



Investor Liquidity in Hedge Funds

- Empirical Analysis of Costs and Benefits



Authors:

Sameer Jain
Partner
Sameer.Jain@activeallocator.com

Manoj Shahi PhD. CFA
Partner
Manoj.Shahi@activeallocator.com

Contents

Introduction

Dimensions of Liquidity

Do More Liquid Funds Underperform?

Findings: The Cost of Liquidity

Why Do Less Liquid Funds Perform Better?

Investing Strategy

Skill

Trading Advantages

Conclusion

Introduction

Retail investors who are ineligible to invest in quality hedge funds, in hard to access investment vehicles, either because they do not meet minimum levels of wealth or income standard, or the high subscription amounts often needed to participate in such funds gravitate to liquid alternative investments. The rise of liquid alternative investment funds, packaged in mutual fund formats over the past few years, as the fastest growing category of “alternative investments” is now well documented.

With liquid alternatives beginning to find increasing traction in institutional portfolios too, the question is – are they an effective substitute for hedge funds and other illiquid structures? Little empirical fact based exists and opinions abound. This paper attempts to answer this question and concludes that they are not.

Retail investors in considering hedge funds immediately encounter a wide variety of strategies, organizations and structures. Indeed, hedge funds, rather than being an asset class, are broadly a collection of governance structures and investing techniques with many common structural features. Unfortunately, from an investor’s perspective, it is often difficult to decipher which structural features are useful, which imply tradeoffs, and which are simply undesirable. The dearth of empirical research leaves investors to make intuitive judgments about what features they should favor.

This paper examines a sub-set of provisions governing fund investing–liquidity terms. In contrast to alternative mutual funds, which allow investors to redeem their holdings daily with little or no notice, hedge fund investors are subject to a variety of terms that may restrict their ability to access their capital. All things equal, investors prefer more liquid investments to less liquid investments. Liquidity provides investors with a valuable option – specifically the opportunity to trade in and out of investments to rebalance a portfolio, respond to unforeseen cash flow requirements or redeploy capital towards other opportunities.

While the benefits that liquidity offers to investors are clear, the costs associated with greater liquidity are less apparent.

This paper explores two related questions:

- › *Do investors pay a price – in terms of lower investment returns – for better liquidity? In other words, do funds with more favorable liquidity terms underperform less liquid funds?*
- › *If the answer to the question is yes, then what drives this cost? In other words, how can one explain the underperformance of more “liquid” funds?*

Our research finds that there has been a substantial performance cost from offering increased liquidity. The underperformance cannot be attributed to fee levels or the strategy pursued by a fund. We are unable to attribute the liquidity cost to differences in skill across managers; we do not find strong evidence that less skillful managers (whose performance is weaker) offer more attractive liquidity terms. Instead, our results indicate that managers who offer more restrictive liquidity terms can outperform more liquid managers because they are able to pursue a broader range of attractive trading opportunities.

Dimensions of Liquidity

In general, hedge fund investors may be subject to three types of liquidity constraints:

- › **Initial Lockup.** *The period in which the initial capital allocated to a fund cannot be withdrawn. Although some funds do not impose lockups, most have lockup periods ranging from three months to three years—with some as long as five years.*
- › **Redemption Restrictions.** *After the lockup period, investors in hedge funds may redeem their shares. However, the redemption process is not continuous, and investors can only redeem at certain points in time. The periods when investors can withdraw funds are determined by the redemption frequency. Redemption frequencies can range from daily to annual. For instance, if the redemption frequency is three months, an investor can only withdraw funds every three months after the lockup period has expired. This translates into a maximum of four potential withdrawals each year.*
- › **Redemption notice.** *Investors are generally required to give notice in advance of redemption. Notice periods range from 30 days to one year, although the most common are 30, 45 and 60 days.*

All things equal, investors should prefer funds that offer shorter lockups, frequent redemption periods, and brief notice periods. Fund managers, on the other hand, to serve their own interests should prefer to offer the exact opposite set of terms; enhanced liquidity terms impose an administrative burden on funds and compel managers to keep a greater amount of cash on hand or at the ready. Since both sides recognize value (positive or negative) in the liquidity option, it is not surprising that liquidity terms vary so widely across hedge funds – in economics parlance illiquidity may be a variable at arriving at the Nash Equilibrium between investors and fund managers.

