Style Drift and Alphas: A Case Study in International Retail Funds

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Abstract

This paper examines style drift and alphas for a sample of 110 international retail funds offered to individual investors. We show that when fund managers "deviate" from their stated categories, alphas are biased upward. While previous studies in the international stock arena typically employ theoretical constructs to benchmark fund performance, we employ an actual investable vehicle (tradeable ETFs) in the same categories as the funds. For the period 2002-2020, we show empirically that managers do indeed deviate from their stated fund categories with subsequent upward bias to their fund alphas. For over half of the funds in our sample, we find significant drift to emerging markets and to the US equity market. We observe that alpha is biased upward an average of 86 basis points for the retail funds examined in this study.

Keywords: international funds, style drift, benchmarks, alpha, retail

1. Introduction

The investment objective for each mutual fund must be disclosed in the fund prospectus. Deviating from the stated investment objective is typically referred to as style drift. When asset managers stray from their stated fund categories investors are inevitably exposed to unanticipated risks. In an attempt to address this issue, the SEC adopted rule 35d-1 (the "Names Rule") in 2001. This rule requires that registered funds invest a minimum of 80% of their assets in a manner that is consistent with, and reflects, their name. According to the SEC, "the rule also would address names suggesting that an investment company focuses its investments in a particular country or geographic region."

While the language used in disclosing fund objectives tends to be sufficiently broad to provide a degree of flexibility in asset management, the SEC argues that fund names are generally the first piece of information seen by investors, and that as such they can significantly impact investment decisions. Although this is especially a cause for concern for retail investors, previous research indicates that it is also pertinent to institutional investors. Froot and Teo (2008) note that institutional investors tend to make investment decisions at the style level. Similarly, Bams, Otten, and Ramezanifar (2016) note that, "style deviation is also relevant to institutional investors who diversify their portfolios by holding several mutual funds with different investment styles". In March 2020, the SEC requested comment letters on, "whether the current requirements in rule 35d-1 are effective and whether there are viable alternatives that the Commission should consider".

Our paper examines the presence of style drift for 110 international retail mutual funds. The primary investment objective of these funds is to invest in developed markets outside the U.S. We measure fund performance and, importantly, show how the fund alphas differ with the inclusion of additional indices to capture drift to emerging markets and to the U.S. equity market (S&P 500). The extant literature on mutual funds is rich and well developed, with most studies focusing on U.S. equity fund performance. Some of the earliest studies found that mutual funds underperformed broad market indices (Friend, Brown, Herman, & Vickers, 1962; Jensen 1968). These findings were inconsistent with the tremendous growth that the fund industry was experiencing and led to innumerable studies on whether fund managers are skilled and also whether fund performance persists over time.

While Grinblatt and Titman (1989 and 1993) find some evidence to support the notion that mutual fund managers are skilled, Carhart (1997) found no such evidence. A study by Fama and French (2010) concluded that even though some fund managers are able to outperform the market, their costs outweigh the returns they generate. In terms of

performance persistence, Malkiel (1995) showed that performance persistence varies through time and that survivorship bias explains a significant amount of this persistence. Research by Bollen and Busse (2001) suggests that superior fund performance is a short-lived phenomenon. Berk and Binsbergen (2015) however conclude that the average manager is skilled, and that cross-sectional skill differences persist for up to 10 years. While no broad consensus has emerged regarding performance, a recent study by Cremers, Fulkerson, and Riley (2019) suggests that the general sentiment that fund managers do not add value is unfounded.

