International Review of Financial Analysis 43 (2016) 48–61

Contents lists available at ScienceDirect

International Review of Financial Analysis

Recent advances in hedge funds' performance attribution: Performance persistence and fundamental factors

Dimitrios Stafylas [a], Keith Anderson [a,*], Moshfique Uddin [b]

[a] The York Management School, University of York, Freboys Lane, Heslington, York YO10 5GD, England
[b] Leeds University Business School, Maurice Keyworth Building, University of Leeds, Moorland Road, Leeds LS6 1AN, England

ARTICLE INFO

Article history:
Received 20 March 2015
Received in revised form 3 November 2015
Accepted 9 November 2015
Available online 30 November 2015

JEL classification:
G110

Keywords:
Hedge funds
Performance persistence
Fundamental factors
Risk exposures

ABSTRACT

We survey articles on hedge funds' performance persistence and fundamental factors from the mid-1990s to the present. For performance persistence, we present some pioneering studies that contradict previous findings that hedge funds' performance is a short term matter. We discuss recent innovative studies that examine the size, age, performance fees and other factors to give a 360° view of hedge funds' performance attribution. Small funds, younger funds and funds with high performance fees all outperform the opposite. Long lockup period funds tend to outperform short lockups and domiciled funds tend to outperform offshore funds. This is the first survey of recent innovative and challenging studies into hedge funds' performance attribution, and it should be particularly useful to investors trying to choose between hedge funds.

1. Introduction

In the hedge fund literature there are many studies dealing with performance persistence[1] along with other studies that investigate the relationship between fund returns and fund specific characteristics such size, age and fees.[2] Although these studies use different databases and time periods, they can nevertheless provide a useful guide to investors. Investors expect performance to be stable over time and that some fund managers outperform their peers. Also funds may show an association between their returns and characteristics such as size, age, fees or other fundamental factors. Until now, there has been no survey summarizing all the results and there is no uniform conclusion on these issues, thus creating confusion for investors. Consequently, the present study closes an important gap. The aim of this study is to survey the literature and investigate hedge fund performance in terms of (*i*) return persistence and (*ii*) the relation of fund returns to fund characteristics (fundamental factors) such as size, age, fees and other factors (e.g. lockup and domicile factors as explained in section 5). This is the first survey and synthesis of older literature to provide a historical perspective, together with information from recent innovative studies to delineate advances in performance persistence and the attributes of individual hedge funds. Our findings both assist hedge fund investors and unravel opportunities for further research, as we describe later. Despite the difference in studies, there are some consistent trends and patterns that reveal useful aspects about hedge fund behaviour in terms of performance persistence and the relation between performance and fund characteristics.

Our main conclusions are that early studies (e.g. Agarwal & Naik, 2000a; Bares, Gibson, & Gyger, 2003) showed that there is short term persistence (less than a year). Moreover, there is evidence that some non-directional strategies (e.g. Convertible Arbitrage or Merger Arbitrage strategies) present more persistence than directional strategies (e.g. Long Only or Short Bias strategies). The difference in persistence is mainly related to the type of strategy each fund follows. However, some later studies (e.g. Ammann, Huber, & Schmid, 2013; Jagannathan, Malakhov, & Novikov, 2010; Kosowski, Naik, & Teo, 2007) have challenged the above studies and showed that there is persistence beyond one year and possibly up to five years. Concerning the fundamental factors and fund returns, most studies show that there is a negative relationship between fund size and performance. Regarding the age factor there is a clear negative relationship between age and performance. There is also a positive relationship between incentive fees and fund performance. Funds imposing lockups outperform funds that do not impose lockups and on-shore funds outperform off-shore registered funds.

Our paper makes a number of important contributions to the understanding of the literature. First of all, we close a gap by presenting a survey that summarizes all the results concerning hedge fund return

* Corresponding author. Tel.: +44 1904 325001.
E-mail address: keith.anderson@york.ac.uk (K. Anderson).
[1] For example Ammann et al. (2013)and Hentati-Kafell and Peretti (2015).
[2] E.g. Frumkin and Vandegrift (2009); Joenvaara et al. (2012); Bae and Yi (2012).

http://dx.doi.org/10.1016/j.irfa.2015.11.001
1057-5219/

persistence and the relation between fund characteristics and fund returns. In addition, we present a historical perspective by combining older and newer, innovative studies. Thus the reader is able to observe the dynamic nature of the literature in explaining fund return persistence and fund returns according to the underlying fundamental factors. Our study helps investors in their asset allocation process as it enables them, firstly, to assign the appropriate weight (according to their needs) in fund selection based on their past returns. Secondly, it enables them to know what to expect from funds with different characteristics. Moreover, we have identified some gaps for future research, such as the absence of a unified framework that examines the effect of fundamental attributes and their interactions on hedge fund performance. We detail these research opportunities inSection 6.

In Section 2 we provide a necessarily brief overview of the hedge fund industry. Section 3 describes the different categories of models for hedge fund returns. Section 4 surveys the literature on hedge funds' performance persistence and Section 5 covers the literature that seeks to explain hedge fund returns using their characteristics. In these two parts we review all these issues and then discuss some logical observations about the underlying studies. In the final Section 6 we present and summarize the key conclusions and reveal some gaps that should be covered in future research.

