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# What is the Relationship between Corporate Governance and Performance of Hedge Funds?

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By
Kaifeng (Kevin) Chen

FAME and University of Lausanne, Switzerland\*

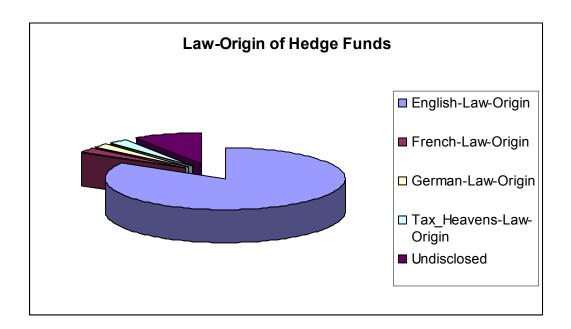
<sup>\*</sup> E-Mail: <a href="kc@fame.ch">kc@fame.ch</a>. Address: Ch. de Champrilly 26, 1004 Lausanne, Switzerland. Comments are welcome. All rights reserved.

What is the relationship between corporate governance structure and performance of hedge funds? Or can we choose the hedge funds to be invested from their corporate governance structures? One recent study (Chen, 2003) gives a positive answer to the question. It is shown that the legal-origin of the registration country of the hedge fund significantly influences hedge funds' performance. Various fee structures can cause difference in the performance too. Higher-fee hedge funds do have higher returns and survive longer. The survival probability of the hedge fund is significantly influenced by the governance factors. Those hedge funds who offer the investors high watermark protection tend to be dissolved earlier than their peers. Furthermore, we show that the performance of the hedge fund has a non-monotone relationship with the size of the hedge fund management company.

## **Legal Protection and Performance of Hedge Funds**

Essentially speaking, corporate governance deals with issues of ownership and control structures. Moerland (1997) differences ownership and control structures to two systems: market-oriented with network-oriented systems. The former is typically Anglo-Saxon countries, while the latter is typically Continental European countries and Japan. The path-breaking study of La Porta, Lopez de Silanes, Shleifer and Vishny (2000) find that the legal framework does matter when it comes to company performance. Different legal protections may allow equity investors to have different returns. The English-law-origin countries tend to have better protection for the investors. It explains the companies registered in these countries have better performance. In this study, our first hypothesis is that the law-origin and legal protection do affect the performance of the hedge funds. Following the literature that common law countries have better investor protection, we suppose those hedge funds with different registration places may have different performances. The hypothesis to be tested is that those hedge funds who register in common law countries will have better performance. And those hedge funds who register in civil

law countries will have lower performance. The alternative hypothesis is that there is no significant difference among different hedge funds classified according the registration places. It can simply because the operation of hedge funds may be done in world financial centers and the registration place is just a matter on paper.



This table shows the geographical distribution of the hedge funds. In our database, the largest number (3017) of hedge funds is residing in the United States. Second to the U.S., United Kingdom has 446 hedge funds in her soil. The tax-haven countries, including Bermuda, Channel Islands, Grand Caymans, have in total 115 hedge funds. As a single country, Switzerland occupies the third place for its 87 hedge funds. Luxemburg has 7 hedge funds. Norway and Israel have two hedge funds each. Monaco and Swede have one hedge fund each. Until now, there is no hedge fund based in Germany<sup>1</sup>.

Some emerging market countries also have hedge funds in their lands, for example, China has 20 hedge funds, South Africa has 3, India has 3, and Russia has 2. Following the study of La Porta, Lopez de Silanes, Shleifer and Vishny (2000), we put together the hedge funds that belong to the English-law-origin family, the French-

law-origin family, and the German-law-origin family. USA, UK, Canada, Ireland, Australia, Hong Kong, Singapore, and South Africa are classified under the English-law-origin family. France, Portugal, Netherlands, Spain, and Turkey are French-law-origin countries in our sample. Austria, Japan, and Switzerland are known for belonging to the German-law-origin family. The tax-haven countries are put together as their juridical systems are quite special cases. Also the emerging countries are singled out, because their law frameworks, as well as law enforcement mechanisms, may not be stabilized yet.