Although the research findings on fund manager performance are inconclusive, there does however seem to be consensus with respect to the presence of style drift. Brown and Goetzmann (1997) first documented this phenomenon in the U.S. market. It has also been evidenced in other markets such as South Africa (diBartolomeo & Witowski, 1997), Australia (Holmes & Faff, 2008) and China (Chua, Tam & Tan 2018; Chua & Tam 2020). As previously mentioned, style drift inevitably introduces unexpected risk for investors. Less evident however, is whether funds are able to enhance their performance as a result of style drift. Previous studies have found that fund managers who stray further from their benchmarks provide higher risk-adjusted returns (Cremers & Petijisto, 2009; Wermers, 2012). In contrast, Brown, Harlow, and Zhang (2015) conclude that funds with lower levels of style volatility outperform funds with higher levels of style volatility. In a more recent study, Cao, Iliev, and Velthius (2017) provide evidence that while deviating small-cap mutual funds do not provide investors with higher abnormal returns or performance persistence, they did outperform their peers by 3% annually.

While the literature is replete with studies on U.S. mutual funds, there is a comparative dearth of studies on foreign and international mutual fund performance. Results from these existing studies however are also inconsistent. Some studies find no evidence of positive abnormal returns (Cumby & Glen, 1990; Droms & Walker, 1994; Tsai & Wu, 2015) whilst others find that performance results depend on the benchmark index used for comparison (Eun, Kolodny, and Resnick, 1991). Other papers have found consistent evidence of abnormal performance (Redman, Gullet, and Manakyan, 2000; Boudreaux, Rao, Ward, and Ward, 2007) but reach different conclusions regarding performance persistence. In a study of international equity funds, Droms and Walker (2001) find statistically significant performance persistence for very short-term (1-year) holding periods only. In contrast, Otten and Bams (2002) find positive net alphas for European mutual funds (especially small cap funds), and detect strong persistence in mean returns specifically for funds investing in the UK.

Although style drift has been heavily researched the context of U.S. equity funds, and has been detected in other foreign markets, research on drift for international mutual funds is lacking. In a previous study, we document the presence of significant style drift for a sample of 64 international institutional funds over the period 2005-2016 (Delgado, Goldberg, & Graham, 2020). We show empirically that managers do indeed deviate from their stated fund categories and that this deviation upwardly biases their fund alphas. More specifically, we find that alpha is biased upward on average 44 basis points for approximately half of the funds we examined. While our earlier study focused on institutional funds, our current study complements and extends our previous results by focusing on drift and fund alphas for international retail funds utilizing the same methodology. We are unaware of any other studies that have investigated drift for international retail mutual funds.

In this study, we document the presence of significant drift for our sample of mutual funds. In an attempt to more accurately measure fund alphas, we incorporate additional indices (over and above the benchmark index) to capture where the funds drift to. This approach results in alphas that are significantly lower than would otherwise be obtained. Consistent with our approach in Delgado et al. (2020), we continue to use investable ETFs in order to benchmark performance for our sample of funds. This is in contrast to previous studies which have used theoretical, non-tradeable benchmarks in their empirical models (Eun et al, 1991; Redman et al., 2000).

The remainder of the paper is organized as follows: In section 2, we present our hypotheses, taking into consideration previous literature that looks at mutual funds both domestically and internationally. Section 3 details the data used in our study along with our empirical model for measuring mutual fund performance and drift. Section 4 presents our empirical results. Finally, section 5 concludes the paper.

2. Hypothesis Development

Delgado et al. (2020) find that active fund managers drift from their stated category to the emerging markets for international institutional funds. Bams et al. (2016) also find that fund managers consistently deviate from the investment style specified in the fund prospectus. These findings support the notion that fund drift occurs in international funds. If managers seek higher returns, then we would expect to observe a shift to assets where managers can earn higher returns for their clients. Similar to our findings for institutional funds in Delgado et al.

(2020), we predict that active managers in the international retail fund sector will drift from their stated category, in this case the MSCI EAFE Index (EFA). This leads us to our first hypothesis:

H1: International mutual fund managers deviate from their stated sector to the emerging markets sector.

Benchmarks play a key role in evaluating mutual fund performance and mangers. Tierney and Bailey (1995) propose that benchmarks should be unambiguous, tradeable and measurable. Using these criteria allows one to more accurately measure the performance of the fund manager. In line with Tierny and Bailey's study, Pastor and Stambaugh (2002b) show that the addition of an unpriced benchmark can lead to better inferences about a manager's skills.