2. The hedge fund industry

In this section we briefly introduce the reader to the hedge fund industry, as an extensive analysis would be outside the scope of this paper. We first look at some issues to do with the nature of hedge funds and their different characteristics in relation to more traditional investments. We then present the composition and growth of the hedge fund industry in terms of assets under management and returns.

2.1. An idiosyncratic industry

Hedge funds are private in nature and all the characteristics of the hedge fund industry derive from this. These investment vehicles are not accessed by the general public and are largely unregulated by the SEC. Therefore fund managers are not obliged to disclose information to investors and authorities as other conventional investments (e.g. mutual funds) are. Consequently, there is no transparency and as far as the compensation structure is concerned, hedge funds rely mostly on incentive fees. On average, fund managers receive a one percent annual management fee on AUM (assets under management) and 20% annually on any profits. Most funds use a bonus incentive fee (called the "high-water mark").

Fund managers are able to exploit a wide range of "toolkits" such as buying and selling using a cash account, buying on margin, short selling and securities lending, leverage (borrowing) and derivatives. A cash account is the simplest and most common form of transaction because there is no further commitment, as such transactions do not involve any loan or require any collateral.

The hedge fund industry is very competitive and demanding as it focuses on providing accredited investors with the best possible performance. There are many categories and strategies of hedge funds depending on their investment style/strategy and/or region that invest in. Unfortunately, there is no universal classification scheme for hedge funds. In the literature there are several classification schemes (e.g. Tran, 2006; Kosowski et al., 2007 or Bali, Brown, & Caglayan, 2011) or those provided by the various private database vendors. A hedge fund may have many structures (e.g. Limited Liability Company or Partnership, Onshore or Offshore) and require many service providers to operate.

The hedge fund industry is complex by its nature and investors cannot easily cope with this when evaluating hedge funds unless they have specialized knowledge and access to specific information. Hedge funds do not provide full information disclosure (not only about the fund itself but sometimes about the fund management team, as well) and there are many benchmark indices in the market, thus making investors' decision processes even more difficult. However, one aspect that investors try to rely on in their asset allocation process is fund performance persistence and the relation between fund returns and fund characteristics. Hence, in this survey we summarize all the results concerning hedge fund return persistence and the relation between fund characteristics and fund returns, which should be particularly useful for investors trying to choose between hedge funds.

2.2. Industry growth in assets under management

The decade to 2015 has seen considerable growth in the hedge fund industry. Except for 2008 and 2011 all the other years were profitable. As of 2015Q2 total assets under management for hedge funds were more than \$2.7 trillion. This figure does not include Fund of Funds and Commodity Trading Advisors (CTAs) that account for approximately \$500 billion and \$330 billion respectively. In Fig. 1 we provide some numbers for assets under management (AUM) as of 2015Q2. We can observe that four strategies (Fixed Income, Multi-Strategy, Emerging Markets and Event Driven) account for 51% of the total AUM. On the contrary, the four least popular strategies (Convertible Arbitrage, Merger Arbitrage, Equity Market Neutral and Other) account for only seven percent of the total AUM. As we will see in Section 4, some non-directional strategies (e.g. Convertible Arbitrage, Merger Arbitrage, Relative Value or Event Driven) and emerging market strategies demonstrate more persistence than aggressively directional strategies (e.g. Global Macro, Long Short, Long Only or Short Bias strategies).

Currently the number of hedge funds is more than 10,000 globally. The growth in the hedge fund industry is due to the appreciation of assets and new money entering the industry. In Fig. 2 we present the historical growth of the assets for non-directional strategies. We observe that during the early 2000s there was substantial growth in the industry, reaching its peak before the financial crisis in 2008. After the 2008–9 losses we observe this significant growth in assets continuing.

In Fig. 3 we present the historical growth in assets for directional strategies. We observe that during the early 2000s there was substantial

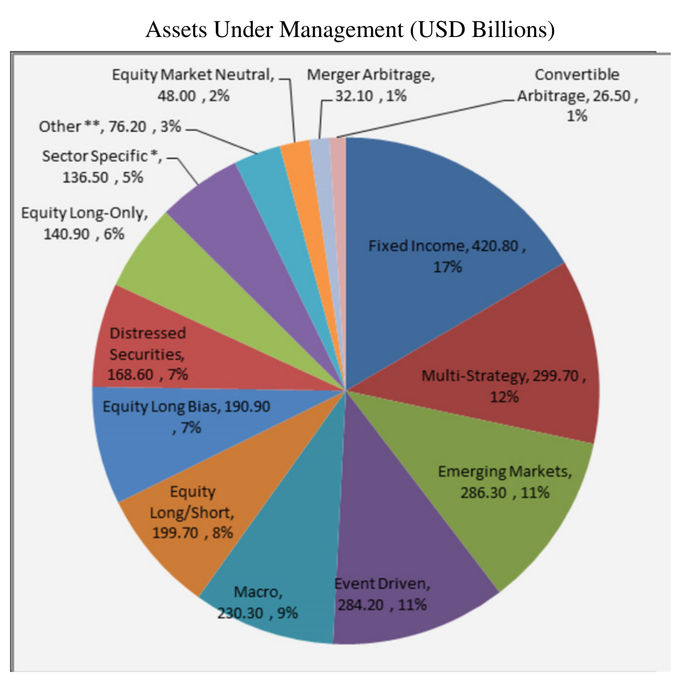

Fig. 1. Assets allocated per strategy.
(source: BarclayHedge, 2015)