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Entry and Exit: The Lifecycle of a Hedge Fund[†]

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Introduction

The problem of attrition among hedge funds is widely known and is a familiar topic of discussion in the hedge fund literature.[1] This article argues that the observed attrition in the industry may be the outcome of a natural selection among hedge funds. That is, a hedge fund with an idea to exploit inefficiencies in the market enters the industry and partakes in the profits as long as it is the only fund. With time, other incumbents with the same idea follow, thereby decreasing the share of any one fund's profits. At the same time, the available pool of profits may also be shrinking as the market changes to get rid of the inefficiencies giving rise to the opportunities that generate the profits. Funds that are able to make profits faster and more efficiently continue to survive, while those that are inefficient, or unable to move fast enough incur losses and slowly exit the market. Since at any given time there are enough managers with new ideas and/or copycats, the industry continues seeing entry. If this hypothesis is true then the fact that in any given period, incumbents are actually exiting the market may be troubling from the shareholders point of view, but is in fact desirable from the industry's perspective.

Though this article presents a view of hedge fund industry in the context of industrial organization, i.e., the birth and evolution of an industry, to test our implications we will perform an analysis of the data at the individual fund level. In other word, we are taking a closer look at the trees to draw implications about the forest. The empirical observations that result, we hope, will be useful to both, the hedge fund manager and the hedge fund investor.

Testable Implications of the Hypothesis

If the hypothesis presented above is true, then the following observable empirical outcomes should also be true:

(A) As long as there are profit-making opportunities, new managers will enter the industry.
(B) Profit making is most rampant among new/younger managers and declines with time.[2]

[†] This article is placed in the context of the generation, gestation and maturity of ideas, therefore, we would like to take this opportunity to thank Jennifer Coffey and Joseph Larucci for theirs.
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[1] Brown, Stephen J., William N. Goetzmann and Roger Ibbotson (1997).
[2] By new/young managers we do not necessarily mean new into the industry. Rather, they could be very experienced managers with a new/young fund.

(C) As any given idea exhibits a decline in profit taking, the struggle for survival induces the incumbent to try increasing profits by engaging in different ideas. This implies that across time, incumbents will not exhibit consistency in their strategies.
(D) Losses will dictate exit.
(E) Because profit making is more rampant for younger funds than older funds and declines with time, exit rates for younger funds will be lower than that of older funds.

We use the Tremont TASS database to test these implications.[3]
At the end of June 2002, 1583 hedge funds were reporting performance.[4] Coverage of performance for funds begins in 1994. Assets under management in the funds equaled nearly $300 billion.[5] Relative to the other publicly available data sets, this is by far the widest coverage of the industry and for our purposes, the most appropriate data set.[6]

For testing our conclusions, there are some problems with the information available in our (or, any other) data set. Funds, after having been around for some time decide whether or not to make their data available in the database. Hence *the instant history bias* occurs because fund's performance history is backfilled after the inclusion. This may cause an upward bias because funds with a poor track record are not as likely make their performance available as good-performing funds.

When a manager stops reporting returns, the reason for the reporting stoppage is not always known. Consequently, a reporting stoppage could mean (i) the manager liquidated and exited the industry, (ii) the fund is closed to new investors and therefore is no longer interested in reporting it's performance, (iii) the manager is *not* closed to new investors, but is not interested in making it's performance available, (iv) the manager is still in business, but is not interested in reporting performance for another reason besides (ii), (iii) and (iv).

This aspect of the data does soften the impact of the conclusions we draw from empirical analysis, but it is safe to say that (i) and (ii) are the probable cause for reporting stoppage for a majority of the managers. That is either it is closed to new business or it has liquidated and exited the industry.[7]

In the next section, we provide empirical evidence to back each of the implications listed above. The article ends with a conclusion.

