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The total benefit of alternative assets to pension fund portfolios☆

Jens Carsten Jackworth[a,*], Anna Slavutskaya[b,1]

[a] University of Konstanz, PO Box 134, 78457 Konstanz, Germany
[b] École polytechnique fédérale de Lausanne – Swiss Finance Institute, SFI@EPFL, Quartier Unil-Dorigny, CH-1015, Switzerland

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Pension funds only quite recently have explored alternative assets, prodded by financial crises that devastated equity returns and led to low bond returns. We assess the addition of alternative assets to pension fund portfolios in terms of the total benefit derived from diversification, addition of positive skewness, and the elimination of left tails in returns. During 1994–2012, adding portfolios of hedge funds produced significantly higher total benefits than adding real estate, commodities, foreign equities, mutual funds, funds of funds, as well as some counter cyclical and non-cyclical assets. Conditioning on past total benefits improves the out-of-sample performance even further.

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1. Introduction

Hedge funds with their diverse strategies have become an attractive investment tool for many institutional investors, including pension funds looking for enhanced portfolio performance due to factors such as diversification and additional alpha. A large share of pension funds increased their hedge fund holdings during the financial crisis even while a number of hedge funds failed.[2] According

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* Corresponding author. Tel.: +49 7531 88 2196; fax: +49 7531 88 3120.
E-mail addresses: jens.jackwerth@uni-konstanz.de (J.C. Jackwerth), anna.slavutskaya@epfl.ch (A. Slavutskaya).
[1] Tel.: +41 21 69 31974.

[2] According to the National Association of Pension Funds, pension funds in the United Kingdom substantially increased their allocation in hedge funds from 1.8% in 2009 to 4.1% in 2011.

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to the survey provided by Preqin (2014), investments into the hedge fund industry have continued to grow in recent years, with much inflow from institutional investors; over 80% of these investors express satisfaction with the hedge fund performance and are willing to maintain or even increase their hedge fund allocations.[3] However, while many pension funds continue to be enthusiastic about hedge funds, there are also remarkable dropouts. Calpers, one of the largest retirement funds in the United States, recently pulled out its $4 billion investments in hedge funds.[4] Apparent reasons were that hedge funds are too opaque and too expensive. Complexity and high fees are also the main reasons for the Dutch pension fund PFZW to stop investing in hedge funds. Despite the examples of Calpers and PFZW, no dramatic investment shift overall has occurred. For example, around 50% of all U.S. public pension funds are exposed to hedge funds because they still worry about the future performance of stocks (Preqin, 2014).

We thus want to investigate the overall attractiveness of adding hedge funds to pension fund portfolios while weighing the costs and benefits. We do so based on a sample of U.K. funds available to individuals with a personal defined contribution pension plan, where we take into account that exposure to hedge funds is only around 5–15%.[5]

According to Myners' (2001) review set up by the U.K. government, early reluctance of pension fund trustees and investment consultants to diversify their portfolios beyond traditional assets is partly due to their misconception that long-only equity investing should be profitable in the long run despite any occasional downturns. After a series of significant market downturns, the long-only equity strategy was augmented by increased bond allocations which, together with the lower risk, inevitably led to lower returns. After these successive failures, pension funds turned to alternative investments and in particular to hedge funds; however, choosing the right hedge fund for addition to a pension fund portfolio is challenging. In general, institutional investors tend to hold hedge fund allocations in order to preserve capital, strengthen diversification, and reduce volatility. The complexity of hedge fund strategies and their dynamic nature make performance assessment difficult. The de facto standard of hedge fund performance measurement is the alpha within the Fung and Hsieh (2001) seven factor model. The resulting estimated intercept of the model, alpha, is then used to rank hedge funds. Investors chase alpha by investing more into hedge funds with high historical alpha (Fung et al., 2008).

Alas, one has to wonder about the quality of estimated hedge fund alpha due to short-samples [typically 36 returns from which 8 parameters need to be estimated in the Fung and Hsieh (2001) model], omitted variables, and the poorly specified linear factor model (the R-squared is typically ~40%). Further, the persistence of alpha is low, which means that historically high alpha funds will not necessarily exhibit such high alpha again in the future (Capocci and Hübner, 2004).

Even though alpha remains an important target of investors, there are other dimensions of portfolio performance about which investors care, such as diversification benefits, the addition of positive skewness, and the reduction of fat (left) tails of the portfolio returns distribution. Less tangible benefits such as having a hedge fund manager of high reputation or personal tailoring of products to the investors should also matter to investors but are harder to quantify. Goetzmann et al. (2007) show in their simulation studies that alpha does not penalize for under-diversification.

In order to measure the total benefit to pension fund investors, we suggest using changes in the manipulation proof performance measure (MPPM) as proposed in Goetzmann et al. (2007). The MPPM is closely related to the certainty equivalent value of the fund returns under a power utility function, which is the risk-free return that yields the same expected utility as investment into the pension fund. We also employ the almost stochastic dominance approach (ASD) proposed by Leshno and Levy (2002) and used in Bali et al. (2009) and Bali, Brown, and Demirtas (2012, 2013). ASD is utility-based (as is MPPM) but does not require parametric specification of investors' preferences. Furthermore, we use the Sharpe ratio and factor model alpha as alternative performance measures in

[3] Preqin's (2014) hedge fund survey is based on 14,100 hedge funds with 6300 manager profiles, as well as detailed information on over 4400 active investors in hedge funds.

[4] *Financial Times*, September 20, 2014, page 8, "California Calls Time."

[5] We still call our sample one of pension funds even though it technically covers pension funds as well as mutual funds that can be used for pension investments.

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