In our hedge fund data base, there are 4324 hedge funds. Following the classification of La Porta, Lopez de Silanes, Shleifer and Vishny (2000), we group them according to their self-reported country of residency. There are 3552 hedge funds registered in English-law-origin countries. In our database, both French-law-origin countries and German-law-origin countries have 99 hedge funds. The tax-haven countries have 115 hedge funds in total. The emerging countries are singled out for their 25 hedge funds. There are 394 hedge funds in the database that their registration countries are undisclosed.

We run the regression and find that for a hedge fund, if it is registered in an English-law-origin country, the performance will be significantly higher. In our case, on average, the fund may have 0.0175 percentages more return each month. The French-law-origin has negative influence on the performance. It is significant at 10 percent level. The German-law origin does not have significant impact on the performance of the hedge funds.

# Fee Structure and Performance of Hedge Funds

In an empirical study of mutual funds, Grinblatt and Titman (1994) analyze the determinants of mutual fund performance. Tests of fund performance that employ fund characteristics, such as net asset value, load, expenses, portfolio turnover, and management fee are reported. They suggest that turnover is significantly positively

related to the ability of fund managers to earn abnormal returns. From a theoretical perspective, Carpenter (2000) solves the dynamic investment problem of a risk-averse manager compensated with a call option on the assets he controls. He shows that under the manager's optimal policy, the option ends up either deep in or deep out of the money. As the asset value goes to zero, volatility goes to infinity. However, the option compensation does not strictly lead to greater risk seeking. Sometimes, the manager's optimal volatility is less with the option than it would be if he were trading his own account. Furthermore, giving the manager more options causes him to reduce volatility. Golec and Laura (2002) examine the effect of a regulation change in the fee structure of mutual funds. They report that when the fee structure was changed to a symmetric way, the mutual funds subsequently changed their portfolio risk levels.

The fee structure of hedge funds is a quite complicated issue. We document that there is a huge difference in fee structure between hedge funds. The incentive fee varies from zero to 65 percent. On average, the hedge fund managers charge 17% percent of incentive fee. The management fee varies from zero to 4 percent, with the mean of 1 percent. In the other side, the hurdle rate varies from zero to 18 percent. On average, the fund managers offer 4 percent hurdle return for the investors. In the sample, 53 percent of hedge funds are with high watermark, and 47 percent of hedge funds are without. There is also a huge difference between the sizes of fund management companies. The smallest fund management company has USD 48,000 paid-in capital only. The largest one has USD 857,424,668. The average size of fund management company is USD 7,228,974.

From our test, it is shown that the incentive fee and the high watermark are significant in explaining the performance of the hedge funds. Quantitatively, if the hedge fund charges 1 percent higher incentive fee, the average monthly return will be added by 0.000216. One may think that the incentive fee charged is a signal from the hedge fund manager. The higher of it implies better performance. The issue of High Watermark is interesting. The data shows that without a high watermark, the

monthly return will be 0.0012 higher. One explanation can be that those hedge funds without a high watermark tend to be more aggressive and give higher return. Our sample shows that the management fee and the hurdle rate have no significant impact on the net return of the hedge funds.

#### The Survival Probability

The decision of dissolving of a hedge fund can be caused by many reasons. One most common reason is that the hedge fund incurred huge losses. It can also be that the hedge fund was forced to close down by the authorities. Rarely, it happens also that the hedge fund stops reporting its result due to that the hedge fund has enough assets under management and the fund manger is not willing to accept new investors. In the mutual fund literature, among others, Elton, Gruber, and Blake (1996) studied the survivorship problem. Estimates of survivorship bias over different horizons and using different models to evaluate performance were provided. A comprehensive study on this topic is given by Carhart, Carpenter, Lynch and Musto (2002). They argue theoretically that when survival depends on multiperiod performance, the survivorship bias in average performance typically increases with the sample length. With an early database, Ackermann, McEnally, and Ravenscraft (1999) address the survivorship-bias problem of hedge fund performance. They find that hedge funds consistently outperform mutual funds, but not standard market indices. Incentive fees explain some of the higher performance, but not the increased total risk. They find evidence that positive and negative survival-related biases offset each other. Brown, Goetzmann, and Ibbotson (1999) examine the performance of the offshore hedge fund industry over the period 1989 through 1995 using a database that includes both defunct and currently operating funds. They report that the offshore hedge fund industry is characterized by high attrition rates of funds, low covariance with the U.S. stock market, evidence consistent with positive risk-adjusted returns over the time, but little evidence of differential manager skill. Liang (2000) examines

