Share Restrictions, Liquidity Premium and Offshore Hedge Funds

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Abstract

This paper examines liquidity premium in the hedge fund industry focusing on the difference between offshore and onshore hedge funds. Due to tax provisions and regulatory concerns, offshore and onshore hedge funds have different legal structures, which lead to differences in share restrictions such as a lockup provision. We find that offshore investors collect higher illiquidity premium when their investment has the same level of share illiquidity as the investment of onshore investors. Introducing a lockup provision increases the abnormal return by 4.4% per year for offshore funds compared with only 2.7% for onshore funds during the period of 1994-2005. We argue that the difference is explained by the stronger relationship between share illiquidity and asset illiquidity in offshore hedge funds. We also find that the benefit of offshore investors is maximized when they invest in offshore hedge funds that are not affected by onshore funds through a master-feeder structure.

Key words: offshore hedge funds, share restrictions, liquidity premium, master-feeder structure

JEL classification: G11, G12, C31

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Abstract

This paper examines liquidity premium in the hedge fund industry focusing on the difference between offshore and onshore hedge funds. Due to tax provisions and regulatory concerns, offshore and onshore hedge funds have different legal structures, which lead to differences in share restrictions such as a lockup provision. We find that offshore investors collect higher illiquidity premium when their investment has the same level of share illiquidity as the investment of onshore investors. Introducing a lockup provision increases the abnormal return by 4.4% per year for offshore funds compared with only 2.7% for onshore funds during the period of 1994-2005. We argue that the difference is explained by the stronger relationship between share illiquidity and asset illiquidity in offshore hedge funds. We also find that the benefit of offshore investors is maximized when they invest in offshore hedge funds that are not affected by onshore funds through a master-feeder structure.

1. Introduction

The hedge fund industry has been growing very rapidly with about $1.2 trillion assets under management by more than 8,000 funds worldwide, with the asset amount doubled in the past five years. Due to tax benefit and looser regulatory environment for offshore hedge funds, offshore funds contribute more to this rapid growth rate than onshore funds.[1] For example, according to Lipper TASS database, as of December 2005 (hereafter TASS), onshore hedge funds manage only 23 percent of the total assets, while 62 percent of assets are managed by hedge funds registered in offshore islands such as the Cayman Islands, British Virgin Islands, Bermuda, and Bahamas.

Located in the United States, onshore hedge funds are usually organized as limited partnerships (LPs) because corporations are subject to double taxation in the US. However, fund administration is more complicated for a partnership than for a corporation. While every change in ownership creates complications for all the partners in a partnership structure, a corporation carries the cost basis for all assets and net income does not flow through unless dividends are declared (see McCrary (2002) for details).

In contrast, offshore hedge funds, mostly located in tax havens, are generally not organized as partnerships. According to Lipper TASS, offshore hedge funds are usually open ended investment companies, which can be classified as corporations. The difference in legal structures caused by tax provisions leads to differences in share restrictions between offshore funds and onshore funds: onshore hedge funds (limited partnerships) impose higher share restrictions than offshore hedge funds (corporations).

[1] During the five-year period from January 2000 to December 2004, the AUM growth rate of offshore hedge funds was 26.4 percent per year while the growth rate of onshore fund was 15.0 percent.

Besides tax provisions, there are other regulatory issues that affect the liquidity of onshore hedge fund shares. Before 1996, onshore hedge funds had to limit the number of investors to 99 to qualify for exclusion from regulations on public issuance of securities. In 1996, the ceiling was raised to 500 investors by the National Securities Markets Improvement Act. There is also a restriction on the "quality" of investors: only those who have at least $5 million in capital are allowed to invest in onshore hedge funds. All else being equal, a share of a fund subject to restrictions will be less liquid than an unrestricted share.

Therefore, onshore hedge funds usually have higher share restrictions than offshore hedge funds. One of the most important share restrictions is a lockup provision, which specifies the period during which an investor of a fund is unable to withdraw his/her capital. The average lockup period of onshore hedge funds in the TASS data is more than two times longer than that of offshore funds.[2]

There is increasing evidence that share restrictions are related to higher performance of hedge funds due to share illiquidity premium. Liang (1999) finds a positive relationship between aggregate-level hedge fund returns and lockup provisions. Bali, Gokcan and Liang (2006) adopt a methodology similar to Fama and French (1992) and show that hedge funds with a lockup provision have a higher expected return than non-lockup funds. Liang and Park (2007) confirm the finding and document that lockup provisions explain the liquidity premium in hedge fund returns. Aragon (2007) argues that previously documented positive alphas of hedge funds can be interpreted as a compensation for holding illiquid fund shares. He finds that the excess returns of hedge funds with lockup provisions are 4-7% per year higher than those of non-lockup funds.

[2] See Panel B of Table 2 for comparison of share restriction provisions in offshore funds and onshore funds for each investment style.

However, the above studies do not focus on the difference in share restrictions between offshore and onshore hedge funds. In other words, previous research does not differentiate offshore funds from onshore funds when they explore liquidity premium in hedge fund returns. Although there has been extensive research on stale pricing and illiquidity in hedge fund returns (Asness, Krail and Liew (2001) and Getmansky, Lo and Makarov (2004, hereafter GLM)), these studies do not focus on the difference between offshore and onshore hedge funds either. A study by Brown, Goetzman and Ibbotson (1999) is the only paper that examines the performance of offshore hedge funds, but they did not analyze share liquidity premium.

The implicit assumption in prior literature is that the illiquidity of a hedge fund share reflects the illiquidity of assets in the hedge fund portfolio; thus the higher return on lockup funds is interpreted as illiquidity premium. In this paper, we argue that the illiquidity of a hedge fund share at the fund level is not a good proxy for the illiquidity of assets at the security level. In other words, we make a distinction between illiquidity of hedge fund shares and illiquidity of assets in the hedge fund portfolio. As a matter of fact, using TASS data from January 1994 to November 2005, we find that onshore hedge funds with a lockup provision do not necessarily hold illiquid assets, and introducing the lockup provision will benefit offshore funds more than onshore funds. This is true because the correlation between share illiquidity and asset illiquidity is higher for offshore funds than that for onshore funds.[3]

We use the alpha from the seven-factor model by Fung and Hsieh (2004) and find that the increase in excess return by imposing a lockup provision is 4.4% per year in offshore funds but only 2.7% per year in onshore funds. The Chow (1960) test shows that the difference in lockup

[3] See Table 6 and Section 3.3 for details.

premium between offshore funds and onshore funds is statistically different from zero at any conventional significance level.[4]

In addition to the lockup provision, we examine other share restriction variables such as redemption notice period (RNP), redemption frequency (RF), subscription frequency (SF) and minimum investment (MinInvest) as proxies for the liquidity of assets in a hedge fund portfolio. Regarding the role of RNP and MinInvest, we confirm and extend the finding of Aragon (2007). In contrast to a lockup provision, the correlation of RNP to asset liquidity is significant for both offshore funds and onshore funds. Therefore, RNP is better than lockup as a proxy for asset illiquidity.

When we analyze the difference between offshore and onshore hedge funds, we need to note a "master-feeder" structure that is devised for hedge fund managers who wish to market a fund to both onshore and offshore investors. Instead of managing two different portfolios, the manager usually sets up one "master" company and two "feeders": one feeder is a limited partnership for onshore investors and the other feeder is an offshore corporation for offshore investors. The sole investment of these two feeders is an ownership interest in the master, which is typically an offshore limited liability company. The actual portfolio investment is made at the master company level.[5]

To analyze the impact of the master-feeder structure on illiquidity premium, we divide the offshore funds into two groups: i) offshore funds in a master-feeder (MF) structure, and ii) stand-alone (SA) offshore funds. We find that the positive relation between risk-adjusted performance and share restriction variables becomes weaker in MF offshore funds while the relation becomes statistically more significant in SA offshore funds.

