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Assessing foreign funds
gerographical focus timing skill

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Abstract
Purpose – This paper aims to study the market timing skill of USA-based foreign open-end mutual funds in their geographical focus market.
Design/methodology/approach – The authors use daily fund data and two multi-factor extensions of the Treynor-Mazuy (1966) and Henriksson-Merton (1981) timing models to measure US-based foreign funds’ market timing skill during 1999 to 2010. In particular, the authors study fund managers’ skill to time their geographical focus market.
Findings – The authors report that, in general, foreign funds do not accurately time their geographical focus market. However, during January 2008 to December 2010, the sub period that includes the 2008 global financial crisis, most foreign funds in this sample not only focused on their domestic market, the USA, but also demonstrated statistically significant, good timing skill.
Originality/value – Although US-based foreign funds’ market-timing skill is not an unexplored topic, this study is the first to consider these funds’ skill to time their geographical focus market, a skill that has been studied in the context of hedge funds.

Keywords Market timing, Foreign mutual funds, Geographical-focus market, Timing skill

1. Introduction
US-based foreign mutual funds (“FMFs”) invest most of their assets in foreign securities, usually investing only a fraction of their portfolio in their home market. As defined by Morningstar, FMFs keep less than 20 per cent of their assets invested in the USA; however, this percentage can significantly vary according to market conditions. FMFs’ managers may concentrate their fund’s investments in one specific foreign geographical region or spread them throughout different regions. As in all actively managed mutual funds, FMFs managers can generate positive excess returns by implementing a wide range of investment strategies, the two most common being security selection and market timing. In the former, fund managers look for undervalued individual securities that may outperform, while in the latter, they aim to predict general market movements (Fama, 1972).

JEL classification – G11, G15

The authors appreciate the comments of Niklas F. Wagner (the editor) and two anonymous referees. The authors also thank the research assistance of José Davis-Pellot.
Given FMFs managers’ flexibility to either concentrate their assets in one geographical region or spread them across many regions, in this study, we observe the geographical composition of FMFs’ portfolios to identify their focus market, namely, the market where funds maintain their highest percentage of investments during a specific period, and empirically observe and measure their skill to accurately time this market within a multi-region framework. Market timing is an investment strategy wherein fund managers decide when to enter or exit a market. Our approach is similar to Chen’s (2007), wherein he studied a sample of hedge fund managers’ skill to time a focus market, defined as the market where managers most actively traded, finding good timing skill.

Some experts have examined US-based international funds’ timing skill. Cumby and Glen (1990) analyzed the risk-adjusted performance and timing skill of 59 international mutual funds, evidencing perverse market timing. Similarly, reporting a negative correlation between managers’ stock selection and market timing skills, Kao et al. (1998) found weak evidence of poor market timing skill. More recently, Glassman and Riddick (2006) distinguished between world market timing and national market timing, reporting significant national market timing skill and virtually no evidence of world market timing skill, and establishing that single-index models are unsuitable to assess global performance. Finally, Rodriguez (2008) evaluated global asset allocation funds’ market timing skill, finding poor market timing when using the single-factor Treynor and Mazuy (TM) model, but not when using two multifactor extensions.

These studies form part of a rich literature on US-based fund managers’ timing skill. Most early studies on market timing either report no-evidence of timing skill or report negative timing skill. Some examples include Chang and Lewellen (1984), Becker et al. (1999), Ferson and Schadt (1996) and Goetzmann et al. (2000). However, more recent studies based on higher frequency data, more elaborate return-based timing models and market timing tests dependent on mutual funds portfolio holdings, show that fund managers have better timing skill than previously reported. Studies providing evidence of good timing skill by mutual fund managers include Bollen and Busse (2001) on equity funds, Glassman and Riddick (2006) on world funds and Comer (2006) on hybrid funds. Jiang et al. (2007) and Kaplan and Sensoy (2005) use portfolio holdings and a single-index model to assess timing skill, both reporting positive and significant timing skill. In the same vein, Elton et al. (2012) use a comprehensive data set on mutual fund portfolio holdings, reporting positive timing skill when using a single-index model, but negative timing skill when implementing a multi-index model.