The Empirical Evidence

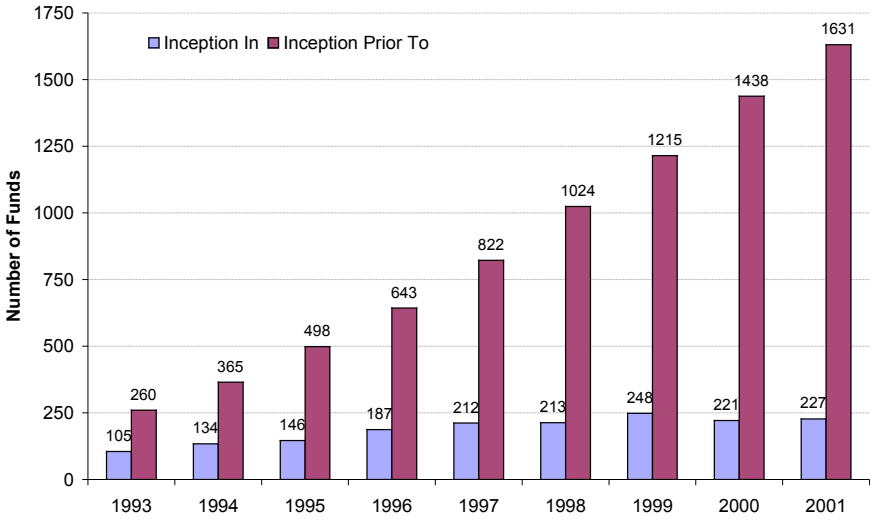
(A) As long as there are profit making opportunities, new managers will enter the industry

[3] The authors would like to thank Jeff Bramel at the CSFB Hedge Fund Index Group for making this data available and for helpful discussions.
[4] Funds of funds were excluded from the analysis.
[5] This is about half of the assets that are invested in the industry.
[6] Some of the other data sets available are: Hedge Fund Research (HFR), MAR Hedge, HedgeFund.net and InvestorForce which was formerly referred to as Altavest
[7] It should be added here that on exit, many managers re-enter the industry. This re-entry may take place with the old idea, a novel idea, or one that is already being practiced by incumbents.

Figure 1 indicates that entry into the hedge fund industry has slowly been increasing. The number of new entrants has steadily increased from 105 back in 1993 to 260 in 2001. On the average 188 new managers entered the industry every year in the last nine years, ending 2001. Going one calendar year to the next, the industry experienced increased entry in all of the years except in the year 2000 when entry declined from 248 new managers in 1999 to 221 in 2000. In 2001, the activity picked up again with 227 managers entering the industry. Also, as a whole, the industry grew suggesting that entry far-outpaced exit. All of these observations imply that there are profit-making opportunities may still exist in the hedge fund industry.

It is a well known that the more incumbents there are in an industry, the harder it is for new firms to enter the industry. The presence of incumbents itself acts as a "barrier to entry." This is true in the hedge fund industry as well. Note that the number of new managers as a proportion of the incumbents has been sharply declining. About 29% of all managers started operations in the year 1993 (105 of 365, where 365 is the sum of 105 and 260, the entrants in that year and the incumbents coming from the previous year(s), respectively). Note, that in 1994 the 365 funds from the previous year are now incumbents, with 134 entrants in that year – which implies that about 26% of all funds were entrants in that year. By 2001, less than 13% of all managers started operations in that year (227 of 1858). This suggests that though profit-making opportunities still exist in the industry, the industry is slowly maturing.[8]

Figure 1. Increasing Trend in the Number of New Entrants In the Industry
Average Entrants Per Year = 188



Source: Tremont TASS data and CSAM analysis.

Figure 1 presents three major empirical observations:
1. The number of entrants has slowly been increasing.

[8] Because if the industry were not maturing, it would have been the case that even entrants as a proportion of the incumbents would have been on the rise.

2. Because entry has been faster than exit, the industry, as measured by the number of managers has also been growing.[9]
3. The number of entrants as a proportion of incumbents has been on the decline.

These three observations lead to the following conclusions:

- There still exist profit-making opportunities in the market and changes in markets may be giving rise to new opportunities everyday. Consequently, entry into the industry is still greater than exit, meaning that the industry is still expanding.
- Though expanding, the rate of expansion is slowing, indicating one of two scenarios: (i) If the total profit taking pie is not increasing in proportion to the size of the industry (as defined by the number of players) then it is probably the case that the bar to enter the market is slowly rising. In other words, today a manager requires a "better new idea" to generate profit taking opportunities than say a manager 9 years ago. (ii) The industry is slowly maturing, i.e., reaching an equilibrium, where entry rates will approximate exit rates.

