employing leverage and short-selling in order to exploit situations in which they consider themselves to have an edge, while hedging exposure to other risks.

2. Subject to less regulation than, for example, mutual funds, in exchange for limiting the categories of investors they can serve [4].
3. Charging high fees; famously being described as “a compensation scheme masquerading as an asset class” [5] because of their traditional fee structure, canonically a management fee of 2% of assets under management (AUM) per year, plus a performance fee of 20% of profits (“2&20”).

These eye-catching fee terms are often referred to alongside estimates of the aggregate AUM of hedge funds, which may be somewhat misleading. According to Preqin, a data provider, “only 17% of active single-manager hedge funds actually charge a strict 2% management and 20% performance fee structure” [6]. HFR also pointed out in March that as of the end of last year, the average management fee was 1.48%, while the average performance fee was 17.4% [7].

Meanwhile, many funds possessing some of the characteristics listed above prefer not to describe themselves as hedge funds, and a given asset management firm may manage a combination of externally-defined hedge fund and non-hedge fund assets.

Perhaps another way of thinking about what is supposed to constitute a hedge fund is to consider those vehicles that charge both a management fee and a performance fee. We consider this in more detail in our results.

We approached the problem by examining some of the range of possible definitions. The aim was to show how each affects the size of the resulting collection of funds, while attempting to make our assumptions explicit at each stage. We also estimate the error arising from the fact that we do not have complete or simultaneous AUM figures for each fund.

Methods
As an investment management firm, Winton often contributes to these samples by submitting information to databases and surveys run by data providers such as HFR, Preqin and BarclayHedge. Since we give broadly the same figure to each, their samples cannot be considered completely independent.

Nonetheless, we use data providers’ work to construct our own estimates, since they provide a useful starting point. However, we also construct our own dataset from primary sources for a sample of funds, which we can then use to corroborate the other databases.

**Data sources**
For our sample, we use the top 100 hedge funds by AUM according to Institutional Investor’s Alpha (IIA) [8]. We then make use of Hivemind – a Winton company that provides a platform to collect, clean and enrich complex datasets on an industrial scale – to assemble asset, fee and strategy information on the underlying funds and programs that comprise the top 100 firms’ AUM.

Winton launched in 1997 as a “Commodity Trading Advisor” (CTA), a US regulatory designation. CTA managers historically focused on futures markets, had commodities experience, and maintained directional exposure to multiple asset classes. This marked them apart from hedge funds, whose managers usually had backgrounds in securities markets, and sought “alpha” from hedged portfolios.

The distinction between the two became less clear as the financial crisis developed in 2007 and 2008. The market-neutral nature of a number of hedge funds turned out to be a fallacy and, with the exception of global macro strategies, many suffered heavy losses amid sharp selloffs in global stock markets. Conversely, CTAs, still a niche investment strategy at the time, performed well, profiting from strong trends across financial and commodity markets.

In the years that followed, hedge fund allocators began to embrace CTAs as part of the wider “hedge fund community”. Indeed, similar characteristics (notably, fee structures and an ability to make money in falling markets) – as well as a blending of approach, strategies and asset classes – made it easy for CTAs to be included in hedge fund portfolios thereafter.

Just as Winton has never approached investing in the manner of the stereotypical hedge fund, nor has it ever charged the 2&20 fees that many associate with “the industry”. Winton initially charged 1&20 back in 1997 – fees that were significantly lower than those charged by CTAs. Today, Winton’s headline fees are lower, and its business has diversified to become a global investment management firm.
Primary data sources include SEC Form ADVs from the Investment Adviser Public Disclosure (IAPD) website, other regulatory filings such as SEC Form 10-Ks, and firm annual reports and websites. We also used information about strategies collected by other data providers including HFR, Preqin, Morningstar and Bloomberg. A summary of the sources used is given in Table 1.