[4] As a robustness check, we also use the alpha from the lagged market model of Asness, Krail and Liew (2001) and Aragon (2007), and the Sharpe ratio as a measure of risk-adjusted performance and find the same result.
[5] See Buscema (1996) and McCrary (2002) for detailed description on the master-feeder structure of hedge funds.

The increase in excess return by imposing a lockup provision is 5.8% per year in stand-alone offshore funds and only 2.4% in master-feeder offshore funds. That is, due to the link with their onshore equivalence, offshore hedge funds in a master-feeder structure provide less share illiquidity premium than stand-alone offshore funds.

The findings of this paper have implications on the welfare of hedge fund investors. In addition to the tax advantage, offshore investors may collect higher illiquidity premium when their investment has the same level of share illiquidity as the investment of onshore investors. The benefit of offshore investors is maximized especially when they invest in offshore hedge funds that do not include an onshore fund with the same investment style in the master-feeder structure of the fund family.

The findings of the paper may help explaining why offshore hedge funds have been growing much faster than onshore hedge funds. In the recent survey by WSJ.com, some economists warned against heavy regulation on hedge funds: "we would push them offshore if we tried to regulate with a heavy hand. Better to have them onshore with light regulation."[6] The goal of this paper is to shed light on how regulations and tax provisions affect the welfare of investors with regard to liquidity premium in hedge fund returns. We contribute to the literature by finding that share illiquidity premium is different between onshore and offshore funds.

The rest of this paper is organized as follows: Section 2 describes the data and compares the characteristics of offshore and onshore hedge funds. Section 3 presents the main results on the relation between share restrictions and risk-adjusted performance. Section 4 describes the master-feeder structure of hedge funds and discusses its impact on the liquidity premium in offshore fund returns. Section 5 presents robustness checks. Section 6 concludes the paper.

[6]Source: Wall Street Journal, Eastern Edition, Oct. 13, 2006, pg. C.3.

2. Data and Summary Statistics

2.1. Data

We obtain monthly, net-of-fee returns, assets under management (AUM), and other fund characteristics data on individual hedge funds from Lipper TASS, which is one of the major hedge fund databases used in the literature.[7] We include both live funds and defunct funds in our analysis to reduce survivorship bias. We delete the first two years of return data to mitigate the instant history bias. Our sample period is from January 1994 to November 2005 because TASS does not retain data on defunct funds before 1994. The fund characteristics information provided by TASS includes investment style, legal structure, domicile country, management company, fee structure, and share restriction provisions such as lockup period, subscription frequency, redemption frequency, redemption notice period and minimum investment amount.

As of November 2005, there are 3,573 funds in our sample, among which 2,111 are live funds and 1,462 are defunct funds. There are 1,524 (911 live and 613 defunct) onshore funds and 2,049 (1,200 live and 849 defunct) offshore funds[8]. More than 75 percent of offshore funds are domiciled in Cayman Islands and British Virgin Islands. Consistent with previous studies, we do not include those funds that report i) returns in a foreign currency, instead of US dollars, ii) quarterly (instead of monthly) returns, or iii) gross return (instead of net-of-fee returns). In

[7] TASS, HFR (Hedge Fund Research) and CISDM (Center for International Securities and Derivatives Markets) are the major hedge fund databases used in the literature. TASS is used by Fung and Hsieh (1997, 2000a), Liang (2000), Getmansky, Lo, and Makarov (2004), Bali, Gokcan and Liang (2006), Fung, Hsieh, Naik and Ramadorai (2005), Aragon (2007), and Liang and Park (2006). HFR is used by Ackermann, McEnally, and Ravenscraft (1999), Liang (2000), Bali, Gokcan and Liang (2006) and Fung, Hsieh, Naik and Ramadorai (2005). CISDM (formerly known as MAR) is used by Ackermann, McEnally, and Ravenscraft (1999), Cremers, Kritzman and Page (2005) and Fung, Hsieh, Naik and Ramadorai (2005).

[8] We define offshore funds if they are registered offshore.

our analysis of liquidity premium, we exclude managed futures since they invest in highly liquid securities, and we exclude fund of funds to avoid double counting.

2.2. Summary Statistics

Legal Structure: Onshore hedge funds usually have a partnership structure because corporations are subject to double taxation in the United States. Also, the organization in the form of partnerships is largely exempt from the US SEC regulation. Table 1 shows the legal structure of onshore and offshore hedge funds. 87 percent of onshore hedge funds are limited partnership while only 4.3 percent of offshore funds have such a structure. In case of offshore funds, the most frequently observed legal structure is open ended investment company (47.5 percent), but the proportion varies across locations (Cayman Islands: 42.1 percent, Bahamas: 70.9 percent).

Size and Age: Table 2 compares the characteristics of offshore and onshore hedge funds in our sample. As shown in Panel A of Table 2, there are much more offshore funds (2,049) than onshore funds (1,524). This can be due to the benefits of lower tax and looser regulatory environment. As of November 2005, the total assets under management for these 2,049 offshore funds are $193.7 billion, nearly three times the assets for onshore funds. The average offshore fund is more than twice the size of an average onshore fund. Overall, offshore hedge funds are managing more than 70 percent of the total hedge fund assets in the TASS database.

Offshore hedge funds are around twelve months younger than onshore hedge funds on average. The only exception is emerging market funds. Note that offshore emerging market funds manage 96 percent of the total emerging market fund assets, and they are older than

onshore emerging market funds. Getmansky, Lo, and Makarov (2004, hereafter GLM) indicate that emerging market funds are more illiquid than other styles.

The existence of these younger but larger offshore funds implies that the recent rapid growth of the hedge fund industry is mainly attributable to offshore hedge funds. Figure 1 shows that during the past three years the growth rate of offshore hedge fund assets is twice that of onshore fund assets (130% vs. 66%). Note that the highest growth rate is observed for hedge funds that are registered offshore but addressed in the United States (176%).[9] Figure 2 shows that the majority (64%) of hedge fund managers reside in North America, but more than three quarters (77%) of hedge fund assets are registered offshore.

Why do hedge fund managers prefer setting up hedge funds registered offshore but located in the United States? Is there another advantage of investing in offshore funds besides the tax benefits? This paper presents evidence on the advantage of offshore hedge fund investors in terms of share illiquidity premium, which may be one of the reasons why offshore hedge funds have a higher growth rate.

Share Restrictions: Panel B of Table 2 compares offshore hedge funds with onshore funds in terms of share restriction provisions such as lockup period, redemption frequency, redemption notice period, subscription frequency, and minimum investment amounts. A lockup provision specifies the period during which an investor of a fund is unable to withdraw his/her capital.[10] As shown in the table, the lockup period of onshore hedge funds (5.7 months) is more than doubled that of offshore funds (2.4 months).

[9] Although we classify offshore funds by their legally registered countries, some foreign registered funds can still be located in the US.

[10] This is one of the criteria adopted by SEC to differentiate private equity and venture capital funds from hedge funds. According to the SEC final rule IA-2333 released in December 2004, an investment company with a lockup period longer than two years can be exempted for Registration under the Advisers Act of Certain Hedge Fund Advisers.

Offshore hedge funds have higher share restrictions than onshore hedge funds besides the lockup provision. On average, offshore funds require less minimum investment, and have shorter redemption, redemption notice, and subscription periods than those of onshore funds. All the differences are statistically significant at the 1 percent level with *t*-statistics ranging from 3.64 to 19.61.