(B) Profit making is most rampant among new managers and declines with time

A fund entering the industry, either has a new idea that is able to generate profits and survive, or is a copycat fund in which case it is likely to fail. Our findings show that it is more likely that new funds entering the industry were implementing new ideas. [10]

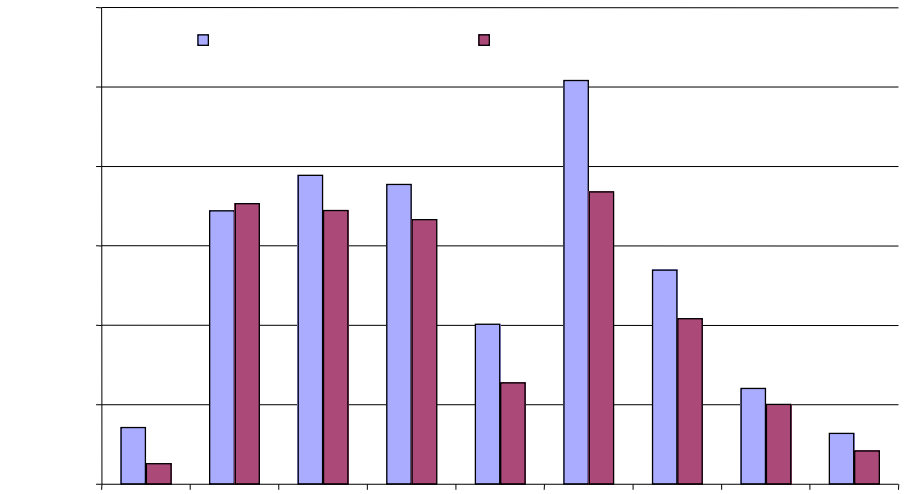
In addition, performance of funds is likely to settle with age. Driven by the new opportunity, other copycat funds enter the industry, or even incumbents modify their existing strategies and therefore, those profits eventually disappear. Consequently, profit-making declines as a fund matures.

Figure 2 compares the calendar year median performance of funds whose inception was in the prior year with those whose inception was before the prior year. Since the beginning of reporting, in every year but one (1995), a median performing young fund outperformed a median performing old fund. Over the entire period, this outperformance averaged 2.5%. However, it can also be noticed, that since 1999, this outperformance has been on the decline from more than 7% in 1999 (15.5% less 18.4%) to 1% for YTD 2002 (3.2% less 2.1%). This again seems to suggest that more recently new entrants in the industry are more likely to be copycat funds.

[9] Of course, another measure of industry growth would be a discussion related to growth of total assets and inflow/outflow of assets, etc. For the purposes of this article, we concentrate on the number and performance of the players.

[10] However, we shall see in the discussion of hypothesis (D) and (E) that more recently, the number of copy cat entrants may actually be on the rise.

Figure 2. Younger Funds Outperform Older Funds
Average Outperformance of Median Manager = 2.5%



Source: Tremont TASS data and CSAM analysis.

Instead of just focusing on median performance, Figure 3 compares the quartile performance of younger funds to older funds. Comparing quartiles is akin to comparing the variability in manager performance. Figure 3 presents the 75th percentile (managers obtaining returns above this level were in the top quartile), median and 25th (managers obtaining returns below this level were in the bottom quartile). Another way to interpret this would be that 50% of all managers obtained returns between the 25th and 75th percentile.[11]

Figure 3. The Distribution of Returns is Better for Younger Funds Than Older Funds

Calendar	**Inception in Prior Year (Young)**			**Inception Before Prior Year (Old)**		
Year	75th %	Median*	25th %	75th %	Median*	25th %
1994	11.0%	3.6%	-6.9%	8.0	1.3	-8.1
1995	27.1	17.2	11.3	27.5	17.7	9.7
1996	30.5	19.5	13.2	25.4	17.3	11.3
1997	29.4	18.9	11.6	25.9	16.7	10.0
1998	26.5	10.1	-3.3	16.1	6.4	-3.8
1999	48.8	25.5	10.0	40.4	18.4	7.9
2000	24.6	13.5	3.7	19.4	10.5	-0.1
2001	15.0	6.1	-0.2	12.0	5.1	-2.2
YTD	9.6	3.2	-0.1	7.6	2.1	-1.7
Average	**24.58**	**13.03**	**5.11**	**21.10**	**10.84**	**2.37**

* These numbers are presented in Figure 2. Source: Tremont TASS data & CSAM analysis.

