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ALTERNATIVE INVESTMENTS

Risk Management for Hedge Funds: Introduction and Overview

Andrew W. Lo

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Abstract

Although risk management has been a well-plowed field in financial modeling for more than two decades, traditional risk management tools such as mean–variance analysis, beta, and Value-at-Risk do not capture many of the risk exposures of hedge-fund investments. In this article, I review several unique aspects of risk management for hedge funds—survivorship bias, dynamic risk analytics, liquidity, and nonlinearities—and provide examples that illustrate their potential importance to hedge-fund managers and investors. I propose a research agenda for developing a new set of risk analytics specifically designed for hedge-fund investments, with the ultimate goal of creating risk transparency without compromising the proprietary nature of hedge-fund investment strategies.

Despite ongoing concerns regarding the lack of transparency and potential instabilities of hedge-fund investment companies, the hedge-fund industry continues to grow at a rapid pace. Lured by the prospect of double- and triple-digit returns and an unprecedented bull market, investors have committed nearly $500 billion in assets to alternative investments, and major institutional investors such as the trend-setting California Public Employees Retirement System are starting to take an interest in this emerging asset class. However, many institutional investors are not yet convinced that “alternative investments” is a distinct asset class, i.e., a collection of investments with a reasonably homogeneous set of characteristics that are stable over time. Unlike equities, fixed-income instruments, and real estate—asset classes each defined by a common set of legal, institutional, and statistical properties—“alternative investments” is a mongrel category that includes private equity, risk arbitrage, commodity futures, convertible bond arbitrage, emerging market equities, statistical arbitrage, foreign currency speculation, and many other strategies, securities, and styles. Therefore, the need for a set of risk management protocols specifically designed for hedge-fund investments has never been more pressing.

Part of the gap between institutional investors and hedge-fund managers is the very different perspectives that these two groups have on the investment process. The typical manager's perspective can be characterized by the following statements:

- The manager is the best judge of the appropriate risk/reward trade-off of the portfolio and should be given broad discretion for making investment decisions.
- Trading strategies are highly proprietary and, therefore, must be jealously guarded lest they be reverse-engineered and copied by others.
- Return is the ultimate and, in most cases, the only objective.
- Risk management is not central to the success of a hedge fund.
- Regulatory constraints and compliance issues are generally a drag on performance; the whole point of a hedge fund is to avoid these issues.
- There is little intellectual property involved in the fund; the general partner is the fund.

Contrast these statements with the following views of a typical institutional investor:

- As fiduciaries, institutions need to understand the investment process before committing to it.

- Institutions must fully understand the risk exposures of each manager and, on occasion, may have to circumscribe a manager's strategies to be consistent with the institution's investment objectives.

- Performance is not measured solely by return, but also includes other factors, such as risk, tracking error relative to a benchmark, and peer-group comparisons.

- Risk management and risk transparency are essential.

- Institutions operate in a highly regulated environment and must comply with a number of federal and state laws governing the rights, responsibilities, and liabilities of pension plan sponsors and other fiduciaries.

- Institutions desire structure, stability, and consistency in a well-defined investment process that is institutionalized and not dependent on any single individual.

While there are, of course, exceptions to these two sets of views, they do represent the essence of the gap between hedge-fund managers and institutional investors. However, despite these differences, hedge-fund managers and institutional investors clearly have much to gain from a better understanding of each other's perspectives, and they do share the common goal of generating superior investment performance for their clients.

In this article, I hope to contribute to the dialogue between hedge-fund managers and institutional investors by providing an overview of several key aspects of risk management for hedge funds, aspects that any institutional investor must grapple with as part of its manager-selection process. I start with some basic motivation for risk management in the context of hedge funds and discuss some of the limitations of existing risk metrics such as Value-at-Risk. While the risk management literature is certainly well-developed; nevertheless, there are at least five aspects of hedge-fund investments that pose unique challenges for existing risk management protocols and analytics: (1) survivorship bias, (2) dynamic risk analytics, (3) nonlinearities, (4) liquidity and credit, and (5) risk preferences. I describe each of these aspects in more detail in the article, propose analytics, and outline an ambitious research agenda for addressing them.

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