The literature on market timing skill of fund managers from around the globe is steadily growing. Studies from the United Kingdom include, inter alia, Byrne et al. (2006) and Cuthbertson et al. (2010). Outside the United Kingdom, Cuthbertson and Nitzsche (2013) observed the timing skill of German equity fund managers, while Romacho and Cortez (2006), Álvarez et al. (2014) and Oueslati et al. (2014) focused on Portuguese, Spanish and Tunisian mutual fund managers, respectively. Although the list of academic studies on fund managers’ market timing is not short, we share Jiang et al.’s (2007) view that this subject deserves even more attention from academia.

Contributing to this literature, this article studies US-based foreign fund managers’ skill to time their geographical focus market. Furthermore, we compared differences in timing skill of fund managers who actively change their geographical focus versus those who do not. Following a similar approach to Chen’s (2007) study of hedge funds, we measure timing skill by relying on multifactor extensions of two classical
approaches: “TM” and Henriksson and Merton (1981) (“HM”). TM introduced a nonlinear regression model that measures fund managers’ skill to decrease (increase) market exposure prior to a market fall (rise). It tests for nonlinearity resulting from timing skill by implementing an extended version of the capital asset pricing model (CAPM), which includes a quadratic term. HM, by contrast, tests market timing by measuring the convex relation between the returns of portfolios managed by fund managers with good timing skill and market returns when the beta coefficient is allowed to alternate between two levels, dependent on the direction of the stock market relative to that of the treasury bills rate. HM is anchored on Merton (1981), which showed that an investment strategy to issue a protective put option would generate similar results as an accurate market timer.

2. Empirical methods

2.1 Fund returns

Given that we relied on fund returns to measure market timing, we used a return model that effectively incorporates all types of securities available to FMFs. Fund returns were expressed as:

\[ r_i = \sum_{j=1}^{n} w_i r_j + e_i \]  

(1)

Where \( r_i \) denotes the fund’s total return, \( w_i \) symbolizes the fund’s exposure to index \( j \), and \( r_j \) represents the total regional index return \( j \). As did Comer and Rodriguez (2012), we assumed that FMFs spread their assets in four geographical regions: the USA, Europe, the Pacific and Emerging Markets (collectively referred to as the “Study Regions”). We also included the risk-free rate in equation (1) to represent the fund portfolios’ cash portion.

Identifying each FMF’s geographical distribution of assets and each fund’s focus market, we used Sharpe (1992) style analysis, allowing us to estimate each fund’s regional exposure from publicly available daily fund returns. Portfolio exposures are the solution of a quadratic programming problem:

\[ \text{Min} \left[ \text{var} \left( r_i - \sum_{j=1}^{n} w_i r_j \right) \right] \]  

subject to: \( 0 \leq w_{i,j} \leq 1 \) and \( \forall i \sum_{j=1}^{n} w_{i,j} = 1 \)

These weights represent factor loadings in an index strategy that best replicates FMFs returns.

2.2 Timing models

As aforementioned, market timing is an investment strategy wherein fund managers undertake to identify the best times to be in and out of the market. To succeed, fund managers must effectively forecast market peaks and troughs, rebalancing their funds’ portfolio holdings accordingly. As aforementioned, TM is a nonlinear model that measures fund managers’ skill to decrease (increase) market exposure prior to a market fall (rise), testing for nonlinearity resulting from timing skill. Testing for market timing skill, we estimated the following nonlinear multifactor regression model:
Where, $r_i$ signifies the fund’s excess return, $i$, $r_j$ stands for the excess return on each of our study regions, $r_m$ expresses the excess return on the fund’s focus market $i$ and $e_i$ refers to the unexplained component of the fund’s return. A $\delta_i > 0$ indicates that a fund manager has good market timing skill.

Broadening our analysis, we estimated the following multifactor extension of HM’s parametric market timing test:

$$r_i = \alpha_i + \sum_{j=1}^{4} \beta_{i,j} r_j + \delta_i r_m^2 + e_i$$

(3)

In this extension, timing skill is measured by $\delta_i[1]$. All variables in equation (4) above are defined as in TM.

Although both TM and HM’s ultimate goal is to assess timing skill, these two differ in significant ways. In TM, fund managers are expected to forecast both the sign and magnitude of the market movement, whereas in HM, which is grounded on option theory, managers are expected to predict only the market direction. This difference implies that the magnitudes of the timing coefficients obtained from these models are not comparable; however, under both models, a positive coefficient indicates that fund managers possess good market timing skill, whereas a negative coefficient indicates a poor market timing skill.