Do More Liquid Funds Underperform?

To study the effect of liquidity terms on hedge fund performance, we examine the historical performance of ten prominent hedge fund strategies. We use data from databases of hedge funds assembled by combining widely used commercial databases: one from Hedge Fund Research (HFRI), and the other from the Lipper Hedge Fund database. After eliminating overlaps, hedge fund indices and funds of hedge funds, and restricting attention to fund with at least two years of performance history, our data has 2,938 unique hedge funds spanning close to twenty years.

We further classified each fund as either “liquid” or “illiquid” on each of the three dimensions of investor liquidity—lockup, redemption frequency and notice period—according to the break points outlined in Figure 1. Notably, the same fund may be classified as “liquid” along one dimension, and “illiquid” along another, depending on the specifics of the liquidity terms.

Figure 1. Liquidity Tenor

Term	Liquid	Illiquid
Lockup	Less than one year	One year or more
Redemption Frequency	One month or less	Greater than one month
Notice	Thirty days or less	Greater than thirty days

Findings: The Cost of Liquidity

Less Liquid Funds Performed Better

Figure 2 (not to scale in interests of space depiction) shows the results of our analysis on performance. For each of the three dimensions of liquidity, our analysis shows that on average, “liquid” funds underperform “illiquid” ones – indicating, at least at first glance, that investors have borne real costs for enhanced liquidity. Figure 2 also shows that over longer periods of time, these costs have been substantial. Investors in liquid hedge funds have seen their investments increase by 6 to 7.5 times their original investment from January 1990 to September 2014, whereas investors in illiquid hedge funds have seen their investments increase on average by more than 10 times during the same period.

Figure 2. Performance of Hedge Funds by Liquidity Terms (1990 to 2014)



Figure 3 provides a more detailed look at the same information, incorporating measures of risk as well as return. What this analysis confirms is that across all three dimensions of liquidity, funds that restrict investor liquidity have performed better over the long run. In aggregate, funds that restrict investor liquidity tend to have on average

- › *Higher average returns*
- › *Better risk-adjusted performance as measured by the Sharpe ratio*

Figure 3. Aggregate Average Performance: Liquid versus Illiquid Hedge Funds(1990 to 2014)

Performance Measure	Lockup Liquid	Illiquid	Redemption Liquid	Illiquid	Notice Liquid	Illiquid
Annualized Return	13.94%	16.99%	13.00%	15.89%	14.03%	16.01%
Annualized Volatility	7.09%	7.83%	7.13%	7.59%	7.39%	7.09%

Why Do Less Liquid Funds Perform Better?

