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Performance of international and global equity mutual funds: Do country momentum and sector momentum matter?

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ABSTRACT

This is the first paper analyzing the impact of index momentum factors on the performance of international and global equity funds. Extending an international, index-based version of the Fama and French (1993) three-factor model by adding the factors of country momentum and sector momentum, we find that more than 50% of funds exhibit significant exposure to at least one of these factors. Including both new factors in performance evaluation clearly impacts results when analyzing (i) the risk-adjusted performance, (ii) the performance persistence of funds, and (iii) luck versus skill in the cross-section of funds. Our main results are robust against models which additionally cover a stock-based momentum factor as well as single country, regional and sector factors.

1. Introduction

For measuring the performance of mutual funds, the choice of the appropriate set of risk factors is essential and therefore still extensively discussed. At present, the majority of academic studies on the performance of equity funds still rely on the Carhart (1997) four-factor model which includes a market, a size, a value and a momentum factor. Following the seminal work of Fama and French (1993), these factors are frequently created by sorting stocks into style portfolios and taking the return difference between the respective top and bottom portfolios. In contrast to these stock-based factor models, an alternative approach uses return differences between style indices to construct size and value factors as conducted by, among others, Faff (2003), Huij and Derwall (2011), and Cremers et al. (2013b). However, to the best of our knowledge, no study discusses and applies a pure index-based factor model which also includes momentum factors when evaluating the performance of equity funds with an international investment focus.

In particular, our paper contributes to the literature by analyzing the impact of country and sector momentum factors on the performance of international and global equity funds. Adding these index-based momentum factors to an index-based version of the Fama and French (1993) three-factor model considerably impacts empirical findings when studying the performance and performance persistence of international and global funds. Compared to an international stock-based four-factor model recently used in the literature, we find our pure index-based model better explains variation in fund returns. Moreover, including these factors changes our main results when analyzing luck versus skill in the cross-section of funds.

Since the seminal paper of Jegadeesh and Titman (1993), the profitability of stock momentum strategies has been broadly documented. Based on a sample of domestic equity funds, Grinblatt et al. (1995) find many fund managers follow momentum strategies in stock investments. As these strategies do not require superior investment abilities, a momentum factor should be considered in the analysis of fund performance. Carhart (1997) shows that adding a stock-based momentum factor to the three-factor model of Fama and French (1993) has an impact on the measured performance and on the measured persistence in the performance of domestic equity funds. Alternatively, Cremers et al. (2013b) construct the Fama and French factors of size and value based on

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indices, but the momentum factor based on stocks. Applying their partially index-based model to domestic equity funds, they show an improved performance evaluation compared to a pure stock-based factor model.

The literature reports abnormal returns for stock-based momentum strategies in numerous countries worldwide (see, e.g., Rouwenhorst, 1998; Antoniou et al., 2007; Hou et al., 2011; Fama and French, 2012; and Asness et al., 2013). Moreover, findings by Asness et al. (1997), Chan et al. (2000), and Bhojraj and Swaminathan (2006), among others, reveal that momentum strategies based on country indices earn remarkable, abnormal returns. Similarly, the profitability of momentum strategies based on sector indices has been shown by Moskowitz and Grinblatt (1999), Swinkels (2002), Scowcroft and Sefton (2005), and Chen et al. (2012).

So far, many empirical studies analyzing the performance of international and global equity funds do not take any momentum factor into account (see, e.g., Gallo and Swanson, 1996; Detzler and Wiggins, 1997; Redman et al., 2000; Arugaslan et al., 2008; Mazumder et al., 2010). Recently, using stock-based models, Ferreira et al. (2012, 2013), Busse et al. (2013), and Cremers et al. (2013a) apply a stock-based momentum factor in their studies. In contrast, Huij and Derwall (2011) and Comer and Rodriguez (2012) use index-based models for the evaluation of international and global funds, respectively, but do not consider a momentum factor. Only Banegas et al. (2013) apply index-based size and value factors as well as an index-based sector momentum factor when studying European equity funds. We contribute to the literature by analyzing the impact of simultaneously used country and sector momentum factors on the performance of international and global equity funds.

