



## Quantification of Hedge Fund Risks: Challenges, recent study findings and future contributions (1/4)...

Several approaches have been tested to quantify the likelihood of a fund's failure or of the occurrence of a problem. The development of a systematic model to quantify hedge fund risk looks appealing, as it may allow to streamline and to optimize investors' manager selection process. Unfortunately, no crystal ball has yet been created to assess hedge fund risk, and there appears today to be as many approaches as there are investors. The development of such a model is rendered difficult for one main reason: namely, the scarcity of information.

Indeed, available public information on individual hedge funds or their managers is very scarce, as this information is usually exclusively reserved to their clients, or to prospective "sophisticated" investors. For jurisdictions where the investment managers need to be registered with the authorities, the level of information disclosed to the public is variable, but usually minimal. The managers are also restricting the amount of information available on their fund so as to protect their trade secrets (if any!). It is therefore difficult to collect, on large scale, pertinent information to develop a risk assessment model. The other difficulty is that if information is difficult to obtain before a fund has a problem it is certainly impossible to get access to it after the facts. Another pitfall to overcome is the absence of information about the reasons behind a fund failure. If it's a fraud some information will be made available from the courts but in the other cases usually only the fund's shareholders are the witnesses of the funds' disappearance. Therefore, researchers need to find proxies to identify "problematic" funds.

Databases containing hedge fund information are available to "authorized" investors free of charge or on a subscription basis. In its annual database survey, the company Pertrac identified eleven different database providers. According to their survey, approximately 20,200 distinct funds reported performance data in 2008. Of those funds, approximately 10,500 funds provided data in only one out of the eleven databases. More than 70% of the funds reported to three or fewer databases. According to Pertrac,

"[...] it has perhaps never been as clear that investors need to access multiple data sources to get a broad view of the hedge fund universe when screening for investment opportunities, conducting peer group analyses or doing other research. .... Just adding one additional database can make a significant difference in total number of funds available for manager searches or peer analysis. For instance, combining the two largest of the 11 databases in the study and then removing the overlap results in 46% more funds than in the largest database alone."

Therefore the choice of the database, or the combination of databases, is critical in order to extrapolate a survey's results to the broad hedge fund industry. Also each database will provide different set of information rendering their combination challenging.

Form ADV is a potentially relevant source of information to determine operational risk, as one of the purposes of hedge fund disclosure, according to the SEC is: "[...] keeping unfit persons from using hedge funds to perpetrate fraud." Thus, the SEC devised a set of questions intended to uncover past violations by the investment adviser, and to elucidate conditions that might leave clients vulnerable to future fraud or operational failure. As per SEC data, major hedge funds based in the U.S. with more than 14 clients, assets of at least \$25 million and a lockup period less than two years, as well as any internationally based fund with at least 14 U.S. based investors, filed Form ADV with the SEC by February 1, 2006. While some advisers chose not to comply with SEC requirements, anticipating a future challenge, the vast majority of them filed Form ADV. However, on June 23, 2006, the U.S. Court of Appeals for the District of Columbia Circuit vacated the rule changes that had required many newly-registered hedge fund managers to register as

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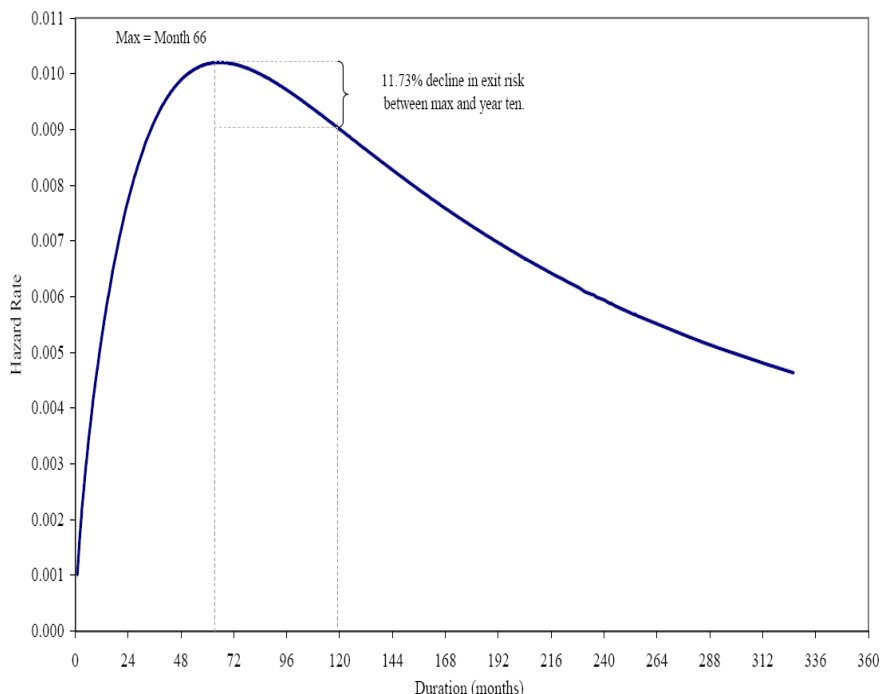


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investment advisers under the 1940 Investment Advisers Act. This decision was not appealed by the SEC, and since then, some hedge funds have deregistered their filings.