Fee Structure: The difference in legal structure and share restrictions result in the different fee structure between offshore and onshore hedge funds. Panel C of Table 2 compares the fees and other characteristics of offshore and onshore hedge funds. As expected, offshore hedge funds charge higher management fees than onshore funds (1.4% vs. 1.2%) due to the higher transaction cost caused by lower share restrictions and higher frequency of transactions. In case of incentive fees, high-water mark provision and leverage, we do not find a significant difference between offshore and onshore funds.

Performance and Risk: Table 3 compares offshore funds with onshore funds in terms of performance and risk. In Panel A, onshore funds exhibit higher risk measured by standard deviation and higher return than offshore funds on average. When we use the Sharpe ratio or the seven-factor model alpha of Fung and Hsieh (2004) as a measure for risk adjusted performance, onshore funds perform better than offshore funds. As shown in Table 2, there are more share restrictions for onshore funds than offshore funds. Hence, rational investors will require some share illiquidity premium for investing in onshore funds. The superior performance of onshore funds is attributable mainly to share illiquidity premium, which is consistent with previous literature (see Liang (1999), Bali, Gokcan and Liang (2006), Liang and Park (2007) and Aragon (2007)).

In Panel B, we did a two-way sorting by lockup and fund location. Overall, fewer funds impose the lockup provision. Interestingly, this proportion is much lower for offshore funds (19.8%) than that for onshore funds (44.2%). Both onshore lockup funds and onshore non-lockup funds outperform their offshore counterparts. However, the lockup premium for offshore funds (4.5%) is higher than that for onshore funds (3.2%).[11] Therefore, Aragon's (2007) finding on the lockup premium is primarily driven by offshore funds.

3. Illiquidity Premium and Share Restrictions of Hedge Funds

3.1. Share Illiquidity Premium

To examine the impact of share restriction provisions on illiquidity premium, we use cross-sectional regressions of risk-adjusted performance of hedge funds on share restriction variables. The dependent variable is the alpha from i) the seven-factor model of Fung and Hsieh (2004) or ii) lagged-market model as in Asness, Krail and Liew (2001) and Aragon (2007).[12] The regressor is a share restriction variable such as a lockup dummy variable (Lockup), redemption frequency (RF), redemption notice period (RNP), subscription frequency (SF), or minimum investment amounts (MinInvest). We include style dummy variables to adjust for investment style effects. We run the cross-sectional regressions for i) all funds, ii) offshore funds and iii) onshore funds, and we use the Chow Test to examine if onshore funds provide the same share illiquidity premium as offshore funds.

[11] The t-statistic for the performance difference between onshore lockup funds and offshore lockup funds is 1.19 and it is 4.38 for the performance difference between onshore non-lockup funds and offshore non-lockup funds. Hence, the performance difference between onshore and offshore funds is mainly driven by non-lockup funds.

[12] We thank David Hsieh for providing data for the seven-factor model, which is available in his website. (http://faculty.fuqua.duke.edu/~dah7/HFRFData.htm)

Table 4 shows that hedge funds with a lockup provision provide higher risk-adjusted return than non-lockup funds. The coefficient 0.32% transfers to an annual illiquidity premium of 3.9%, which is consistent with Aragon's (2006) finding of 4-7% lockup premium. This paper contributes to the literature by finding the difference in share illiquidity premium between offshore funds and onshore funds. The lockup premium of offshore funds is 0.14% higher per month (or about 1.7% per year) than that of onshore funds, and the difference is significantly different from zero at the 1 percent level. Higher illiquidity premium of offshore funds are also observed when we use the other share restriction variables. All the parameter estimates of offshore funds on SF, RF, RNP and MinInvest variables are higher than those of onshore funds, and the Chow Test shows that offshore funds provide higher share illiquidity premium than onshore funds.

At the first glance, it may seem counter-intuitive that offshore funds are more sensitive to the share restriction variables although we documented in Table 2 that offshore funds impose less severe share restrictions and onshore funds outperform offshore funds. Why are excess returns of offshore funds more sensitive to share restrictions? The reason is that asset illiquidity is the main source of share illiquidity premium, and offshore funds have a higher correlation between asset illiquidity and share restrictions.[13]

By construction, there is more share restriction for onshore funds due to their legal structure. Share illiquidity does not necessary mean asset illiquidity as onshore funds are more restrictive simply due to their partnership structure and their assets can still be very liquid. Due to the above restrictions, there is a tighter relation between asset illiquidity and share illiquidity for offshore funds as asset illiquidity is the main factor that affects the illiquidity of offshore hedge fund shares. As a result, offshore funds are more sensitive to the changes in share

[13] See Table 6 and Section 3.3 for details.

restrictions (higher parameter estimates). That is, in offshore funds, the excess return increases more by a certain amount of share restriction. However, due to the larger amount of share restrictions in onshore funds (larger repressors), the excess return on onshore funds is still higher.

3.2. Share Restrictions and Illiquidity of Assets in a Hedge Fund Portfolio

In contrast to the previous research, this paper makes a clear distinction between the illiquidity of a hedge fund share and the illiquidity of assets in the fund portfolio. As a measure of asset illiquidity, we use the first-order serial correlation coefficient of hedge fund returns.[14] GLM (2004) explore the source of the high serial correlation of hedge fund returns and show that illiquidity exposure is the most likely explanation. To measure share illiquidity, we use five share restriction variables. As expected, the five share restriction variables are correlated to each other and Table 5 shows the correlation coefficients. Consistently, non-lockup funds allow more frequent redemption and subscription, shorter redemption notice period, and lower minimum investment amounts than lockup funds.

The correlation between asset illiquidity (proxied by the first-order autocorrelation) and share illiquidity is provided in the last row of Table 5. The positive and statistically significant correlation coefficients show that four out of the five share restriction variables (Lockup, RedFreq, RNP and MinInvest) can serve as a proxy for asset illiquidity. Note that RNP and MinInvest are more highly correlated to asset illiquidity than Lockup (0.18 and 0.11 vs. 0.09). That is, redemption notice period is the best share restriction variable in terms of representing the illiquidity of assets in a hedge fund portfolio.

[14] As a robustness check, we replace the first-order serial correlation coefficient by the illiquidity measure of GLM (2004) and find the same results. See Section 5.2 for details.

Note also that management fee (Mfee) is negatively correlated to Lockup, RedFreq and SubFreq while RNP and MinInvest are not negatively correlated to Mfee. Higher share restriction reduces transaction costs and hence is negatively correlated to Mfee. However, shorter redemption notice period and smaller minimum investment are not penalized by higher fees. Aragon (2007) finds that redemption notice period and minimum investment amount have a significant, positive relation with excess returns of hedge funds, and we provide the reasons by analyzing the relationship among asset illiquidity, share restrictions and fees.

3.3. Share Restrictions and Asset Illiquidity: Offshore Funds vs. Onshore Funds

In Table 6, we provide the correlation between asset illiquidity and share illiquidity for onshore and offshore funds, separately. We find that offshore funds and onshore funds are different in the correlation between asset illiquidity and share illiquidity. As shown in Table 6, the correlation is higher for offshore funds. The largest difference is observed for the lockup provision. Note that only offshore funds show positive and significant correlation between lockup provision and asset illiquidity. That is, even if onshore fund investors hold shares with a lockup, this does not necessarily mean they are holding illiquid assets that can provide higher returns.