<table>
<thead>
<tr>
<th>Data fields</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Top 100” rank</td>
<td>IIA</td>
</tr>
<tr>
<td>Total firm AUM</td>
<td>Annual Report, HFR, Website, IAPD</td>
</tr>
<tr>
<td>Firm name</td>
<td>IIA, HFR, Preqin</td>
</tr>
<tr>
<td>Fund AUM</td>
<td>HFR, IAPD, Preqin, Form 10-K</td>
</tr>
<tr>
<td>AUM date</td>
<td>HFR, IAPD, Preqin, Form 10-K</td>
</tr>
<tr>
<td>Core strategy</td>
<td>Preqin, HFR, IAPD, Website, Morningstar</td>
</tr>
<tr>
<td>Other strategies</td>
<td>Preqin, HFR, IAPD, Website, Morningstar</td>
</tr>
<tr>
<td>Management fee</td>
<td>IAPD, HFR, Website, Morningstar, Preqin</td>
</tr>
<tr>
<td>Performance fee</td>
<td>IAPD, HFR, Website, Morningstar, Preqin</td>
</tr>
<tr>
<td>Other strategy details</td>
<td>Preqin, HFR, IAPD, Website</td>
</tr>
</tbody>
</table>

The funds employ a large range of strategies, which can be labelled in various ways. We have mapped them into 12 broad categories of our own, so that we are able to aggregate data from different sources in a consistent fashion.

Modelling the tail
To estimate the overall assets for firms outside the top 100, we extrapolate the findings of our detailed analysis of the largest firms (as reported by IIA) to the other funds captured by the data providers.

The more representative the top firms are of the smaller asset managers, the more reasonable this extrapolation becomes. As a preliminary check, we compare the IIA top 100 to the firms in Preqin’s database in Figure 1. We have aggregated Preqin's fund data at firm level, ignoring funds of hedge funds and funds of CTAs.

This allows us to construct an alternative top 100 list, which we find has 56 names in common with the IIA list. The reasons for this difference may include different selection criteria, data collection methods and reference dates for AUM figures.

Some of the firms in the IIA list are absent from the Preqin data, and so we also show AUM versus rank for a combined list, where we supplement the Preqin database with numbers from the IIA top 100.
Figure 1: Total reported assets for firms in the IIA top 100, firms in the Preqin database (fund data aggregated at firm level) and a combined list. The inset shows only the top 120. For the combined list, where numbers exist for both firms, we use the estimate from Preqin data.

Where the same firm is present in both lists, we use Preqin’s figures. The three lists produce curves with a similar shape, as can be seen more clearly in the inset to the figure. Moreover, the top 100 firms, however defined, appear to fit smoothly into the broader spectrum of all firms which manage some “hedge fund assets”.

The curve slopes more steeply for the top 500 or so firms (each managing around $1bn or more), perhaps suggesting that, above this threshold, firms are more likely to accelerate the growth in their assets, or to add more funds.

The curve also starts to drop more steeply at the low-AUM end, as assets drop below around $10m. It is hard to know whether this is because of incompleteness in the data or is a real effect. In any case, these firms manage a small proportion of the total assets covered by the universe, as can be seen more clearly in Figure 2.

Here we see the cumulative AUM of all firms (or funds) of a given size or larger as a fraction of the total AUM of the sample, against the fraction of firms (or funds) of that size or larger. To place the IIA top 100 in this context we must use an external number for the total assets and the total number of firms: we use the number from the combined IIA-Preqin list discussed above, neglecting (for now) any of our more restrictive selection criteria.
For comparison, we also show some summary figures from HFR, who report the fraction of assets in firms above a selection of AUM thresholds in [2]. This provides a few data points covering the low-AUM tail, and matches up well with the corresponding data from Preqin. The IIA top 100 lies slightly below the Preqin line, as we would expect since they do not include some of the top 100 firms according to Preqin. Our combined list fixes this problem and still matches smoothly onto the HFR summary data.

Figure 2: The proportion of all assets in firms (or funds) of a given size or larger versus the proportion of all firms (or funds) which have assets of a given size or larger. A logarithmic scale is used for both axes.

As has been noted elsewhere, more than two thirds of assets are managed by firms with more than $5bn under management (just under 60% by the top 100), and around 90% by firms with at least $1bn. When we extrapolate our breakdown of the top 100 to the whole industry, therefore, we do not have to cover quite as much ground as it may seem from Figure 1.