A highly debated issue in the market timing literature is parameter instability[2]. The common assumption is that asset return models are stable throughout time. However, Pesaran and Timmermann (2002, 2004) argue that macroeconomic and financial time series are subject to structural breaks, and ignoring these breaks in asset allocation strategies can be very costly. To identify possible breaks, we used the Bai-Perron method (Bai and Perron, 1998), revealing two breaks during our period under study, from 1999 to 2010 (the “Study Period”); the first occurred in late October 2003 and the second in December 2007. Hence, we scrutinized our samples’ market timing skill during the study period, as well as during three sub-periods defined by the breaks in the time series; that is, we defined Sub-Period 1 as January 1999 to October 2003 ("Sub-Period 1"), Sub-Period 2 as November 2003 to December 2007 ("Sub-Period 2") and Sub-Period 3 as January 2008 to December 2010 ("Sub-Period 3;” and together with Sub-Period 1 and Sub-Period 2 referred to as the “Sub-Periods” or “Sub-Period”). Although not perfectly aligned, Sub-Period 1 is marked by the end of the tech bubble, and Sub-Period 3 by the beginning of the recent financial crisis and includes the beginning of the recovery of the Unites States’ economy[3].

3. Data

Our focus is on US-based FMFs, and the sample includes all funds classified as foreign in Morningstar Principia Pro for each quarter from 1999 to 2010. The sample includes 699 distinct funds, each with at least one uninterrupted quarter of daily fund returns available in the Center for Research in Security Prices (“CRSP”) Survivor-Bias-Free Mutual Funds Database. Bollen and Busse (2001) advocate using daily data in fund
performance studies, particularly market timing. As the underlying portfolio of funds with multiple classes is identical across classes, we only included in our sample the class with the longest history. CRSP data include daily fund returns and other fund characteristics such as total net assets, expense ratio and turnover ratio. Table I shows a brief description of our sample. To obtain the values presented in Table I, we first averaged the annual time series of each variable and then averaged across funds. The average total net asset is US$559.8 million, while the average expense ratio and turnover ratio are 1.36 and 90.7 per cent, respectively.

As per Mollah and Mobarek (2009), Comer and Rodríguez (2012), Rodríguez (2014) and others, we used regional factors rooted on Morgan Stanley Capital International (“MSCI”) indexes. In our factor models, we included indexes from our four regions. All MSCI index data were extracted from Bloomberg. The risk-free rates used in our estimation were obtained from the Kenneth R. French data library.

4. Empirical results
4.1 Regional exposure
Focusing our analysis on the regional distribution of FMFs assets, and on funds’ choice and skill to time their geographical focus market, we modeled FMFs’ returns using a multifactor model, including four factors that cover the gamut of available investment opportunities, each representing one of our study regions. Exploring this multifactor model’s effectiveness in explaining FMFs’ returns, we constructed an equally weighted fund portfolio by averaging daily returns of all funds in existence during our study period. Table II shows results of the fund portfolio style analysis. Panel A states the results for the study period, and Panel B shows results for each sub-period. For the study period, the adjusted $r^2$ is 0.83, and the four regional factors are statistically significant. According to our analysis, FMFs have the greatest exposure to the USA (0.39), followed by Europe (0.37), the Pacific region (0.12) and Emerging Markets (0.11).

The Panel B results indicate that the model better explains FMFs’ returns during the sub-periods than the study period. The adjusted $r^2$ values range from 0.87 to 0.96 and three of the four factors are highly significant, being the factor loading for the Pacific region during Sub-Period 3 the only not statistically significant. During Sub-Periods 1 and 2, FMFs were most exposed to the European market, but during Sub-Period 3, which includes the recent financial crisis, FMFs were most exposed to the USA and then to Europe. The exposure to Emerging Markets ranged from 0.07 to 0.13. However, from Sub-Period 1 through Sub-Period 3, we observed a decrease in exposure to the European and Pacific markets, and an increase in exposure to the US market. Overall, Table II shows that the choice of geographical factors fits well our sample’s returns and multifactor timing models.

<table>
<thead>
<tr>
<th>Fund characteristics</th>
<th>Mean</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total net assets (million)</td>
<td>559.8</td>
<td>86.5</td>
</tr>
<tr>
<td>Expense ratio (%)</td>
<td>1.36</td>
<td>1.35</td>
</tr>
<tr>
<td>Turnover ratio (%)</td>
<td>90.7</td>
<td>74.7</td>
</tr>
</tbody>
</table>

Notes: This table shows descriptive statistics for a 699 US-based FMFs sample; to calculate each mean and median, we first averaged the time series fund data and then averaged across funds.