[11] A natural question to ask here is whether there are factors other than age associated with new funds that drive high returns. This paper doesn't address this question, but will be addressed in forthcoming research.

The figures suggest that the median younger manager not only outperforms a median older manager, but younger managers provide a better up side (75th percentile) and a better downside (25th percentile). This has been true for every year except for 1995 when the 75th percentile young manager underperformed the 75th percentile older manager by 40 basis points (27.1% versus 27.5%). This consistency also implies that it is more likely that new funds are driven by novel ideas.

(C) As any given idea exhibits a decline in profit taking, the struggle for survival induces the incumbent to try increasing profits by engaging in different ideas. This implies that across time, incumbents will not exhibit a consist style within their strategies

The Tremont TASS data set categorizes all funds into 10 broad categories by strategy. These strategies are listed in Figure 4.[12] Intuitively, one would think that the funds belonging to the same strategy would probably be quite highly correlated, because the sources of their returns would be similar.[13] However, this is far from true in the hedge fund industry.

Figure 4 presents the intra-strategy correlation of all funds that were in operation at the end of June 2002.[14] For most strategies (except for Dedicated Short Bias and Emerging Markets) more than 50% of the correlations are less than 0.5. This means that except for funds using dedicated short bias and emerging market strategies, returns of funds within most strategies do not look alike. In fact, for four strategies: convertible arbitrage, equity market neutral, fixed income arbitrage and global macro, more than 20% of the intra-strategy correlations are negative!

As a comparison, the figure also presents the distribution of correlations for 1,011 domestic equity managers within the Plan Sponsor Network (PSN) Universe. The similarity of managers within a traditional asset class is striking - although managers of all size (large, mid and small) and style (value, core and growth) are included, nevertheless almost 90% of the correlations fall above 0.5. Lastly, the figure presents the intra-manager correlations for all domestic large cap equity managers (irrespective of style). As expected, now more than 90% of the correlations are greater than 0.75.[15]

[12] To see a brief description of each one of these strategies, see Mark J.P. Anson (2002).
[13] Unless, it is the case that the hedge fund industry define a "strategy" differently from the rest of the industry.
[14] The total number of unique correlations among n funds (excluding the correlation of a fund with itself) is n(n-1)/2. So if there are 10 funds in a strategy, the number of unique correlations is 45. This table shows the distribution of these unique correlations.
[15] From an investor's viewpoint, these low correlations even among funds within the same strategy suggest that there is ample room to diversify by holding a portfolio of uncorrelated managers. Hence the popularity of fund of hedge funds.

Figure 4. Intra-Strategy Fund Correlations
Correlations Use 36 Months of Returns Ending 2Q02

Strategy	# of Products	Correlation Range				
		<0	**0-0.25**	**0.25-0.50**	**0.50-0.75**	**0.75-1.0**
Convertible Arbitrage	47	20%	30%	38%	10%	2%
Dedicated Short Bias	11	0	4	40	47	9
Emerging Markets	62	2	11	31	44	12
Equity Market Neutral	34	28	48	18	3	2
Event Driven	125	2	25	45	26	2
Fixed Income Arbitrage	29	28	43	14	10	5
Global Macro	37	27	47	22	3	1
Long / Short Equity	268	18	28	32	20	2
Managed Futures / CTA	97	18	29	25	23	4
Other	11	11	44	24	13	9
All Domestic Equity*	1011	**2%**	**2%**	**7%**	**34%**	**55%**
All Domestic Large-Cap**	612	**1.5%**	**0.5%**	**3%**	**18%**	**77%**

*All domestic equity managers in PSN irrespective of size and style. ** All domestic large-cap managers are a subset of all domestic equity managers.