The curve for individual funds in Figure 2 is shallower than the three curves aggregated by firm, and does not flatten off as early. This is as expected, since the tail of smaller firms tend only to operate single funds. In other words, there is a small number of large firms, each operating many funds, which make up a large part of total AUM: the distribution of firms is more “top heavy” than the distribution of funds.
Making use of what data we have on the smaller firms, our model (informed by our data on the larger firms) must fill in the gaps. After choosing a set of criteria to define what assets to include (see the detailed breakdown of the top 100, below, for a discussion of these criteria), we consider three broad scenarios.

First, we can find an upper limit by assuming that any fund for which we could not find strategy or fee data would meet this given definition of a hedge fund.

Second, we can find a lower limit by only including those assets that manifestly meet our criteria.

Third, we can make an estimate informed by our data on the top 100.

The simplest such model assumes that the unknown funds contain the same proportion of “hedge fund assets” as firms in the top 100. However, the smaller funds may tend to follow different strategies (on average) from the larger funds, and different strategies tend to attract different fees.

So, our more refined model assumes that small funds following a given strategy have the same proportion of assets meeting the criteria as large funds following the same strategy. Even if this is reasonable only for the top 500 or so firms (noting the break around this level in Figure 1), it will cover around 90% of the claimed assets.

Uncertainties and biases
We wish to focus our data collection efforts on the largest firms, since this allows us to cover the largest possible proportion of AUM for a given number of firms. This biases our sample to the extent that the largest firms' behaviour is different from the smallest firms', and is to some degree unavoidable.

There is an additional bias in our sample, however. Our starting point is the IIA top 100, but we could equally have taken another provider’s top 100 list, which would be different, as we have seen.

This means that we are subject to additional selection bias due to the criteria chosen by IIA, even though we subsequently gather independent fee, AUM and strategy information about these firms. We expect this bias to be small, but cannot confirm this without repeating our analysis using an independent top 100 sample.
We make heavy use of fee information in categorising funds, and we have taken funds' reported headline fees at face value. This may not always be accurate. Institutional investors may be able to negotiate fee discounts when investing large sums, the details of which are commercially sensitive and may not be publicly available.

There may also be biases in the AUM figures themselves. To some extent we must rely, directly or indirectly, on what firms choose to report about the funds under their control (except when disclosures are required by regulators). Firms have to adopt conventions about when inflows or outflows are recorded in AUM, or how promptly they report investment returns.

They may feel they have an interest in appearing in “Top n” lists to increase their visibility, or they may be closed to outside investors and feel little need to promote themselves externally. It is hard to quantify the net impact of all these choices, and we do not attempt to do so.

**Reporting date uncertainties**

We have information on the reference date for which AUM figures are reported. Usually, this date will not be identical to the date on which we wish to quote a number for the aggregate AUM. For example, the mean asset-weighted date assigned to the AUM numbers in the Preqin database is 30 May 2016, whereas the most recent estimate from HFR is for the end of Q2 2017.

We do not guess how the AUM of each fund has changed between the reporting date and our reference date, but we recognise that this introduces a statistical uncertainty into our AUM totals, and estimate that using historical data for changes in aggregate industry AUM.

**Asset flows**

We have not collected a historical database of fund data, so we must fall back on reported figures as we try to estimate the uncertainty in our AUM figures due to stale data. Fortunately, since flows of assets into and out of the industry are considered of interest, these figures are widely reported.
The standard deviation of the quarterly net flows given in [2] (tabulated since the start of 2007) is $36.6bn, while that of the change in total assets (that is, including investment returns) is $90.4bn. This number includes the turbulent years of the financial crisis, however. We use the HFR figures for flows and AUM changes for the past 20 quarters to better reflect current conditions.

Over this period, the mean change in assets per quarter has been 1.98%, with a standard deviation of 2.05%. We will use this figure for the standard deviation per quarter when we compute the statistical uncertainty coming from stale AUM data.

This scaling is itself uncertain, because the characteristics of flows to and from the less frequently updated funds may be different from those with fresh data, but we do not attempt to compensate for this.

The largest firms

We first aim to estimate the total of all assets managed by the top 100 hedge fund firms as defined by IIA. The first check we can make is to reconcile the bottom-up total, obtained by summing the AUM of the individual funds, with the firm-level total given by IIA.

The bottom-up approach yields a total that is 101% of the IIA total, which is a reasonable level of agreement given the disparity in reporting dates (the IIA numbers are nominally for 1 January 2017).