This result is consistent with Table 4, which presents offshore funds as having higher sensitivity of excess return to the lockup provision than onshore funds. That is, when an offshore fund imposes a share restriction, the alpha increases more than the increase from an onshore fund imposing the same share restriction. The reason is that offshore funds impose share restrictions mainly because of illiquidity of assets in their portfolios. However, onshore funds have other reasons to impose share restrictions such as tax provisions and other

regulations which are not providing illiquidity premium. That is, when we use a share restriction variable as a proxy of asset illiquidity, there are more noises in onshore funds. Table 6 shows that onshore funds have a lower correlation between asset illiquidity and share restrictions. Such noises cause onshore funds to have lower sensitivity in cross-sectional regressions of a fund's alpha on its share restriction variables.

3.4. Illiquid Assets and Offshore Lockup Funds

Based on these findings, we infer that share restrictions are more widely used by onshore funds but the excess return provided by a certain amount of share restriction is higher in offshore funds. That is because onshore funds have other reasons to impose share restrictions than asset illiquidity which is the main source of abnormal return. To further prove this, we test the following hypothesis.[15]

Hypothesis 1: Since share restrictions for offshore funds are more binding, offshore lockup funds hold more illiquid assets than onshore lockup funds.

The test results are presented in Panel A of Table 7. As shown in the table, the average illiquidity of offshore lockup funds is higher than that of onshore lockup funds (0.23 vs. 0.15) and the difference is significant at the 1 percent level. That is, offshore lockup funds hold more illiquidity assets than onshore lockup funds and thus provide higher sensitivity of alpha to a lockup provision.

[15] We thank George Aragon for this insightful suggestion.

4. Master-Feeder Structure of Hedge Funds

We find the difference between offshore funds and onshore funds in terms of the relationship between alpha and share restriction variables. Our next step is to analyze how hedge fund managers deal with such a difference when they manage both onshore funds and offshore funds. As briefly explained in Section 1, when hedge funds have both onshore and offshore investors they use a master-feeder structure instead of managing two separate portfolios.

As the offshore hedge funds in a master-feeder structure are affected by onshore funds under the same structure, we expect that they show a weaker relationship between alpha and share restrictions than stand-alone offshore funds. We use the management company information provided by TASS to define master-feeder (MF) funds and stand-alone (SA) funds. If there exist both onshore and offshore funds with the same investment style managed by the same company, we classify them as MF funds and the other funds are SA funds. Among the 1,230 offshore funds that have at least twelve-month return history, 341 are MF funds and 889 are SA funds. We recognize there are cases where a MF fund is misclassified as a SA fund because the onshore fund in the MF structure does not report to the database. However, the bias is against finding the difference between MF funds and SA funds. To distinguish MF offshore funds from SA offshore funds in terms of liquidity premium, we test the following hypothesis:

Hypothesis 2: MF offshore funds have a weaker relationship between risk-adjusted performance and share restrictions than SA offshore funds because they are affected by onshore funds through a master-feeder structure.

Table 8 shows that SA offshore funds have higher parameter estimates than MF offshore funds in the cross-sectional regressions of the seven-factor alpha on share restrictions. The

increase in alpha by a lockup provision is 0.48% per month (or 5.8% per year) in stand-alone offshore funds and 0.20% per month (or 2.4% per year) in master-feeder offshore funds. The Chow Test shows the difference is significant at the 5 percent level. That is, the sensitivity of alpha on share restrictions is higher in SA offshore funds because they are not influenced by onshore funds, which have weaker relationship between alpha and share restrictions.

Regarding the difference between MF funds and SA funds, there is another hypothesis we should test. Recall that by testing Hypothesis 1 we conform that offshore lockup funds hold more illiquid assets than onshore lockup funds. Such a difference between offshore lockup funds and onshore lockup funds will become weaker under the MF structure, which maintains a link between offshore funds and onshore funds.

Hypothesis 3: The difference in asset illiquidity between offshore lockup funds and onshore lockup funds is larger in stand-alone funds than in master-feeder funds.

Panel B of Table 7 shows the test results. The difference in asset illiquidity between offshore lockup funds and onshore lockup funds is larger; it is more significantly different from zero in stand-alone funds than in master-feeder funds ($\Delta\rho$: 0.11 vs. 0.04, *t*-statistics: 5.35 vs. 1.91).

5. Robustness

5.1. Measure of Risk-Adjusted Performance

To make sure that our finding is not affected by the way we measure risk-adjusted performance, we replace factor model alphas by Sharpe ratios. That is, in the cross-sectional regressions, Sharpe ratio is the dependent variable and share restrictions are regressors, and we compare the parameter estimates for offshore funds and onshore funds. Table 9 shows that

Sharpe ratio is more sensitive to a change in share restriction in offshore funds than in onshore funds. The parameter estimates and *t*-statistics are all higher in offshore funds than those in onshore funds. The Chow test confirms the results.

5.2. Measure of Asset Illiquidity

GLM (2004) develop a measure of asset illiquidity by distinguishing between a fund's reported return and economic returns. The idea is that the reported returns of illiquid portfolios only partially reflect contemporaneous economic returns but economic returns are incorporated to reported returns eventually. That is, the fund's reported return in period *t* (R_t^0) satisfies the following equations:

$$R_t^0 = \theta_0 R_t + \theta_1 R_{t-1} + \theta_2 R_{t-2} + \cdots + \theta_k R_{t-k} \quad (1)$$

$$0 \le \theta_i \le 1 \quad for\ all\ i = 0,1,2,\cdots k,\ and \quad (2)$$

$$\theta_0 + \theta_1 + \theta_2 + \cdots + \theta_k = 1 \quad (3)$$

where R_t is the fund's economic return in period *t*. As in GLM (2004), we assume that demeaned economic returns are mean-zero, normal random variables and use the previous sixty-month return history of a fund to estimate the parameters in Equation (1) by maximum likelihood estimation. θ_0 represents the fraction of a fund's economic return that is incorporated in its reported return. Hence low θ_0 means a more illiquid portfolio. Therefore, we call 1-θ_0 GLM measure of asset illiquidity.

We use the GLM illiquidity measure instead of the first-order serial correlation coefficient and repeat our analyses to show that our results are robust to the way we estimate the illiquidity of assets in a hedge fund portfolio. As expected, we find that our results remain the same when

we use the GLM illiquidity measure. Offshore funds show higher correlation between share illiquidity and asset illiquidity than onshore funds, and offshore lockup funds hold more illiquid assets than onshore lockup funds (GLM illiquidity: 0.19 vs. 0.10, *t*-statistic = 3.31).[16] The only difference is that the requirement of sixty month return history to estimate parameters in Equation (1) reduces our sample size from 2,233 (1,230 offshore and 1,003 onshore) to 1,400 (740 offshore and 660 onshore).

In addition to the GLM illiquidity measure, we calculate liquidity risk beta for each fund where market liquidity is defined as in Pastor and Stambaugh (2003). Consistent with Aragon (2007), we find no significant difference in liquidity risk exposure across lockup and non-lockup funds in the entire sample as well as in the offshore fund sub-sample.

6. Conclusions

This paper examines share restriction and illiquidity premium for hedge funds. Differing from the previous literature, we make two distinctions: i) offshore hedge funds versus onshore hedge funds, and ii) hedge fund share illiquidity versus asset illiquidity in the fund portfolio. To our best knowledge, this is the first paper that focuses on the difference between offshore and onshore hedge funds. We show that onshore hedge funds impose stronger share restrictions than offshore funds due to the partnership structure. Aragon (2007) finds that the excess returns of hedge funds with the lockup provision are higher than those of non-lockup funds. We extend the findings in several ways.

[16] To save space, we do not report detailed results in tables, but they are available from the authors upon request.