survivorship bias in hedge fund returns by comparing two large databases. He finds that the survivorship bias exceeds 2% per year and varies across different investment styles. Furthermore, he documents that there are significant differences in fund returns, inception date, net assets value, incentive fee, management fee, and investment styles for the 465 common funds covered by both databases. Mismatching between reported returns and the percentage changes in NAVs can partially explain the differences in returns. Brown, Goetzmann, and Park (2001) investigate the volatility of hedge funds and CTAs in light of managerial career concerns. Their analysis of factors contributing to fund disappearance shows that survival depends on absolute and relative performance, excess volatility, and on fund age.

We study the problem from a different perspective, namely the survival probability. In our database, there are 1199 defunct hedge funds. How can we explain the survival probability of hedge funds systematically? Our fourth hypothesis therefore in this study is that the governance structure matters also to the survival of hedge funds. An alternative hypothesis is that the governance structure is irrelevant to the continuation decision made by the hedge fund managers. Naturally, we employ binomial choice models of Probit and Logit with maximum likelihood estimation method. Another difference is that Brown, Goetzmann, and Ibbotson (1999) study offshore hedge funds, while in our database, the offshore hedge funds are only the minority.

The problem we address in this sub-section is which factors explain the survival of hedge funds. The binomial choice model of Probit and Logit will be estimated with maximum likelihood methods. The results of both Probit and Logit are quite similar. It clearly shows that the governance structure is quite important in explaining the survival probability of hedge funds. We find that all of the four independent variables: management fee (MAF), Incentive Fee (ICF), High Watermark (HWM), and Hurdle Rate (HUR) are significant. The higher MAF, ICF, and HUR, the lower probability of the hedge fund to get closed down. It can be explained as when the

fund managers are rewarded higher, they tend to try harder to make the fund survive. Our result shows also that if certain hedge fund offers high watermark to its investors, it will have higher probability to be dissolved. We suppose that when a hedge fund incurs a huge loss, the reaction of the hedge fund manager will be different, depending on whether he has promised with high watermark or without high watermark. If it is without high watermark, the fund manager may choose to continue the fund. If it is with high watermark, the fund manager will probably choose to close down the fund, as they know they will not be able to get incentive fee before having to recover the loss.

## The Size of the Hedge Fund Management Company

An early study of Elliott (1972) begins the debate on the size and performance of firm. In the mutual fund literature, Carhart (1997) shows that size matters to mutual funds. He discovers that smaller fund companies have a higher rate of disappearance than the larger ones. With a simple rational model, Berk and Green (2002) argue that active mutual fund managers do not outperform passive benchmarks because of the decreasing returns to scale in active portfolio management.

In this study, we are interested in the size of the hedge fund management company, instead of the size of the hedge fund. It is well known that there exists the endogeneity problem between the fund size and the performance. Better performance will translate to more return to be retained in the hedge fund, which will increase the assets under management. Better performance will also attract investors to invest more in the hedge fund. The large fund inflow will increase the fund size consequently. Contrarily, the fund management company's size is more stable. It comes mostly from the paid-in capital of the fund management company, while most of the hedge fund management companies are organized as private partnership.

It is well known that there is the economy of scale. With the pooled resources, larger hedge fund management companies are better equipped to perform. However, it is equally true that when the firm grows excessively large, the performance can deteriorate. In this study, we are interested in seeing whether the hedge fund management company's size does influence the performance. We postulate that there will be a non-monotone relationship between the performance of hedge funds and the size of the fund management companies.