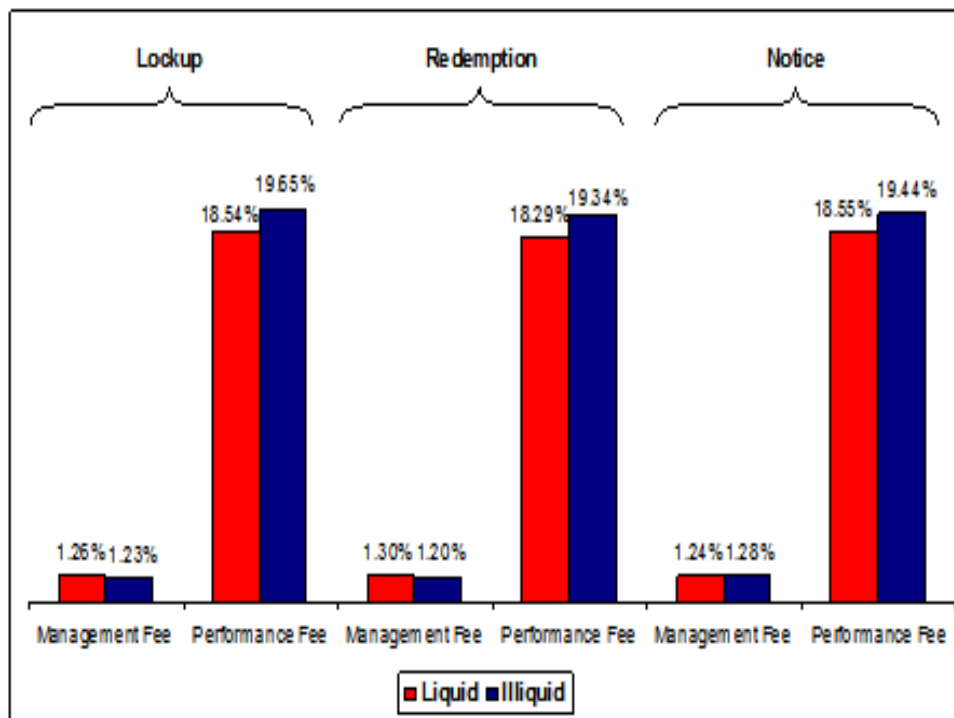
It is not surprising that investor liquidity comes at a price, but what drives this cost? To answer this question, we examined four possible (and popular) explanations.

■ Fees

One simple explanation could be that funds with greater liquidity charge higher fees. Just as an overnight delivery company charges more for faster service, perhaps those funds which offer more liquidity to investors charge more for this benefit. Such higher fees would reduce the net returns of “liquid” hedge funds on average and might cause them to underperform less liquid hedge funds, by the fee differential.

An examination of the data, however, disproves this hypothesis. As shown in Figure 4, there are minimal differences between the fees for illiquid versus liquid funds, so fees cannot account for the performance differential.

Figure 4. Average Fees: Liquid versus Illiquid Hedge Funds



1 We have constructed an equal-weighted index of all funds classified as “liquid” or “illiquid”, rebalancing the portfolio monthly. The average performance is the time-series average return, volatility and Sharpe ratio of these indices. As a consistency check, we have also calculated the time-series average return, volatility and Sharpe ratio of each fund, constructed the “liquid” and “illiquid” samples and then calculated the average of the all fund-level characteristics (average return, volatility and Sharpe ratio) across the sample. The results, not reported, are directionally the same both for average returns and Sharpe ratios.

2 We use simple regression techniques to estimate these differences and recognize that there are more sophisticated techniques available such as usage of the Kalman Filter etc. While the results we report here are based exclusively on the liquidity categories

Investing Strategy

To determine whether the “liquidity cost” is driven by strategy differences, we examined the relative performance of “liquid” and “illiquid” funds in each strategy across all three dimensions of liquidity. Figure 5 presents the results of our analysis expressed in terms of the average Sharpe ratio for each group of funds.

Figure 5. Average Sharpe Ratio by Strategy: Liquid versus Illiquid Hedge Funds

Numbers in red are 'better'

Performance Measure	Lockup Liquid	Illiquid	Redemption Liquid	Illiquid	Notice Liquid	Illiquid
Convertible Arbitrage	1.17	1.23	0.92	1.56	1.01	1.41
Distressed	1.62	1.14	0.87	1.70	0.84	1.65
Emerging Markets	0.69	1.06	0.65	0.77	0.69	0.72
Equity Long-Short	1.21	1.32	1.15	1.29	1.19	1.44
Equity Market Neutral	1.78	1.24	2.04	1.09	1.49	2.37
Event Driven	1.27	1.83	1.19	1.50	1.30	1.49
Fixed Income Arbitrage	1.44	1.70	1.32	1.47	1.44	1.16
Global Macro	0.89	1.59	0.75	1.49	0.93	1.56
Merger Arbitrage	0.98	1.23	0.96	1.25	1.16	1.41
Short Selling	0.02	0.22	-0.23	0.17	0.05	-0.17

The numbers in each of the cells show the average Sharpe ratio by strategy and type of liquidity term. The red colored figures, show which class of liquidity has a higher Sharpe ratio (and hence better risk adjusted performance).