Delgado et al. (2020) show that including an unpriced benchmark that represents the emerging markets (EEM) when looking at international institutional funds results in a decrease to the fund's alpha and thus more accurately depicts the manager's performance. Similar to our findings for institutional funds, we contend that drift to the riskier emerging market category necessitates an additional benchmark component in order to accurately measure this drift. Once we introduce this additional benchmark in our regression, we can more precisely measure the excess return generated by that fund. This leads us to our second hypothesis:

H2: Alpha will decrease with the inclusion of an emerging markets index.

Post global financial crisis, equity markets in the US outperformed their international counterparts. In our sample post 2009, both the EFA and EEM ETFs returned 7.7% to investors annually while the US equity benchmark (SPY) earned almost double that at 14.4%. A fund manager would therefore be enticed to drift geographically to US markets and move funds from international equities to US equities. We anticipate that international fund managers would drift to achieve these higher returns for investors despite their funds being classified as international. Including a benchmark for US equities would therefore be appropriate in modelling fund performance in order to capture these investments. Using the same rationale as H2 above, this leads us to our third hypothesis:

H3: Alpha will decrease with the inclusion of the US markets index.

3. Data and Methodology

3.1 Data

We select our sample of mutual funds using monthly data from the Bloomberg database for the period September 2002 thru November 2020. These include monthly returns for: 1. 110 international retail funds 2. The MSCI EAFE Index (EFA) which is a stock market ETF that is designed to follow the equity market performance of developed markets outside of the U.S. (without Canada), 3. The MSCI EM Index (EEM), which is a stock market ETF designed to follow the equity market performance in emerging markets, 4. SPY which is a stock market ETF designed to track the S&P500 in the US and 5. SHY which is an ETF that invests in short term US treasuries and proxies for our risk free rate of return. Descriptive statistics for our regression variables are shown in Table 1.

Table 1. Descriptive Statistics for Independent Variables

September 2002-November 2020

	EFA	EEM	SPY	SHY
Average Return Monthly	0.36%	0.69%	0.62%	0.17%
Average Return Annual	4.37%	8.28%	7.47%	2.03%
Standard deviation	20.38%	28.71%	18.31%	2.22%

3.2 Modelling Fund Performance

In order to model fund performance, we compute the monthly percentage changes in our variables as the log difference between the current and previous month's data. We use excess monthly returns by subtracting the SHY (risk free rate) from both the EFA , EEM and the SPY as well as from the returns for our 110 retail funds. The variables for our regression are outlined in Table 2 below:

Table 2. Regression Variablesε

Symbol	Regression Variable Description
R_{fund}	Excess monthly fund returns
R_{EFA}	Excess monthly returns on the MSCI EAFE ETF
R_{EEM}	Excess monthly returns on the MSCI EAFE ETF
R_{SPY}	Excess monthly returns on the SPY ETF
α_{1fund}	Alpha for each fund in simple regression
α_{2fund}	Alpha for each fund in multiple regression
$\beta_{fund-EFA}$	Coefficient on the MSCI EAFE monthly excess returns
$\beta_{fund-EEM}$	Coefficient on the MSCI EEM orthogonal component
$\beta_{fund-SPY}$	Coefficient on the SPY orthogonal component

Our approach is consistent with our previous study conducted for international institutional funds in Delgado et al. (2020). The first regression (equation 1) assumes no drift and measures retail international asset managers against the ETF's that invest in the same categories as their respective funds. If managers deviate from their respective categories into riskier stocks, this deviation should be captured by introducing the EEM as an additional benchmark. Initially, we regress excess monthly returns of each fund on the excess monthly returns of the MSCI EAFE ETF:

$$R_{fund} = \alpha_{1fund} + \beta_{fund-EFA} R_{EFA} + \varepsilon \qquad (1)$$