First, due to the difference in tax provisions and legal structures, onshore funds impose stricter share restrictions than offshore funds. As a result, onshore funds outperform offshore funds during the period of 1994 to 2005 to satisfy rational investors' demand for liquidity premium.

Second, we show that the positive relationship between excess returns and share restrictions is stronger in offshore funds than in onshore funds. In other words, once offshore funds impose share restrictions, the liquidity premium for the same amount of share restriction is higher for offshore funds than that for onshore funds. Using the alpha from the seven-factor model of Fung and Hsieh (2004) as a measure of risk-adjusted performance, we find that the increase in excess return by introducing the lockup provision is 4.4% per year in offshore funds and 2.7% per year in onshore funds. However, since over 80% offshore funds do not impose the lockup provision, the overall liquidity premium for onshore funds is still higher.

In addition to the lockup provision, we examine other share restriction variables such as redemption frequency, redemption notice period, subscription frequency, and minimum investment amounts. We find that offshore hedge funds have higher sensitivity of their excess returns to all the share restriction variables.

Thirdly, we provide explanations for the above findings by making a distinction between share illiquidity and asset illiquidity. The excess return of offshore funds is more sensitive to share restrictions because offshore funds have a higher correlation between asset illiquidity and share illiquidity, and asset illiquidity is the main source of share illiquidity premium.

Finally, we find that share illiquidity premium becomes lower when an offshore fund is affected by its onshore equivalence through a master-feeder structure. The increase in excess

return by a lockup provision is 5.8% per year in stand-alone offshore funds and 2.4% per year in master-feeder offshore funds.

Overall, our finding contributes to the literature by filling a gap between onshore funds and offshore funds, especially in terms of performance, structure, and liquidity premium.

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Table 1
Legal Structure of Hedge Funds by Domicile Country

This table compares offshore hedge funds with the U.S. based funds in terms of size and legal structure. The data is from TASS database, and the sample period is from January 1994 to November 2005. Reported assets under management (AUM) are as of November 2005.

Domicile Country	Number of Funds	AUM _Average ($mm) (as of the last month)	AUM _Total ($billion) (as of Nov. 2005)	Legal Structure (%)					
				Limited Partnership	Limited Liability Company	Open Ended Investment Company	Exempted Company	Open Ended Mutual Fund	Others
Onshore Funds	**1,524**	**83.6**	**71.1**	**87.0**	**9.8**	**1.4**	**0.0**	**0.0**	**1.8**
Offshore Funds	**2,049**	**170.7**	**193.7**	**4.3**	**6.6**	**47.5**	**12.7**	**5.2**	**23.6**
Cayman Islands	1,193	157.5	101.7	4.8	7.9	42.1	21.4	2.9	20.9
British Virgin Islands	351	201.5	40.9	3.4	4.3	67.6	0.0	2.8	21.9
Bermuda	216	169.8	22.7	3.7	9.7	46.8	1.9	27.2	10.7
Bahamas	103	137.4	3.8	3.9	1.0	70.9	0.0	1.0	23.2
Others	186	216.3	24.5	3.8	2.7	31.7	1.1	1.1	59.6
All Funds	**3,573**	**132.5**	**264.8**	**39.6**	**8.0**	**27.8**	**7.3**	**3.1**	**14.2**

Table 2
Summary of Hedge Fund Characteristics by Investment Style and by Domicile Country

This table compares offshore hedge funds and onshore funds in terms of size, age, fees, and share restrictions. Size of live funds is asset under management (AUM) as of November 2005 and size for dead funds is AUM as of the last month. Reported numbers are sample averages. The data is from TASS database, and the sample period is from January 1994 to November 2005. ***, **, and * denote that the difference in the characteristics of offshore funds and onshore funds is significantly different from zero at the 1%, 5% and 10% level, respectively.

Panel A: Size and Age

Investment Style	Number of Funds		AUM _Total ($billion): (as of Nov. 2005)		AUM _Average ($mm) (as of the last month)			Age (months)		
	U.S.	Offshore	U.S.	Offshore	U.S.	Offshore	*t*-statistic	U.S.	Offshore	*t*-statistic
Convertible Arbitrage	70	112	1.4	6.1	52.4	216.7	-2.80***	74.3	62.8	1.69*
Dedicated Short Seller	19	17	0.8	0.6	49.6	56.4	-0.16	103.2	75.0	1.40
Emerging Markets	45	255	1.5	32.2	47.7	160.2	-4.45***	61.8	65.6	-0.50
Equity Market Neutral	124	164	5.5	8.7	56.0	124.5	-1.71*	52.0	46.0	1.37
Event Driven	219	256	16.0	34.0	191.6	257.1	-1.43	72.6	56.8	3.18***
Fixed Income Arbitrage	78	149	4.8	18.4	100.0	200.3	-3.26***	52.8	50.2	0.46
Global Macro	69	198	1.9	15.2	57.1	148.7	-2.37**	61.4	52.6	1.32
Long/Short Equity Hedge	819	793	30.9	62.1	61.2	132.2	-4.97***	64.3	52.9	5.06***
Multi-Strategy	81	105	8.4	16.3	123.3	315.7	-2.50**	55.3	52.5	0.44
All Funds	**1,524**	**2,049**	**71.1**	**193.7**	**83.6**	**170.7**	**-7.51*** **	**64.2**	**54.9**	**5.93*** **

Panel B: Share Restrictions

	Lock-Up Period (months)			Minimum Investment ($mm)			Redemption Notice Period (Days)			Redemption Frequency (Days)			Subscription Frequency (Days)		
	U.S.	Offshore	*t*-stat	U.S.	Offshore	*t*-stat	U.S.	Offshore	*t*-stat	U.S.	Offshore	*t*-stat	U.S.	Offshore	*t*-stat
Convertible Arbitrage	3.43	3.38	0.06	1.16	0.97	0.63	40.9	42.2	-0.30	82.2	66.5	1.49	37.8	31.3	2.35**
Dedicated Short Seller	4.58	4.59	0.00	0.57	0.63	-0.58	27.2	21.8	0.84	132.7	44.1	3.03***	60.1	32.1	3.21***
Emerging Markets	4.00	1.68	2.21**	0.56	0.38	2.43**	33.9	27.0	1.61	92.8	50.9	3.83***	40.5	31.0	2.27**
Equity Market Neutral	4.51	1.15	5.35***	0.71	0.68	0.30	32.7	25.2	2.88***	78.5	38.8	6.95***	47.5	30.7	5.25***
Event Driven	6.21	4.54	2.21**	1.31	1.11	1.27	51.8	48.9	0.97	160.2	90.1	6.55***	51.8	35.5	4.66***
Fixed Income Arbitrage	4.58	1.98	3.56***	1.18	1.07	0.53	44.2	31.4	3.31***	92.3	65.3	2.41**	40.7	32.4	2.69**
Global Macro	3.91	1.19	3.16***	0.85	0.76	0.47	27.5	18.1	3.25***	63.1	38.0	4.52***	37.9	30.8	2.24**
Long/Short Equity Hedge	6.40	2.36	13.55***	0.78	0.59	4.08***	36.8	29.4	6.36***	117.0	51.6	17.24***	50.3	34.0	10.47***
Multi-Strategy	4.59	2.43	2.44**	1.16	1.08	0.20	39.6	40.4	-0.16	80.6	61.9	1.90	39.4	31.4	2.74***
All Funds	**5.69**	**2.39**	**15.60*** **	**0.90**	**0.73**	**3.64*** **	**38.7**	**31.4**	**8.12*** **	**112.4**	**56.4**	**19.61*** **	**47.9**	**32.9**	**13.95*** **