While the results in Figure 5 are not uniform, they do reveal important patterns. Generally, illiquid funds—even when we control for the effect of strategy—perform better on a risk-adjusted basis than more liquid funds. Since within a strategy, more liquid funds underperform less liquid ones, we are unable to attribute the “liquidity cost” to strategy differences.

■ Skill

Another possible explanation for the liquidity cost is that inferior hedge funds need to offer better liquidity terms to attract investors. This seems to be the conventional wisdom about investor liquidity: since from a business perspective, all hedge funds would prefer more “steady money”, it is often asserted that better funds can force investors to accept worse liquidity terms.

To evaluate this possibility, we calculate each fund’s information ratio, which is a risk-adjusted measure of the skill of each manager. In Figure 6, we show the unique impact of each form of illiquidity on the information ratio of managers, by strategy. The numbers in each cell show how much the information ratio changes when we move from a liquid to an illiquid fund in the dimension of liquidity. So, for example, holding constant other features of funds in convertible arbitrage, the information ratio of funds with shorter and longer lockups are virtually the same: since the average information ratio of funds with longer lockups is only 0.01 less than those with shorter lockups. Under the same logic, the information ratios for emerging market funds with longer notice periods are on average 0.59 larger than those of emerging market funds with shorter notice periods. The bold red color numbers show those values in which the difference between liquid and illiquid funds is statistically different; otherwise, the skill of more and less liquid funds are indistinguishable.

Figure 6. Information Ratios: Effects of Different Liquidity Conditions

	Lockup	Redemption	Notice
Convertible Arbitrage	-0.01	0.21	0.22
Distressed	0.05	0.26	0.21
Emerging Markets	0.35	-0.13	0.59
Equity Long-Short	-0.02	0.04	0.19
Equity Market Neutral	-0.06	-0.23	0.68
Event Driven	0.31	0.07	0.47
Fixed Income Arbitrage	-0.10	0.21	0.28
Global Macro	0.26	0.30	0.30
Merger Arbitrage	0.24	0.15	0.21
Short Selling	-0.43	0.57	0.10

Taken together, the results in Figure 6 indicate that differences in the liquidity terms offered to investors do not appear to signal substantial differences in skill. Although there are some differences, only 9 (in bold red font) of the 30 values that we obtained show measurable differences and these results do not appear in any systematic manner. In sum, our analysis shows that there is very limited evidence that investor liquidity is correlated with the skill of the manager; in other words, more skilled managers do not always have worse liquidity terms

■ Trading Advantages

Having found little evidence that the liquidity cost is driven by fees, strategy or manager skill, we turn to a fourth possible explanation for the performance differences we observed in aggregate performance – restrictive liquidity terms provide hedge fund managers with positive trading advantages and enable them to post higher performance numbers. More restrictive liquidity terms may afford managers the freedom to pursue a wider range of trading strategies, to invest in less liquid securities, to take advantage of periodic liquidity shocks, to assume higher levels of risk or leverage, or to hold on to positions for longer periods of time so that they may engineer profitable exits. Managers that offer more “liquid” investment terms, constrained by the need to raise cash to meet more frequent redemption cycles, may be unable to employ these trading techniques – consequently their performance may suffer relative to the performance of “illiquid” funds.

To evaluate this hypothesis, it is necessary to understand whether managers of equal skill perform differently when their lockup, redemption, and/or notice terms are different. While this is a difficult task, given the depth and breadth of the data set, we were able to identify a total of 233 hedge fund managers to compare performance of funds across the different dimensions of liquidity while controlling for the skill of the manager.