Considering a momentum strategy based on indices in performance analysis can be justified for several reasons. First, fund managers may use a top-down approach when allocating their clients' capital by selecting countries or sectors before stock picking (see, e.g., Chan et al., 2000). Therefore, they might invest directly in market indices, using exchange-traded funds (Miffre, 2007) or futures (Asness et al., 2013). Second, as Bhojraj and Swaminathan (2006) point out, indices are regularly more liquid than individual stocks. In contrast, stock momentum strategies frequently incorporate small illiquid stocks and impose relatively high transaction costs (see, e.g., Grinblatt and Moskowitz, 2004; and Lesmond et al., 2004). Third, there is empirical evidence that index momentum largely captures stock momentum. For example, Asness et al. (1997) observe that country momentum mirrors stock-based momentum in an international context. Moreover, Scowcroft and Sefton (2005) find that momentum effects are primarily driven by indices, not by individual stocks.

For our empirical analysis, we construct several country and sector momentum factors, following to some extent Jegadeesh and Titman (1993), Scowcroft and Sefton (2005), and Bhojraj and Swaminathan (2006). We then incorporate these factors into an international index-based version of the Fama and French (1993) three-factor model. Since the literature shows an ongoing debate as to whether country effects dominate sector effects or vice versa (see, e.g., Beckers et al., 1992; Heston and Rouwenhorst, 1994; Griffin and Karolyi, 1998; Bekaert et al., 2009), we include the country momentum and the sector momentum factors simultaneously in our model. Applying this five-factor model, we evaluate the performance of international and global equity funds for the period January 1996 to December 2009 using the survivorship bias-free CRSP database.

Our empirical results reveal that more than 50% of all international and global funds show a significant exposure to at least one of these additional factors. Moreover, our funds regularly show lower five-factor alphas compared to three-factor alphas. On average, the funds underperform their corresponding benchmark. Sorting funds according to their country momentum and sector momentum exposures reveals a positive relationship between these index momentum exposures and the risk-adjusted performance. On average, funds with relatively high index momentum exposures exhibit lower rank positions based on five-factor alphas compared to rankings based on three-factor alphas. We calculate implied factor returns for actual funds associated with unit exposure to index momentum factors. On this basis, we show that international and global funds partly harvest premiums of these factors. Moreover, we find that the persistence in the fund performance is largely driven by the weakest performing funds. Finally, studying luck versus skill in the cross-section of fund alphas, we find weaker results with respect to skill when we use the index-based five-factor model instead of the index-based three-factor model.

Augmenting our five-factor model by additional factors, e.g., an international (global) stock momentum factor, we find fund exposures to the country and sector momentum factors to be largely robust. This suggests that the stock momentum factor does not capture additional information not already covered by the index momentum factors. Moreover, splitting the fund data into two sub-periods, our main results are robust even if the impact of either the country or the sector momentum factor weakens during the second sub-period.

The remainder of this paper is organized as follows. Section 2 examines several momentum strategies based on country and sector indices. Section 3 describes our methodology for including country and sector momentum factors in performance evaluation. Section 4 presents our fund data and contains the empirical analysis revealing the impact of the momentum factors on the performance of international and global funds. Section 5 reports several robustness tests, and Section 6 concludes.

2. Country and sector momentum strategies

To implement country momentum strategies, we use monthly returns of MSCI Investable Market Indices (IMI) of 23 developed and 22 emerging market countries from June 1994 through December 2009.[1] To examine sector momentum strategies, we use monthly returns of ten MSCI sector indices from January 1995 through December 2009.[2] We distinguish between international sector indices, excluding the United States, and global sector indices, including the United States.

Table 1 contains descriptive statistics of developed and emerging countries in Panels A and B, respectively. On average, emerging country returns in US dollars have a higher mean and standard deviation compared to developed markets. In addition, emerging countries show a lower first-order autocorrelation of 0.1206 compared to 0.1974 for developed countries. These relations prevail when measuring country returns in local currency. Panel C provides respective statistics for sector index returns in US dollars. Autocorrelation measures 0.1774 and 0.1449 for international and global sectors, respectively. Thus country and sector index returns exhibit positive autocorrelation which, among other factors, is considered to be a potential driver of momentum profits (see, e.g., Moskowitz and Grinblatt, 1999).

Focusing on country indices, Bhojraj and Swaminathan (2006) find positive abnormal returns for country momentum strategies lasting longer than one year. In particular, they find sizeable momentum profits for strategies based on past returns in local

[1] Almost all return series of country indices are available since June 1994 or earlier. Exceptions are return series for the Czech Republic and Peru, which start in June 1995, and for Mexico, Jordan and Russia starting in June 1996. The return series of Taiwan and Morocco are available since October 1996 and June 1997, respectively.

[2] Many country and sector indices are tradable as future or ETFs and therefore exhibit low transaction costs. Further information is available, e.g., from the MSCI Barra homepage (http://www.msci.com/products/indices/licensing/).