Panel C: Fees and Other Characteristics

Investment Style	High-Water Mark (%)		Leveraged (%)		Management Fee (%)			Incentive Fee (%)		
	U.S.	Offshore	U.S.	Offshore	U.S.	Offshore	*t*-statistic	U.S.	Offshore	*t*-statistic
Convertible Arbitrage	65.7	65.2	70.0	81.2	1.22	1.34	-1.64*	17.9	19.0	-1.38
Dedicated Short Seller	52.6	52.9	36.8	35.3	1.17	1.35	-1.11	19.4	18.8	0.34
Emerging Markets	44.4	43.9	57.8	57.6	1.45	1.53	-1.04	17.9	17.5	0.42
Equity Market Neutral	66.1	72.0	52.4	57.3	1.21	1.43	-4.28***	18.9	19.9	-1.57
Event Driven	67.6	68.4	51.6	59.0	1.26	1.42	-3.81***	18.7	19.1	-0.82
Fixed Income Arbitrage	79.5	61.1	78.2	77.9	1.24	1.36	-1.57	19.1	19.8	-0.92
Global Macro	68.1	48.0	72.5	80.3	1.47	1.57	-0.83	18.5	17.8	0.76
Long/Short Equity Hedge	71.7	62.9	61.9	64.1	1.15	1.32	-8.16***	19.2	19.1	0.49
Multi-Strategy	76.5	67.6	61.7	59.0	1.44	1.47	-0.35	19.8	18.1	2.27**
All Funds	**69.8**	**60.7**	**60.9**	**65.1**	**1.22**	**1.40**	**-10.70*** **	**19.0**	**18.8**	**1.01**

Table 3
Performance and Risk for Onshore and Offshore Funds

In Panel A, we compare offshore hedge funds with onshore hedge funds in terms of performance and risk. Reported numbers are sample averages. In Panel B, we do two-way sorting: i) onshore vs. offshore, ii) lock-up vs. non-lockup, and compare the risk-adjusted performance measured by the seven-factor model alpha. The data is from TASS database, and the sample period is from January 1994 to November 2005. Seven-factor model is the model by Fung and Hsieh (2004). ***, **, and * denote that the difference in the characteristics of offshore funds and onshore funds is significantly different from zero at the 1%, 5% and 10% level, respectively.

Panel A: Performance of Onshore vs. Offshore Funds by Styles

Investment Style	**Average Return (%)**			**Standard Deviation (%)**			**Sharpe Ratio**			**Seven-Factor Model Alpha**		
	U.S.	Offshore	*t*-statistic	U.S.	Offshore	*t*-statistic	U.S.	Offshore	*t*-statistic	U.S.	Offshore	*t*-statistic
Convertible Arbitrage	0.50	0.26	1.92*	1.96	1.86	0.40	0.21	0.04	0.95	0.52	0.54	-0.19
Dedicated Short Seller	0.48	-0.42	2.29**	6.51	6.26	0.20	0.07	-0.14	2.30**	0.52	0.44	0.33
Emerging Markets	0.84	0.57	0.61	6.26	6.26	-0.01	0.07	0.18	-1.22	0.62	0.60	0.07
Equity Market Neutral	0.51	0.50	0.05	2.12	1.83	1.53	0.21	0.12	0.88	0.48	0.33	1.74*
Event Driven	0.80	0.57	2.71***	2.76	1.91	3.95***	0.27	0.27	-0.01	0.83	0.57	3.09***
Fixed Income Arbitrage	0.56	0.36	2.38**	1.97	2.00	-0.11	0.55	0.34	1.32	0.69	0.40	2.99***
Global Macro	0.08	0.26	-0.59	4.73	3.68	1.98**	-0.01	-0.02	0.10	0.61	0.31	2.06**
Long/Short Equity Hedge	0.69	0.54	1.67*	4.80	4.35	2.51**	0.16	0.10	1.97**	0.84	0.65	3.48***
Multi-Strategy	1.02	0.68	1.74*	2.91	2.78	0.28	0.34	0.28	0.68	0.99	0.47	2.80***
All Funds	**0.67**	**0.49**	**2.73*** **	**3.97**	**3.69**	**2.42** **	**0.20**	**0.14**	**2.41** **	**0.77**	**0.55**	**6.16*** **

Panel B: Performance of Onshore Funds vs. Offshore Funds by Lockup

	Lockup		Non-lockup		Difference
	Number (percent)	Seven-Factor Model Alpha	Number (percent)	Seven-Factor Model Alpha	
All Funds	687 (30.8%)	10.8	1,546 (69.2%)	6.5	4.3***
Onshore Funds	443 (44.2%)	11.1	560 (55.8%)	7.9	3.2***
Offshore Funds	244 (19.8%)	10.2	986 (80.2%)	5.7	4.5***

Table 4
The Impact of Share Restrictions on the Performance of Hedge Funds: Cross-Sectional Regressions (January 1994 to November 2005)

This table presents the parameter estimates and adjusted R^2s from the cross-sectional regressions of hedge fund alpha on share restriction variables. The seven-factor model of Fung and Hsieh (2004) and lagged market model are used to estimate alpha. The style effect is adjusted using dummy variables. *t*-statistics are reported in parentheses. ***, **, and * mean statistically significant at 1%, 5%, and 10%, respectively. The data is from TASS database, and the sample period is from January 1994 to November 2005. At least 12 month return history is required to be included in the analysis. There are 2233 funds (1003 onshore and 1230 offshore) that meet this requirement. Chow Tests are used to test if onshore funds provide the same parameter estimates as offshore funds.

Panel A. Seven-factor model

	All Funds		Offshore Funds		Onshore Funds		Chow Test
	β	Adj-R^2	β	Adj-R^2	β	Adj-R^2	
Lockup	0.3238 (8.10)***	4.66	0.3675 (5.88)***	3.93	0.2286 (4.19)***	3.24	2.69***
SF	0.0006 (0.70)	1.88	0.0029 (1.86)*	1.80	-0.0024 (-2.38)**	1.74	5.35***
RF	0.0009 (4.11)***	2.56	0.0018 (3.57)***	2.54	0.0002 (0.82)	1.43	4.32***
RNP	0.0064 (8.64)***	5.04	0.0067 (6.60)***	4.61	0.0053 (4.85)***	3.81	3.34***
MinInvest	0.0328 (2.24)**	1.99	0.0428 (1.94)*	1.52	0.0160 (0.83)	1.37	4.05***

Panel B. Lagged-market model

	All Funds		Offshore Funds		Onshore Funds		Chow Test
	β	Adj-R^2	β	Adj-R^2	β	Adj-R^2	
Lockup	0.4607 (10.42)***	6.94	0.4815 (6.50)***	4.79	0.3963 (7.27)***	6.96	2.34**
SF	-0.0002 (-0.25)	1.58	0.0027 (1.49)	1.09	-0.0036 (-3.61)***	2.45	6.04***
RF	0.0008 (3.08)***	2.00	0.0019 (3.22)***	1.59	-0.0001 (-0.67)	1.82	5.43***
RNP	0.0088 (10.72)***	7.20	0.0095 (7.92)***	6.31	0.0074 (6.67)***	6.21	3.47***
MinInvest	0.0469 (2.87)***	2.47	0.0686 (2.62)***	1.87	0.0213 (1.08)	1.68	4.26***

Table 5
Correlation Matrix of Asset Illiquidity, Share Restrictions and Fee Structure

This table presents the correlation coefficients between asset liquidity and fund characteristics such as share restrictions and the fee structure. We use the first-order serial correlation coefficient (ρ) of returns as the proxy of asset illiquidity. The data is from TASS database, and the sample period is from January 1994 to November 2005. ***, **, and * mean statistically significant at 1%, 5%, and 10%, respectively