The next step of the analysis requires 2 separate regression equations in order to (1) determine if there is a drift to emerging market stocks and (2) compute the bias to alpha for those funds that have a significant coefficient on the emerging market variable used in our analysis. ε_{EEM} in equation 2 is the "orthogonal" component of the emerging market ETF return with respect to the EAFE ETF. We use orthogonal components in our regressions to address the multicollinearity inherent in the ETF returns. A significant coefficient on the $\beta_{fund-EEM}$ indicates that the EEM ETF provides additional explanatory value in the retail fund's return. If the retail fund has a significant beta on the EEM variable, we then compute $(\alpha_1 - \alpha_2)$ to illustrate the upward bias in performance measures for that fund.

$$R_{EEM} = \beta_{EEM-EFA} R_{EFA} + \varepsilon_{EEM} \qquad (2)$$

$$R_{fund} = \alpha_{2fund} + \beta_{fund-EFA} R_{EFA} + \beta_{fund-EEM} \varepsilon_{EEM} + \varepsilon \qquad (3)$$

Finally, we examine the presence of drift to US markets by including the orthogonal component of the SPY in our analysis together with the EEM benchmark. A significant coefficient on both the $\beta_{fund-EEM}$ and the $\beta_{fund-SPY}$ would indicate that both markets' benchmarks should be priced into the model in order to measure the fund's returns.

$$R_{fund} = \alpha_{2fund} + \beta_{fund-EFA} R_{EFA} + \beta_{fund-EEM} \varepsilon_{EEM} + \beta_{fund-SPY} \varepsilon_{SPY} + \varepsilon \qquad (4)$$

4. Results

We conduct our analysis over the period September 2002 to November 2020. A summary of our findings for both the 2 and 3 variable models are reported in Table 3 below.

Table 3. Regression Results

Benchmarks Used	EFA & EEM	EFA & EEM & SPY
Number of Funds	110	110
Number of Funds (Significant)	81	56
Average α_{1fund} - Average α_{2fund}	0.487%	0.86%
Average Deviation to Benchmark Funds	11.58%	19.25%

Our results show that for the sample period from September 2002 to November 2020, over 70 % (81/110) of our funds have a significant coefficient on the EEM ETF variable which translates into fund returns that are partially attributable to drift from their stated category (MSCI EAFE (EFA) to MSCI Emerging Markets (EEM)). This result is consistent with our first hypothesis: international mutual fund managers deviate from their stated sector to the emerging markets sector. This drift is approximately 11.6% on average. Furthermore, introducing the appropriate benchmark EEM into our regression results in a significant decrease to alpha. This leads to the acceptance of our

second hypothesis (H2): alpha decreases by 0.49% on average (annualized) for those funds that have a significant coefficient on the EEM variable.

Our three factor model also produces interesting and significant results which lead to the acceptance of our third hypothesis (H3). Over half the funds in our sample exhibit drift to both the EEM (emerging) and the SPY (US) markets. This drift is even higher than the previous EEM model and indicates that managers drift 19.25% on average to these markets. Given the volatility of emerging market stocks, managers may be seeking a "safe haven" for investors in times of crisis by redeploying funds to the US markets. Managers may also be lured by the superior performance of US equities post 2009. By incorporating both benchmarks in our analysis, we see alpha decrease by 86 basis points.