In Figure 7, we present the results of this analysis. It shows for each of the dimensions of liquidity the average information ratio for the liquid funds and the illiquid funds in our sample of matched funds. In addition, it shows the average difference between the liquid and illiquid funds.

One cause of concern, particularly given our earlier discussion, is that if managers offer different liquidity terms for funds that pursue different strategies, then we may find a spurious correlation between liquidity and performance in our matched sample. There are two reasons, however, that this concern should be tempered. First, we control for market exposures by evaluating the fund pairs on risk-adjusted skill-based returns. This allows us to measure the funds on a comparable basis and observe the relative effect of investor liquidity. Second, we also ran the analysis including the average strategy performance as a control variable—measuring alpha using static regression for the purpose of this test only as outperformance versus the strategy group. In this case we arrive at directionally similar results, indicating that the difference in returns we observe cannot be ascribed to strategy variations.

Figure 7. Information Ratios in Matched Funds

	Liquid	Illiquid	Difference
Lockup	0.56	0.75	0.19
Redemption Frequency	0.49	0.69	0.21
Notice	0.55	0.89	0.34

The results of our analysis are pertinent: along each dimension of liquidity, managers are able to generate better risk-adjusted performance when they provide investors with more restrictive liquidity terms. Indeed, these differences are statistically significant in every case. Given our earlier results—which systematically eliminated alternative explanations for the performance difference between liquid and illiquid funds—this analysis implies that for the same level of skill, the greater trading flexibility afforded by lower investor liquidity creates opportunities for higher risk adjusted returns.

Conclusion

In this paper we examine two closely related questions regarding hedge fund liquidity: (i) Is there a cost associated with enhanced liquidity provisions? (ii) If so, what is the main driver of this cost? To answer these questions, we conducted a series of statistical analyses upon a broad sample of hedge fund returns taken from popular hedge fund databases.

The results of our analyses suggest that more liquid funds impose real costs on investors. These costs manifest in terms of lower investment returns relative to less liquid hedge funds. Across the three dimensions of liquidity that we examine – lock up, notice period and redemption frequency – the data suggests that more liquid funds underperform. The flip side of the “cost of liquidity” is the apparent “premium” that may

be available to investors in more “illiquid funds”. While hedge funds generally offer investor better liquidity terms than private equity and private real estate funds, the same general principle holds: Investors should and do get paid a premium for “selling” their option to trade in and out of their investments. The results of our analyses further suggest that the performance differences that we observe between liquid and illiquid hedge funds are primarily driven by the trading advantages that investor “illiquidity” affords managers.

We considered three other possible explanations for this liquidity cost – fee levels, investment strategy and manager skill – and are satisfied that none of these alternative hypotheses can explain the underperformance of “liquid” funds. On the other hand, we find evidence that more restrictive liquidity terms offer managers greater freedom to express their investment strategies and expand their opportunity set - enabling them to outperform peers that offer less restrictive liquidity terms. Indeed, by matching funds from the same manager, our analysis is akin to running an experiment in which we change a fund’s liquidity terms and evaluate performance differences. The result of this experiment is striking; simply by making this change, on average the less liquid version will perform better.

Recognizing that enhanced liquidity often comes at a price enables investors to make more informed (and hopefully more appropriate) investment decisions. When choosing between funds that offer restrictive liquidity terms, investors must carefully weigh the benefits that liquidity offers – the ability to trade out of their holdings to rebalance their portfolio, raise cash, or take advantage of other investment opportunities – against the possibility of lower investment returns. This said, it is important to stress that the liquidity provisions should not be the sole dimension - or even one of the most important dimensions – along which to evaluate fund programs. While liquidity restrictions seem to provide fund managers with additional trading advantages, it is still the case that an investor should devote considerable resources to analyzing whether fund managers under consideration add value and whether their strategies fit well with the investor’s overall portfolio.