	Lockup	**RedFreq**	**SubFreq**	**RNP**	**MinInvest**	**Mfee**	**Ifee**	**Asset Illiquidity ρ**
Lockup	1.00							
RedFreq	0.24*** (<0.001)	1.00						
SubFreq	0.11*** (<0.001)	0.30*** (<0.001)	1.00					
RNP	0.32*** (<0.001)	0.33*** (<0.001)	0.09*** (<0.001)	1.00				
MinInvest	0.14*** (<0.001)	0.15*** (<0.001)	0.05** (0.014)	0.23*** (<0.001)	1.00			
Mfee	-0.03* (0.098)	-0.12*** (<0.001)	-0.15*** (<0.001)	0.01 (0.751)	0.00 (0.980)	1.00		
Ifee	0.12*** (<0.001)	0.06*** (0.009)	0.04** (0.043)	0.19*** (<0.001)	0.09*** (<0.001)	0.09*** (<0.001)	1.00	
Asset Illiquidity ρ	**0.09*** (<0.001)**	**0.08*** (0.001)**	**-0.03 (0.118)**	**0.18*** (<0.001)**	**0.11*** (<0.001)**	**0.04* (0.069)**	**0.03 (0.101)**	**1.00**

Table 6
Asset Illiquidity and Share Restrictions: Offshore Funds vs. Onshore Funds

This table compares the correlation coefficients between asset liquidity and share restriction variables of offshore hedge funds with those of onshore hedge funds. We use the first-order serial correlation coefficient (ρ) of returns as the proxy of asset illiquidity. The data is from TASS database, and the sample period is from January 1994 to November 2005. ***, **, and * mean statistically significant at 1%, 5%, and 10%, respectively

ρ	**Lockup**	**RedFreq**	**SubFreq**	**RNP**	**MinInvest**	**MFee**	**IFee**
All Funds	0.09*** (<0.001)	0.08*** (0.001)	-0.03 (0.12)	0.18*** (<0.001)	0.11*** (<0.001)	0.04* (0.07)	0.03 (0.10)
Offshore	**0.15*** (<0.001)**	**0.15*** (<0.001)**	**0.05* (0.06)**	**0.20*** (<0.001)**	**0.10*** (<0.001)**	**0.01 (0.85)**	**0.06** (0.04)**
Onshore	**0.04 (0.21)**	**0.07** (0.03)**	**-0.08 (0.02)****	**0.17*** (<0.001)**	**0.12*** (<0.001)**	**0.06** (0.05)**	**0.01 (0.82)**

Table 7
Asset Illiquidity and Lockup Provision: Offshore Funds vs. Onshore Funds

This table presents the average asset illiquidity for each group of hedge funds classified by both lockup provision and domicile country. We also present the number of funds for each category. We use the first-order serial correlation coefficient (ρ) of returns as the proxy of asset illiquidity. We present the *t*-test results to compare the illiquidity of assets in the offshore and onshore lockup funds. *** and * mean statistically significant at 1% and 10%, respectively

		Offshore Funds		**Onshore Funds**		***t*-test**
		Lockup	Non-Lockup	Lockup	Non-Lockup	H_0: $\rho_{Offshore,Lockup} = \rho_{Onshore,Lockup}$
Panel A: All Funds						
All Funds	ρ	**0.23**	**0.14**	**0.15**	**0.14**	**5.33*** **
	No	244	986	443	560	
Panel B: Master-Feeder vs. Stand-Alone Structures						
Master-Feeder	ρ	**0.25**	**0.17**	**0.21**	**0.19**	**1.91***
	No	117	224	188	201	
Stand-Alone	ρ	**0.22**	**0.14**	**0.11**	**0.11**	**5.35*** **
	No	127	762	255	359	

Table 8
Master-Feeder Structure and Illiquidity Premium of Offshore Hedge Funds: Cross-Sectional Regressions (January 1994 to November 2005)

This table presents the parameter estimates and adjusted R^2s from cross-sectional regressions of hedge fund performance measured by the seven-factor model alpha on share restrictions with style dummy variables. *t*-statistics are reported in parentheses. We implement Chow tests to compare 341 offshore funds that belong to the master-feeder (MF) structure with 889 stand-alone (SA) offshore funds. ***, **, and * mean statistically significant at 1%, 5%, and 10%, respectively.

	All the Offshore Funds in the Data Set (1,230 funds)		**Master-Feeder (MF) Offshore Funds (341 funds)**		**Stand-Alone (SA) Offshore Funds (889 funds)**		**Chow Test**
	β	Adj-R^2	β	Adj-R^2	β	Adj-R^2	
Lockup	0.3675 (5.88)***	3.93	0.2003 (2.55)**	5.35	0.4796 (5.42)***	4.08	2.05**
SF	0.0029 (1.86)*	1.80	0.0009 (0.44)	1.63	0.0034 (1.66)*	1.72	1.14
RF	0.0018 (3.57)***	2.54	0.0004 (0.77)	3.07	0.0028 (3.77)***	3.30	2.10**
RNP	0.0067 (6.60)***	4.61	0.0044 (2.78)***	5.69	0.0071 (5.46)***	4.13	1.21
MinInvest	0.0428 (1.94)*	1.52	0.0259 (0.95)	3.86	0.0427 (1.39)	1.14	1.58

Table 9
Share Restrictions and the Performance of Hedge Funds: Cross-Sectional Regressions (January 1994 to November 2005)

This table presents the parameter estimates and adjusted R^2s from cross-sectional regressions of Sharpe ratio on share restriction variables with adjusting for the style effect using dummy variables. . *t*-statistics are reported in parentheses. ***, **, and * mean statistically significant at 1%, 5%, and 10%, respectively. The data is from TASS database, and the sample period is from January 1994 to November 2005. At least 12 month return history is required to be included in the analysis. There are 2,233 funds (1,003 onshore and 1,230 offshore) that meet this requirement. Chow Tests are implemented to see if onshore funds provide the same parameter estimates as offshore funds

	All Funds		Offshore Funds		Onshore Funds		Chow Test
	β	Adj-R^2	β	Adj-R^2	β	Adj-R^2	
Lockup	0.0700 (3.60)***	4.33	0.0925 (3.11)***	3.52	0.0493 (1.81)*	5.35	1.53
SF	0.0001 (0.34)	3.27	0.0007 (0.93)	2.38	-0.0003 (-0.63)	4.67	1.92**
RF	0.0002 (2.22)**	3.49	0.0008 (3.10)***	3.13	0.0001 (0.50)	4.77	2.56***
RNP	0.0026 (7.36)***	6.06	0.0029 (5.92)***	5.47	0.0024 (4.37)***	6.83	1.53
MinInvest	0.0249 (3.54)***	4.18	0.0380 (3.68)***	3.74	0.0128 (1.32)	5.15	2.04**