Results for the individual funds are presented in table 4 below. Funds with an NA next to them indicate that the coefficients on the additional benchmark variables for these funds were not significant and were therefore not included in the calculation of the average drift and alpha difference measures:

Table 4. Individual Fund Results (September 2002-November 2020)

Funds	α1-α2 (annual)	Deviation to EEM	α1-α2 (annual)	Deviation to EEM &SPY	Funds	α1-α2 (annual)	Deviation to EEM	α1-α2 (annual)	Deviation to EEM & SPY
LLINX	NA	NA	NA	NA	IHOAX	0.67%	15.88%	1.17%	25.17%
LZIEX	NA	NA	NA	NA	NWHJX	0.61%	14.66%	NA	NA
LZSIX	0.24%	6.77%	0.66%	16.94%	NWHKX	0.61%	14.62%	NA	NA
MIINX	-0.20%	-5.95%	0.13%	3.72%	SCIEX	0.68%	15.62%	1.16%	24.29%
MPITX	-0.21%	-6.10%	0.11%	3.32%	FGFAX	NA	NA	NA	NA
MSILX	0.52%	11.93%	1.38%	26.93%	FGFBX	NA	NA	NA	NA
PCIEX	0.15%	3.87%	0.61%	14.86%	FGFCX	NA	NA	NA	NA
UMBWX	0.49%	12.30%	1.08%	24.11%	BJBIX	1.04%	22.92%	NA	NA
BRESX	0.79%	18.13%	NA	NA	BNIEX	0.37%	9.33%	1.11%	23.93%
NWHLX	0.61%	14.52%	NA	NA	BREAX	0.79%	18.14%	NA	NA
TGVAX	0.59%	15.03%	1.12%	25.58%	BRECX	0.79%	18.17%	NA	NA
THGCX	0.59%	15.06%	1.12%	25.58%	CWVCX	0.19%	4.96%	0.53%	13.25%
USIFX	NA	NA	NA	NA	CWVGX	0.19%	4.99%	0.53%	13.16%
VGTSX	0.74%	16.73%	0.95%	20.48%	ECIGX	0.44%	10.64%	0.77%	17.29%
VTMGX	0.07%	1.76%	0.23%	5.97%	ETIGX	0.45%	10.79%	0.78%	17.60%
DIISX	NA	NA	NA	NA	GCIAX	NA	NA	NA	NA
FESOX	0.51%	18.46%	NA	NA	GCICX	NA	NA	NA	NA
GUBGX	0.51%	12.35%	NA	NA	GIEZX	0.55%	13.07%	NA	NA
HFOAX	0.45%	11.50%	1.03%	23.22%	GSICX	NA	NA	NA	NA
HFOCX	0.45%	11.52%	1.04%	23.32%	GSIFX	NA	NA	NA	NA
JAOSX	2.01%	32.67%	NA	NA	IBVAX	NA	NA	NA	NA
JIGRX	1.93%	32.50%	NA	NA	IBVCX	NA	NA	NA	NA
LZESX	0.25%	6.92%	0.67%	16.98%	IIBCX	NA	NA	NA	NA
LZIOX	NA	NA	NA	NA	JFTAX	0.29%	7.21%	0.52%	12.47%
MKIEX	0.22%	5.41%	0.54%	12.66%	JSEAX	0.30%	7.57%	0.56%	13.67%
PIEQX	0.15%	4.09%	NA	NA	LMGEX	0.28%	7.48%	NA	NA
PSILX	0.80%	17.79%	1.16%	24.12%	MCILX	0.29%	7.28%	0.88%	19.41%
SGOVX	0.50%	18.44%	NA	NA	MDIIX	NA	NA	NA	NA
SWFCX	0.36%	9.26%	0.88%	20.16%	MDILX	0.29%	7.24%	0.88%	19.41%
SWRLX	0.36%	9.31%	0.90%	20.60%	MINAX	0.20%	5.61%	0.51%	13.64%
TWWDX	0.91%	20.00%	NA	NA	MINBX	0.20%	5.63%	0.51%	13.52%
GIIAX	NA	NA	NA	NA	MIQBX	NA	NA	NA	NA
HIOCX	0.66%	15.82%	1.17%	25.23%	MRIBX	0.38%	9.94%	NA	NA

Table 4. Individual Fund Results (September 2002-November 2020) (con'd)