These findings could result due to one or more of the following:

- Categories are very broadly defined, i.e., it is probably the case that even relatively different styles with very different sources of returns are included in the same category. So within convertible arbitrage, there are so many different "ideas" that use convertible arbitrage as a source of return that it would be unlikely that returns would be correlated.
- In the fight for survival, managers are constantly innovating and searching for opportunistic ideas, thereby even in the same category, manager returns are uncorrelated.
- Funds are not reporting their right strategy (very unlikely).

These findings also imply that performing any type of conventional style analysis on hedge funds to understand their style/strategy, as a means of understanding their sources of return is a futile analysis.[16] By the very nature of the industry, and the objective of hedge funds one should not expect consistency in the style of a fund and/or across funds – even in the same category.

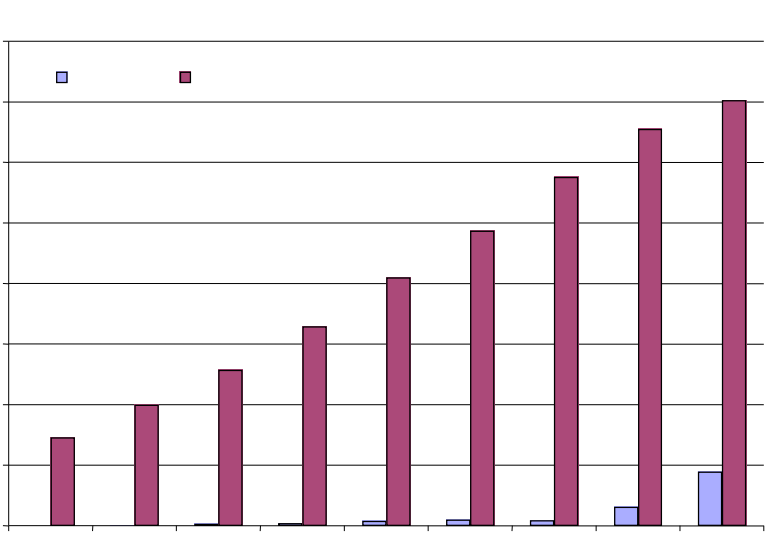
(D) Losses will dictate exit

Figure 5 presents exits in each calendar year and the number of incumbents at the beginning of the calendar year. Just as entry into the industry has been increasing with time (see, Figure 1), it is clear that exits too have been on the increase.[17] However, unlike entry, exit as a proportion of the incumbents has also been on the increase. Recall entry as a proportion of incumbents was on the decline.

[16] A similar result was reported by William Fung and David Hseih (1997). Also see, Brown, Stephen J., William Goetzmann and James Park, (1997).
[17] Recently the WSJ on the Dow Jones Newswire reported a similar finding. See, Joy C. Shaw (2002).

Until 1996, the number of funds that were exiting the industry every year as a proportion of the incumbents in business at the beginning of the year was virtually negligible. In 1997 this figure was a little more than 1% (10 of 823). Attrition jumped to about 2% in 1998 (20 of 1,025) after which it maintained those levels until 2001 when climbed to about 5% in 2001 (79 of 1,638). However, at the beginning of 2002, there were 1,757 funds reporting returns in the Tremont TASS database. By the end of the June 2002, 223 funds had stopped reporting implying an industry wide attrition rate of more than 12%.[18]

Figure 5. Total Exits and Total Incumbents: Each Calendar Year



Source: Tremont TASS data and CSAM analysis.

As mentioned previously there is more than one reason for a fund to stop reporting its returns, but if a fund does exit because it is not profitable, what exactly is the driver of its non-profitability? Here, it may be useful to understand how hedge fund compensation is structured. A large portion of a hedge fund managers' profits are derived from incentive fees, but only has long as a fund is realizing positive returns. As soon as a fund realizes a negative return, it does not receive an incentive fee unless it recovers the lost returns. The highest level of wealth achieved is referred to as the "high watermark." The amount in percent terms that the fund is below its high watermark is known as the "drawdown." Because a fund doesn't get its share of incentive profits until it exceeds the previous high watermark (i.e., establishes a new high water mark), the compensation structure of the hedge fund underscores the importance of the drawdown.