Figure 1. Capital Formation of Hedge Funds: Offshore vs. Onshore Funds

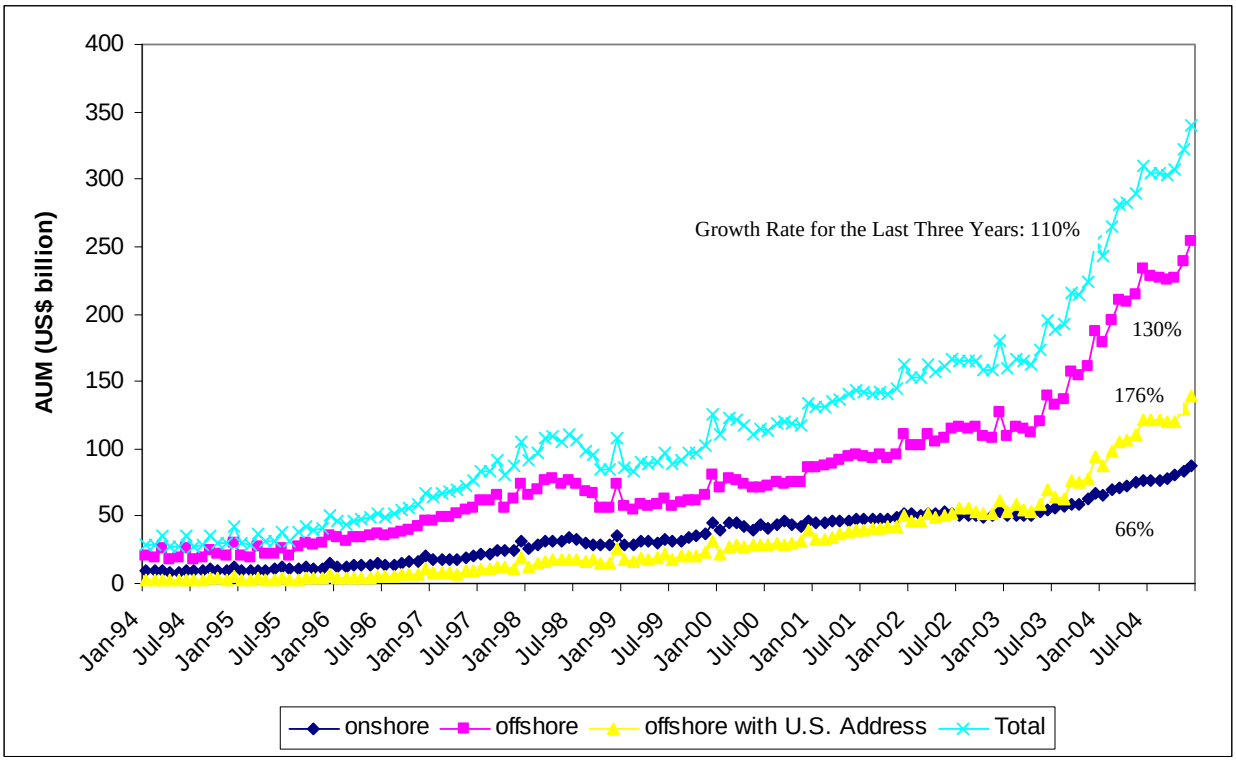
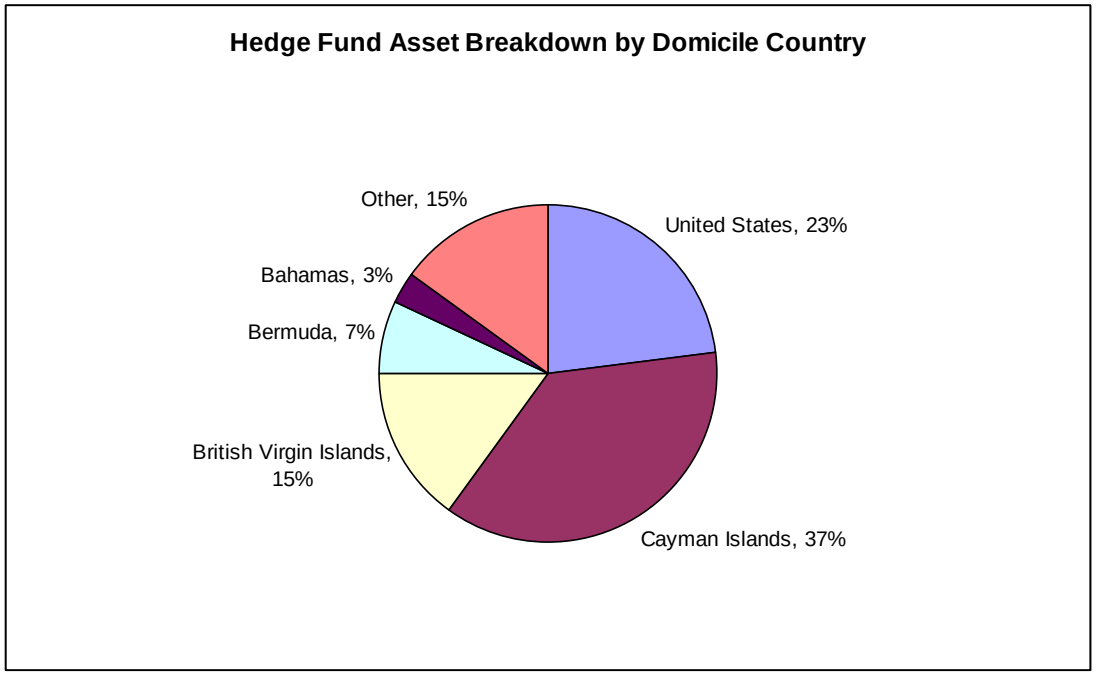
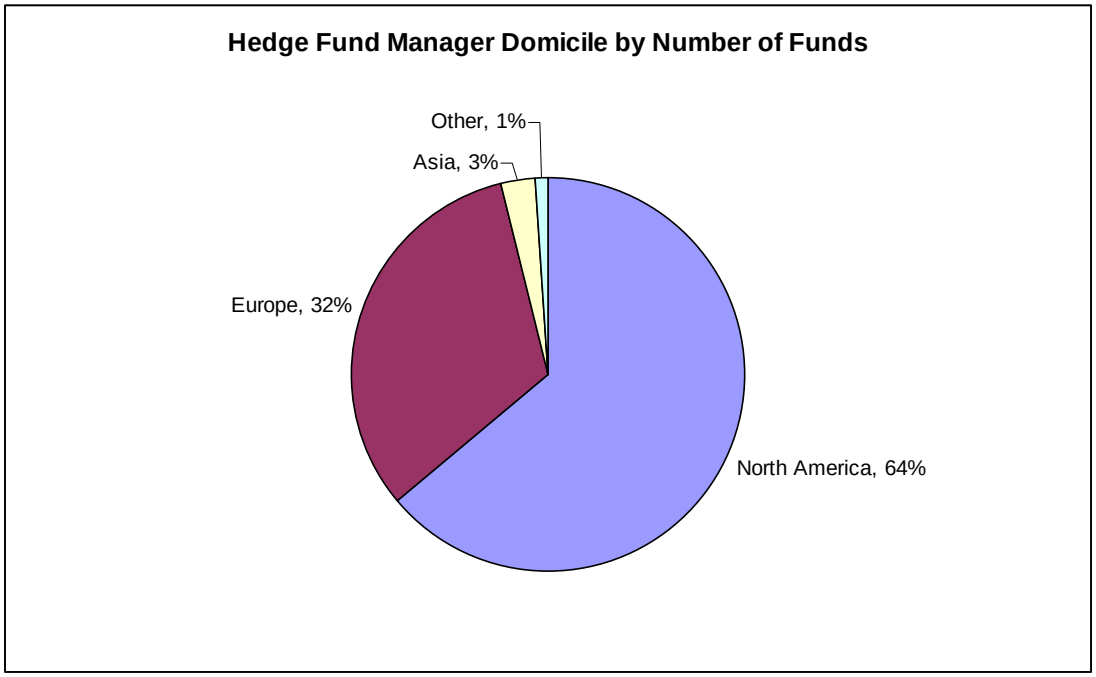


Figure 2. Hedge Fund Asset and Manager Domicile





Source: Lipper TASS Database Memo, December 2005