Keeping in mind the aforementioned challenges as well the fact that academicians are usually not practitioners, we will analyze the findings from some very interesting academic studies on hedge fund risk quantification.

Academicians have initially taken the route of studying data available from the various hedge fund databases. The most widely used database is the one compiled by Lipper TASS. Grecu, Malkiel & Saha (2006)(1) tried to confirm hypotheses about the reasons why funds stop reporting their performance to databases. They found that, on average, it is poor performance, and very likely failure, that explains hedge funds' cessation of reporting to the TASS database. High Sharpe ratio, low volatility, large AUM and over-performance against its peers were all contributing positively in reducing the likelihood of fund failure. One interesting finding from their survey was the relationship between the fund age and its hazard rate. The hazard function is the rate at which funds stop reporting at time  $t$ , given that they have continued to report until  $t$ . The function is shown in the graph below. Grecu, Malkiel and Saha also found that the likelihood of failure increase exponentially during the first 5.5 years of the fund to reach a maximum hazard rate of around 1% per month. Surprisingly, the hazard rate decline is much slower than its rise since between its maximum and year ten the reduction is only of 11.73%.



The graph shows at which rate a hedge fund dies given that it has lasted the number of months shown on the horizontal axis

Brown, Goetzmann, Liang and Schwartz (2006)(2) focused on the relationship between investment managers' information gathered from the ADV forms filled with the SEC, funds characteristics reported by the Lipper TASS database and the funds' track record. They identified a fund as problematic when its management company answered yes to any of the question set forth in Item 11 of the ADV Form). Of the 879 management com-

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panies in their sample, 126 (or 14.3%) of them answered affirmatively to a question set forth in Item 11. The authors found that problem funds exhibit lower mean return and Sharpe ratio. Size is not significant, but the lack of high water mark and lower incentive fees are related to a fund having a problem.

Another finding shows that funds with concentrated management are more likely to be identified as problem funds. A striking point in this study is that operational risk factors, demonstrated as being negatively related to fund returns, do not appear to influence fund flow. The researchers concluded that it might not be considered material information if investors, having access to such information, choose not to act upon it.

In May 2008(3), the same academicians used the same dataset to develop an operational risk score called the omega score. They developed a model using a canonical correlation analysis to correlate 18 variables from the ADV forms, which significantly predict funds having problems, against 13 variables gathered from the TASS database. They found that the risk of failure increases with a higher omega score and decrease with age. The omega score is significant in forecasting fund failure for the following strategies: dedicated short, emerging markets, fixed income, long/short and managed futures. The researchers observed that half of all hedge funds with an omega score greater than one are dead within little more than fifty months.

One very interesting finding from this study is that while operational risk appears to be more significant than financial risk in explaining fund failure, there is a significant positive interaction which suggests that funds with high degrees of operational risk are more likely to fail from financial risk.

In October 2009, the same authors deepened their research by considering due diligence reports on hedge funds and data from a combined TASS/CISDM database (4). The authors identified problem funds as those which encountered prior legal and/or regulatory problems. Those funds represented 41% of the sample study. The study also noted significant differences between problem and non-problem funds, namely: redemption period (longer for problem funds), lock up period (longer for problem funds), holding period (longer for problem funds), AUM (higher for problem funds), pricing (less totally ind. for problem funds), big 4 auditor (less frequent with problem funds), misrepresentation (more frequent for problem funds), switched data vendor (more frequent for problem funds) and independent administration (less frequent for problem funds). Confirming their findings from 2006, Brown, Goetzmann, Liang and Schwartz found that funds which underwent a due diligence process had higher investor flow. Thus, it appears that most investors still feel comfortable enough to invest in these funds, even after reading about fund's operational deficiencies.

Even though some of the conclusions from the above studies could be challenged, we believe that their merit lies mainly in their pioneering approach to a nascent and promising research field (if information disclosure is improved). The lack of readily available information on hedge funds, and the tools to systematically analyze it, implies that investors necessarily and diligently need to devote a lot of effort and resources into obtaining relevant fund information. For this reason, we think that investors tend to construct their hedge fund portfolio from a very small subset of "known" funds. According to the above surveys' findings, another challenge for investors is to incorporate the information gathered during the due diligence into their investment process. Considering the high replacement cost, or the cost to identify and perform a due diligence on a new fund so as to replace an actual disappointing investment, investors will often take non-optimal investment choices by lack of choices. We believe that investors need to find the right balance between the replacement cost and the potential, also difficult to quantify, contribution of a "better" constructed portfolio on their returns. The development of a systematic risk

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model to analyze hedge funds will certainly represents a great breakthrough in the way investors select their managers.

### References

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