We find a total AUM of $1.67±0.06tn for the top 100, where the uncertainty is estimated using the mean asset-weighted reporting date, 10 January 2017, of the fund AUMs.

Only a minority of these assets are in funds charging the oft-quoted “2&20”, however. We have placed the fees charged by each fund into one of several categories, and we break down the AUM by fee category in Figure 3.

For firms charging more than 1&10, the total is $1158±46 bn. If we restrict the definition of a hedge fund to fall into the most expensive bracket (charging 2&20 or more), then this reduces the assets managed by the top 100 firms to $550±23bn.
If, further, we exclude assets known not to employ leverage or extensive shorting, and those known to reside in heavily regulated vehicles, we arrive at the figure of $501±21bn. Although this is smaller than the number arrived at using fees alone, we can see that requiring a fund to be charging 2&20 already excludes the majority of funds that do not make use of the other tools associated with hedge funds.

The overview given in Figure 3 conceals a great deal of variation between firms in the top 100, which can be seen in Figure 4. Here, we split each firm’s AUM into three categories: assets in funds charging 2&20 or more, assets which the firm classes as hedge fund assets but which charge lower fees; and other “alternative” assets managed by the firm. Only the first two categories contribute to the $1.67tn number, or to the data in Figures 1, 2 and 3.

Our extrapolation from the top 100 firms to the tail of smaller firms makes use of the breakdown of fee level by strategy. This breakdown is given in Figure 5. The strategies have been collected together into 12 broad categories, to allow us to maintain consistency between different sources.
Figure 4: Top 100 firms' AUM, broken down by headline fees charged. “Other firmwide alternative assets” include, for example, private equity and alternative beta.

Few if any long-only or risk parity funds charge 2&20 fees, which is perhaps as expected. Most other categories have a mixture of fees. Note also that for the purposes of this plot we have had to place each fund in a single category, whereas in reality the boundaries between strategies can be unclear, and a fund may follow secondary strategies in addition to its stated core strategy.

The tail of smaller firms

We now move on to consider the whole universe of firms as grouped together by data provider Preqin. The tail of firms below the top 100 manage $1491bn according to the Preqin database, with the asset-weighted date on which the AUMs were reported being 6 July 2016, resulting in an uncertainty, according to our methods, of ±$71bn.

Even on a definition of hedge funds that leaves almost nothing in the way of differentiation from the wider active management industry – that is, a definition extended to all firms charging more than 1&10, and without assuming the use of leverage and shorting – the total would be far lower than that reported by others. In this case, the assets managed by the tail would amount to $844±31bn, giving a total of $2002±56bn.
Figure 5: Top 100 firms' AUM, broken down by strategy and fee category. The portion shown in grey in the outer ring is the portion with fees of 2&20 or higher.

But we have seen from the analysis of the larger firms that restricting our definition of the industry to those funds charging 2&20 or more does a reasonable job of eliminating those that do not have other features commonly associated with hedge funds – that is, the use of short positions, leverage and lightly regulated vehicles.

So, we compute an upper limit by assuming that all those funds in the tail with missing fee data are charging fees in the highest bracket. This yields total assets in the tail of $635±24bn, bringing the total (adding the top 100 back in) to $1185±33bn.

Our lower limit, which considers only those funds known to charge fees in the highest bracket, is $242±12bn in the tail, giving a total industry size of $792±26bn.

Finally, our best-guess estimate, assuming that that fraction of AUM charging 2&20 or more for a given strategy is the same for firms in the tail as for the top 100, yields $364±13bn in the tail, for a final total of $914±29bn.
Table 2: Our AUM estimates for the IIA top 100, the rest of the firms in the Preqin database, and the whole industry, using different criteria for defining a hedge fund. *Conditions include shorting, leverage and regulation.