Table I. Descriptive statistics
Table II.
Style analysis

<table>
<thead>
<tr>
<th>Region</th>
<th>Exposure</th>
<th>Adjusted $R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: Full period results 1999-2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emerging</td>
<td>0.1087***</td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td>0.3689***</td>
<td></td>
</tr>
<tr>
<td>Pacific</td>
<td>0.1217***</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>0.3928***</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>0.0077</td>
<td></td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.8311</td>
<td></td>
</tr>
</tbody>
</table>

Panel B: Break periods results

<table>
<thead>
<tr>
<th>Region</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerging</td>
<td>0.1287***</td>
<td>0.0743***</td>
<td>0.1010***</td>
</tr>
<tr>
<td>Europe</td>
<td>0.5172***</td>
<td>0.4104***</td>
<td>0.2300***</td>
</tr>
<tr>
<td>Pacific</td>
<td>0.2273***</td>
<td>0.1441***</td>
<td>0.0103</td>
</tr>
<tr>
<td>USA</td>
<td>0.0496***</td>
<td>0.3713***</td>
<td>0.6587***</td>
</tr>
<tr>
<td>Cash</td>
<td>0.0772***</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>0.9614</td>
<td>0.8665</td>
<td>0.9245</td>
</tr>
</tbody>
</table>

Notes: *** , ** , * significant at 1, 5 and 10%, respectively; this table contains results of the style analysis based on Sharpe’s (1992) technique for our sample. The multifactor model includes returns of five indexes which cover all investment opportunities available to FMF managers. The factors are: USA, Europe, The Pacific, emerging markets and the risk-free rate to represent the cash portion of the funds’ portfolios. The period definitions included in Panel B are: Period 1 from January 1999 to October 2003, Period 2 from November 2003 to December 2007, and Period 3 from January 2008 to December 2010. These sub-periods were determined using the Bai-Perron method (Bai and Perron, 1998), which identifies breaks in a time series.
4.2 Geographical focus market

In this section, we focus on FMFs’ decision to concentrate their portfolios in a single region. Following Sharpe’s style analysis, we estimate the geographical focus market. Table III presents results for both our study period, as well as the sub-periods. During the study period, most FMFs were most exposed to either the USA or Europe; in fact, of 699 funds in our sample, 357 (51 per cent) were most exposed to the USA, while 315 (45 per cent) were most exposed to Europe. Only 23 funds (3 per cent) focused on Emerging markets and a mere 4 funds (1 per cent) focused on the Pacific region.

Furthermore, we estimated funds’ choice of geographical focus during each sub-period. During Sub-Period 1, the vast majority of FMFs in our sample (439 funds; 63 per cent) focused on Europe, and during Sub-Period 2, 262 FMFs (37 per cent) focused on Europe and 266 (38 per cent) on the USA. During Sub-Period 3, however, we observed a significant shift in geographical focus by most funds. Then, 501 funds (72 per cent) focused on the USA, suggesting that most US-based FMFs invested in their domestic market during the 2008 financial turmoil.

4.3 Market timing

This section empirically evaluates FMF’s skill to time their geographical focus market. As did Chen (2007) in the context of hedge funds, we postulate that FMFs trade most in their focus market. We used TM and HM, equations (3) and (4), respectively, to estimate market timing for each fund’s geographical focus during each period considered. The annualized results are shown in Table IV. This table includes results for the study period and each sub-period, and its Panel A shows the average factor loadings for both multifactor timing models.

We report the average factor loadings for the four regional factors included in both timing models. Irrespective of the timing model used or period considered, all averages are positive and significant at the 1 per cent level. Moreover, we found that the models serve their purpose, as the $r^2$-squared for the study period and sub-periods are not below 0.78.

Regardless of the model used, we found that, in general, our sample does not accurately time its focus market, as evidenced by a statistically significant, negative average timing coefficient. As per TM, the average timing coefficient is $-37.6$ and is significant at the 1 per cent level. This result is consistent with the HM estimation, which resulted in an average timing coefficient of $-6.89$, also significant at the one per cent level. These results indicate that FMFs’ managers cannot correctly forecast movements in their focus market, and consequently profit from market return variations. Magnitude differences of timing coefficients in both TM and HM are due to the fact that, as aforementioned, TM measures fund managers’ skill to predict both the direction and magnitude of their focus markets’ movements, whereas HM measures managers’ skill to predict only the direction of movements. Regardless of the model, conclusions about managers’ timing skill are determined by the sign of the coefficient derived.