The more poorly a fund performs, and the more consistent it is in its poor performance, the larger the losses at any given time and the greater the drawdown at that time. Therefore, as the drawdown becomes increasingly large it makes it so much harder to get back into the profit-making zone; hence the fund prefers to exit the industry.

[18] We actually looked at reporting until the end of July, thereby allowing for a month lag in reporting. We are aware, as some funds do not report every month.

Figure 6. Drawdowns for Funds Exiting Versus Continuing Operations

Drawdown Ranges	Exit Business	Continue in Business
Less Than 25%	65%	86%
25%-49%	21%	9%
50%-75%	10%	4%
More Than 75%	4%	1%
Average	**21.0%**	**9.8%**

Source: Tremont TASS data and CSAM analysis.

Figure 6 compares the distributions of drawdowns for funds that decided to exit the industry to funds that decided to stay in business. Note that 14% (10% plus 4%) of the funds had a drawdown of more than 50% at the time of exit. In comparison only 5% (4% plus 1%) of the funds that decided to continue operations had drawdowns of more than 50%. On the average, a fund has a drawdown of 21% at time of exit, compared to only 9.8% for the funds that stay in business.

(E) Because profit making is more rampant for younger funds than older funds and declines with time, exit rates for younger funds will be lower than that of older funds.

In hypothesis (B) we presented empirical evidence suggesting that younger funds were more successful in generating profits. We argued that this is because most new entrants are funds that genuinely have good ideas versus funds that are copycats. But we also know from hypothesis (A) that the number of funds entering the industry has constantly been increasing over the years. This begs the question: Are the number of good profit making ideas in the market on the increase, or is it the case that more and more new entrants are copy cats i.e., implementing ideas already successfully implemented by others?

It should be pointed out here that, where as, a copy cat entrant will be trying to obtain a piece of the pie already shared by incumbents, a entrant with a new idea will have the whole pie to itself (at least for some time). Therefore, when times get tougher, it is more likely that young copycats will exit compared to young funds partaking solely in the profit pie.

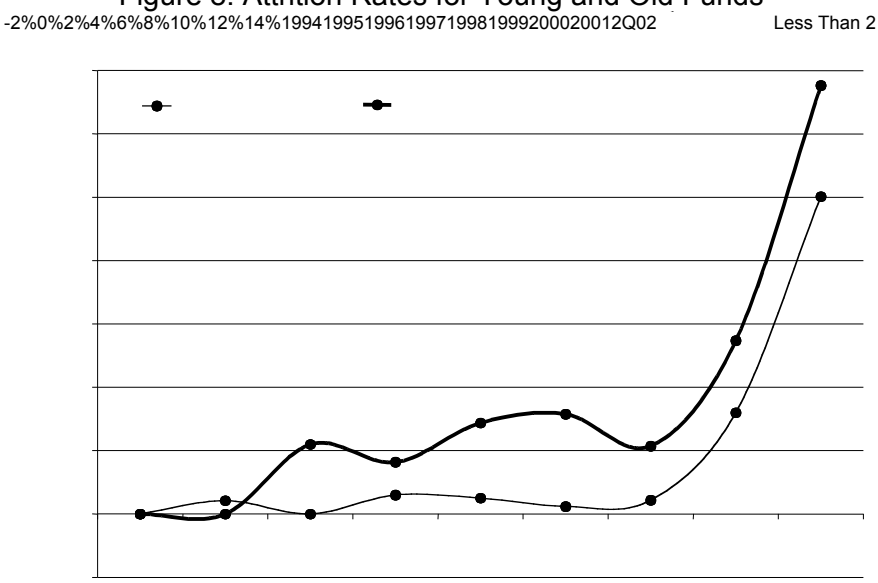
Therefore, Figure 7 takes the data on exits and incumbents from Figure 5 and breaks it down by two age categories: younger than two years and two years or older. At first, the conclusions are similar to those reached in hypothesis (D), i.e., attrition is on the rise for both the age groups.