Do the hedge funds perform differently with respect to their management companies' size? In our database, we have the data of the "Firm Assets" (FA) of the hedge fund management company. Most of these assets were from the paid-in capital of the company. So it is a good measure of the size of the company. Firstly, we put the FA in the regression. The coefficient is not significant. It confirms the economic theory that the economic of scale is non-linear. Then we rank the hedge funds according to their management company's "Firm Assets" and divide them to three groups. The first group comprises those hedge funds that are managed by the largest fund management companies. The second group includes those hedge funds under the medium size fund management companies. And the third group of hedge funds is those under the smallest fund management companies. We run the regressions again in each group. One can see from the table that the coefficient is significantly negative in the first group only. Our sample shows that for very large hedge fund management companies, the size of the companies has a significant negative impact on the performance of the hedge funds. While for the medium- and small-size fund management companies, the impact is statistically insignificant. To see whether there exists an economy of scale for the hedge fund management companies, we take an extreme sub-sample to check. The sub-sample is the 20 smallest hedge fund management companies. We run the regressions again and find the coefficient is significantly positive! But when we take the 100 smallest subsamples, the coefficient is insignificant already. What it shows is that there exists the effect of economy of scale, but the effect disappears or is neutralized very fast, when

the size is increased. Our finding confirms the theoretical argument of Berk and Green (2002).

#### **Conclusion and Discussion**

The contributions of this study reside in the following points. Firstly, our study provides a further insight to the nature of hedge funds. Hedge funds are known for being opaque, while the media coverage of hedge funds is often quite negative. Most of them are about the macro strategy hedge funds which are active in the foreign exchange market. For people who are wondering whether the corporate governance structure of hedge funds affects the performance, our study attempts to provide an answer to this question. We show that the legal protection do matter in the performance of the hedge funds. For the different law-origin counties, the investor protection and law enforcement are different. The English-law-origin counties tend to have better investor protection. Our data shows that hedge funds register in those countries have significantly higher return.

Secondly, it helps us to build the relationship between the performance of hedge fund and its corporate governance practice. It is rather important for current and potential investors of hedge funds. The different corporate governance structures can be one of the selection criteria for the investors. The fee structure can be the signal of the performance of the hedge funds. The hedge fund with higher fee will generate higher return and survive longer. We also show that those hedge funds who offer high watermark have higher probability to get dissolved. We document the size effect in this study too. For fund management companies of different size, the performances of the hedge funds are different too. We find the relation is non-linear. Especially for the largest hedge funds, the performance is negatively influenced by the size.

Thirdly, it may help the regulator to better understand hedge funds. Currently there is debate going on about whether one should put the hedge funds under regulation,

and if the answer is yes, then how. This study can be a first step toward the understanding of the governance of hedge funds. Our results show some empirical evidence of the factors explaining the liquidation decision of hedge fund manager. The mass liquidation of hedge funds poses a threat to the financial market stability. The Wall Street Journal Interactive (2004) reports a recent survey by Deutsche Bank, which indicates that SEC regulation of hedge funds is not high on the list of requirements for many investors<sup>2</sup>.

One shortcoming of the study is that we do not specialize on specific strategies of hedge funds. Brown and Goetzmann (2001) find that the differences in investment style contribute about 20 per cent of the cross-sectional variability in hedge fund performance. They report that the result is consistent across the years of their sample and is robust to the way in which they determine investment style. One may consider a specific strategy, for example "convertible arbitrage" hedge funds, to see whether our findings are still valid. Nanda, Wang, and Zheng (2000) examine the extent to which a mutual fund's cash flows are affected by other mutual funds in the same family. One may think about whether it is the case for the family of hedge funds. A more demanding task is to see the policy implication of our study. Should we harmonize the regulation and governance practice of hedge funds? It may give a fair playground for the hedge fund managers. Last, but not least, is to answer the question of how to extend our approach to fund of hedge funds, which is under our current research agenda.

<sup>&</sup>lt;sup>1</sup> The German Investment Modernisation Law has allowed, since the beginning of the year 2004, the introduction of hedge funds. The first one is expected to be in the market in March, 2004 (Financial Times Deutschland, 2004).

<sup>&</sup>lt;sup>2</sup> It is reported that Deutsche Bank's equity prime-services group surveyed 323 pension funds, university endowments, charitable foundations and wealthy families with more than \$380 billion in hedge-fund assets for the report. Just 15% of the investors surveyed currently require managers to be registered with the SEC as investment advisers. The survey also found 56% of respondents discuss a hedge fund's holdings with managers on a monthly basis, while 19% have quarterly discussions with managers and 16% do so on a weekly basis.

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