Funds	α1-α2 (annual)	Deviation to EEM	α1-α2 (annual)	Deviation to EEM &SPY	Funds	α1-α2 (annual)	Deviation to EEM	α1-α2 (annual)	Deviation to EEM & SPY
MRICX	0.38%	9.89%	NA	NA	PIIIX	0.72%	16.62%	0.95%	21.15%
MRSAX	0.38%	9.82%	NA	NA	PINLX	0.74%	17.14%	1.01%	22.28%
MSIBX	0.39%	10.19%	NA	NA	PINNX	0.74%	17.19%	1.02%	22.45%
OAKIX	NA	NA	NA	NA	PINPX	0.73%	16.96%	1.02%	22.36%
OEIAX	NA	NA	NA	NA	PINRX	0.74%	17.17%	1.02%	22.43%
PCITX	0.38%	9.86%	0.71%	17.05%	POVBX	0.40%	9.52%	NA	NA
PIIFX	0.38%	9.82%	0.71%	17.10%	POVSX	NA	NA	NA	NA
PIIJX	0.80%	18.30%	1.12%	24.09%	POVYX	NA	NA	NA	NA
PRWLX	0.82%	18.75%	NA	NA	QIVNX	0.26%	6.83%	0.76%	17.80%
PWGAX	0.21%	5.46%	0.66%	15.86%	SIEIX	0.32%	7.99%	0.78%	17.88%
QIVAX	0.33%	8.36%	0.82%	18.97%	SWISX	NA	NA	NA	NA
QIVCX	0.33%	8.29%	0.82%	18.84%	PIIIX	0.72%	16.62%	0.95%	21.15%
SILAX	0.33%	8.30%	0.81%	18.41%					
SLSSX	1.06%	24.16%	2.87%	46.99%					
TIEUX	0.49%	11.91%	1.02%	22.22%					
TIVFX	0.38%	10.43%	NA	NA					
WFECX	0.32%	8.07%	0.80%	18.24%					
WINAX	0.72%	16.77%	1.21%	25.40%					
IIFBX	0.49%	11.84%	0.93%	20.83%					
IVIAX	0.48%	11.68%	0.93%	20.74%					
IVIFX	0.48%	11.80%	0.92%	20.67%					
EGLBX	0.38%	9.33%	0.80%	18.23%					
DFALX	0.21%	5.46%	0.45%	11.40%					
GCISX	NA	NA	NA	NA					
GMWEX	0.46%	11.38%	0.71%	16.77%					
GSISX	NA	NA	NA	NA					
GTCIX	0.21%	5.23%	NA	NA					
LGFEX	0.28%	7.35%	NA	NA					
MIEIX	0.18%	5.08%	NA	NA					
MOSSX	NA	NA	NA	NA					
MRSIX	0.32%	8.43%	NA	NA					
OARIX	NA	NA	NA	NA					
PIGCX	NA	NA	NA	NA					

5. Conclusion

In this paper, we analyze the performance of 110 international retail funds. Our findings indicate that fund managers deviate from their stated fund categories to riskier stocks as well as to the US markets for over half the funds in our sample. On average, we find a 19% deviation to the emerging market and US market benchmarks employed in this study. For the funds that show significant deviation to these markets, we compute the upward bias in their alphas, which is .86% annualized. Actively managed investment funds like those in our sample are very likely to experience style drift: in this case drifting geographically. Fund managers who chase higher potential returns to keep clients satisfied expose these investors to increased risk, particularly through investments in the emerging markets. In addition, when international markets turn downwards, these managers may look to the US as an alternative for keeping returns high. Our results seem to indicate that both of these geographical drifts occur for our sample.

Given the size and significance of our results, we are motivated to follow this study with a comparison of institutional versus retail funds for the same time period to see whether retail investors "suffer more" than institutional investors from the drift observed in funds. In addition, future studies could examine whether drift is more pronounced following significant financial events for international and emerging markets. An examination of fund performance and drift post 2008 financial crisis as well as post 2020 pandemic would be possible events for this study.

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