<table>
<thead>
<tr>
<th>Fee level</th>
<th>Conditions*</th>
<th>Top 100 AUM ($bn)</th>
<th>Tail AUM ($bn)</th>
<th>Total AUM ($bn)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>No</td>
<td>1668±64</td>
<td>1491±72</td>
<td>3159±92</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>1339±53</td>
<td>1197±57</td>
<td>2865±78</td>
</tr>
<tr>
<td>&gt;1% management and &gt;10% performance</td>
<td>No</td>
<td>1158±46</td>
<td>844±31</td>
<td>2002±56</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>978±40</td>
<td>709±30</td>
<td>1687±50</td>
</tr>
<tr>
<td>≥2% management and ≥20% performance</td>
<td>No</td>
<td>550±23</td>
<td>364±13</td>
<td>914±29</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>501±21</td>
<td>347±13</td>
<td>848±27</td>
</tr>
</tbody>
</table>

This number is not sensitive to our decision to break down the fees by strategy: if we ignore strategy information and simply assume that funds at smaller firms have the same proportion of fees in the highest bracket as funds at large firms, we find $371±13bn in the tail, a difference of only 2%. The results, broken down broadly by AUM and fee level, are shown in Table 2.

If we make our selection stricter, requiring a fund to meet our criteria on leverage, shorting and regulation, we change our best estimate of assets in the tail to $347±13bn, for a total of $848±27bn. We do not have enough information on these criteria for firms in the tail to derive strict upper or lower limits. Neglecting strategy information would produce assets in the tail of $339bn which, as before, is within our margin of error.

Discussion

By changing our definition of what constitutes a hedge fund, we can make a case for a grouping of firms that manage assets of between $800bn and $3.6tn (following the SEC’s criteria in the latter case). This emphasises the vagueness of the boundary between what is called the hedge fund industry, and the broader active management industry.

Firms associated with the “hedge fund” label now offer a range of products with various fee models, including, for example, risk parity and risk premia products, which may be responsible for a large share of the firms’ overall growth.
Large, mainstream asset managers such as BlackRock, Pimco, Standard Life, and Schroders have recently met the “hedge fund firms” in the middle with absolute return and risk premia products, for example. It is surely reasonable to consider all these firms to be part of the same industry, offering products which lie on a spectrum of “alternativeness” and skill.

It may also be constructive to bear in mind the uncertainties in these numbers when considering the significance of reported asset flows into and out of hedge funds. Taking the numbers for the last 20 quarters from [2] at face value, these flows have a mean absolute size of around $14bn, within the margin of error of all our estimates.

Even if the uncertainties on the flows themselves are small (being measured directly, rather than inferred from aggregate performance and AUM figures), we would argue that they should be reported, and the flow data placed in the context of the definitional ambiguities. On this basis, it is hard to see why a typical quarterly flow of $10–20bn into or out of an arbitrary segment of the investment management industry should make news headlines.

As we have seen, any definition of hedge funds simply places them on the spectrum of the broader active management industry. Moreover, any given grouping contains such a wide range of managers and strategies that it is meaningless to define the firms as a single industry.

Ultimately, estimates of this kind are an exercise in data collection and modelling, which brings with it an associated statistical error. Greater transparency in the reporting and calculation of these uncertainties, as well as in the headline figures, would represent a positive development, and would make it easier to assess the real significance of short-term fluctuations in assets.

Our analysis shows how easy it is to generate a range of different figures for the so-called hedge fund industry’s size, simply by changing a few of the selection criteria.

On the one hand, fee cuts by some purported hedge fund firms have brought their products far closer to the pricing structures prevalent in the broader investment management industry. On the other, active fund managers’ development of flexible absolute return products that short markets have muddied things further.
Restricting what might constitute a hedge fund to those that charge fees of 2&20 or more, with other widely-assumed features of such firms, leaves a collection that manage approximately $850bn. One thing, therefore, is clear: an industry managing $3 trillion – one that is lightly regulated and characterised by a 2&20 fee model, low transparency, illiquidity, and extensive use of leverage – does not exist.

The popular perception that such a group of firms both exists and subsists in sharp distinction to the wider investment management industry has never been more dubious than it is today.

References


Important information

This document is communicated by Winton Capital Management Limited (“WCM”) which is authorised and regulated by the UK Financial Conduct Authority.

WCM is a company registered in England and Wales with company number 03311531. Its registered office at 16 Old Bailey, London EC4M 7EG, England. The information herein does not constitute an offer to sell or the solicitation of an offer to buy any securities. The value of an investment can fall as well as rise, and investors may not get back the amount originally invested. Past performance is not indicative of future results.

The information in this document is believed to be materially correct but Winton makes no representation or warranty as to its accuracy or completeness and accepts no liability for any inaccuracy or omission. Information obtained from third parties has not been independently verified by Winton.