Figure 7. Attrition Levels for Yong and Old Funds by Calendar Year

Year	Exits in Year			Incumbents at Beginning of Year		
	Young*	Old**	Total	Young*	Old**	Total
1994	0	0	0	175	190	365
1995	1	0	1	239	260	499
1996	0	8	8	280	364	644
1997	2	8	10	333	490	823
1998	2	18	20	399	626	1025
1999	1	25	26	425	793	1218
2000	2	21	23	461	979	1440
2001	15	64	79	469	1169	1638
YTD	42	181	223	419	1338	1757

"*" = Less than 2 years old. "**" = More than 2 years old.
Source: Tremont TASS data & CSAM analysis.

Figure 8. Attrition Rates for Young and Old Funds



Source: Tremont TASS and CSAM Analysis.

Figure 8 takes the statistics presented in Figure 7 and converts them into attrition rates.[19] All it does is takes the number of exits in a specific year and specific age group and divide it by the number of incumbents in the beginning of the year in that respective age group. Now a clearer picture begins to emerge: As already mentioned attrition rates are steadily growing, but now we can see that in every year, the attrition rate is higher for the older funds. But notice the large jump in the attrition rates of younger funds (from a rate close to 0% in 2000 to a rate of 10% at the end of the 2nd quarter of 2002). This

[19] We choose to present attrition levels and attrition rates because it assists in understanding how the rates were computed and in interpreting them in the right manner. It is important because a conditional attrition/survival is very different from an unconditional attrition/survival rate. An example of a conditional survival rate is: What is the likelihood that a fund will survive one year given that it has already survived two years? An example of an unconditional survival rate is: What is the likelihood that a fund will survive three years? As one can imagine, the answers to these two questions will have very different interpretations.

evidence would be consistent with the fact that though entry in the industry has been on the increase, less and less entrants are of coming into the industry with genuinely good ideas, therefore the jump in their observed attrition rates.[20] However, it should be added, that given that two funds of different age groups are in business today, the likelihood that they will be still in business a year from today is higher for the younger fund than the older fund by about 4%.[21]

Conclusions

From an industry perspective, this article argues that observed attrition in the hedge fund industry is an outcome of the market and in itself may be seen as optimal. In other words, given the objective of the managers and the shareholders – absolute return – it is virtually impossible to imagine a scenario where no attrition occurs and the managers can still achieve their objective. Therefore, attrition is necessary for the industry to survive, i.e., managers implementing ideas that are no longer able to generate profits should exit the market. Also, implementers of new and efficient ideas should continuously enter the market. But, in general, as the industry matures entry rates should roughly equal the rates of exit, holding the number of players in the industry roughly constant.

Empirical analysis of the data suggests that the industry has, and is still growing, and entry rates still have to level off. This means that hedge funds as an investment still have attractive profit taking opportunities to offer to shareholders. As more and more assets continue to flow into the industry, it will become harder and harder to sustain the levels of profit taking that the industry has experienced in past – unless, of course, the market is giving rise to new opportunities as it evolves.

The empirical analysis also suggests that attrition is on the increase. In particular, the attrition rates for younger funds are also beginning to see an increase. This observation may mean that unlike some years ago, not all-new entrants have ideas that allow them to survive. We also showed that exit was related to losses.

Our findings also indicate that younger funds (under two years since inception) significantly outperform older funds (two years and older). In addition to that, the attrition rates for the younger funds are below than those of older funds, which is a contrary to the intuition.

Finally, from an investor's or shareholder's perspective, the most significant risk of investing in a hedge fund is the risk of liquidation i.e., the risk that the hedge fund performs badly and therefore ceases operation by liquidating its assets. This risk differs dramatically from investing in other asset classes since in the case of hedge funds, once having liquidated, there is no opportunity to recoup losses. Consequently, the volatility as a measure of risk is unsuitable in the case of hedge fund investing. In the case of traditional asset classes, the volatility of returns in fact insures that a beaten down asset

[20] Consequently, not only tenure, but the source of return (i.e., the profit generating idea is important when selecting a new manager).
[21] Figure 8 shows that as of 2Q02, the one-year attrition rate for younger funds is about 10%, while that of older funds is about 14%.

class will recover.[22] Given the increased attrition rates predicted for the near future, this may be an opportune time to understand the risk factors associated with hedge fund attrition.

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[22] Unless, of course, the average return of the asset class also decreases forever.