Furthermore, we found evidence of perverse timing skill during Sub-Periods 1 and 2. For Sub-Period 1, the timing coefficient average is $-136.52$ under TM and $-12.78$ under HM. Similarly, for Sub-Period 2, TM resulted in a timing coefficient average of $-138.87$ and HM in an average of $-4.99$. The average timing coefficients for Sub-Periods 1 and 2 are all significant.
### Panel A: Statistics

<table>
<thead>
<tr>
<th></th>
<th>Full period</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
<th>Full period</th>
<th>Period 1</th>
<th>Period 2</th>
<th>Period 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha (p-value)</td>
<td>-0.00003 (0.9147)</td>
<td>0.0224 (0.0000)</td>
<td>0.0149 (0.0187)</td>
<td>-0.0479 (0.0000)</td>
<td>0.0265 (0.0000)</td>
<td>0.0611 (0.0000)</td>
<td>0.0215 (0.0065)</td>
<td>-0.0563 (0.0000)</td>
</tr>
<tr>
<td>Emerging (p-value)</td>
<td>29.0656 (0.0000)</td>
<td>32.1629 (0.0000)</td>
<td>15.2242 (0.0000)</td>
<td>23.5846 (0.0000)</td>
<td>29.6261 (0.0000)</td>
<td>33.4475 (0.0000)</td>
<td>15.7678 (0.0000)</td>
<td>23.6737 (0.0000)</td>
</tr>
<tr>
<td>Europe (p-value)</td>
<td>90.0568 (0.0000)</td>
<td>127.3880 (0.0000)</td>
<td>108.1879 (0.0000)</td>
<td>57.5393 (0.0000)</td>
<td>92.7619 (0.0000)</td>
<td>132.1825 (0.0000)</td>
<td>110.3209 (0.0000)</td>
<td>57.8283 (0.0000)</td>
</tr>
<tr>
<td>Pacific (p-value)</td>
<td>31.9389 (0.0000)</td>
<td>56.1909 (0.0000)</td>
<td>42.7628 (0.0000)</td>
<td>14.6266 (0.0000)</td>
<td>31.9609 (0.0000)</td>
<td>56.5418 (0.0000)</td>
<td>42.8798 (0.0000)</td>
<td>14.4450 (0.0000)</td>
</tr>
<tr>
<td>USA (p-value)</td>
<td>102.2205 (0.0000)</td>
<td>14.5323 (0.0000)</td>
<td>133.7858 (0.0000)</td>
<td>170.8463 (0.0000)</td>
<td>102.2926 (0.0000)</td>
<td>14.5174 (0.0000)</td>
<td>133.6482 (0.0000)</td>
<td>168.5415 (0.0000)</td>
</tr>
<tr>
<td>Timing variable (p-value)</td>
<td>-37.6360 (0.0004)</td>
<td>-136.5227 (0.0000)</td>
<td>-138.8713 (0.0001)</td>
<td>41.1665 (0.0001)</td>
<td>-6.8864 (0.0000)</td>
<td>-12.7792 (0.0000)</td>
<td>-4.9020 (0.0007)</td>
<td>4.0127 (0.0001)</td>
</tr>
<tr>
<td>Mean Adjusted $R^2$</td>
<td>0.7800</td>
<td>0.7841</td>
<td>0.8039</td>
<td>0.8708</td>
<td>0.7800</td>
<td>0.7840</td>
<td>0.8036</td>
<td>0.8706</td>
</tr>
</tbody>
</table>

### Panel B: Counts

<table>
<thead>
<tr>
<th>Count of positive and negative (Significance at 5%)</th>
<th>Positive timing (Significance)</th>
<th>Negative timing (Significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>296 (30)</td>
<td>403 (38)</td>
</tr>
<tr>
<td></td>
<td>126 (9)</td>
<td>379 (94)</td>
</tr>
<tr>
<td></td>
<td>177 (13)</td>
<td>366 (41)</td>
</tr>
<tr>
<td></td>
<td>386 (74)</td>
<td>145 (17)</td>
</tr>
<tr>
<td></td>
<td>210 (12)</td>
<td>489 (80)</td>
</tr>
<tr>
<td></td>
<td>80 (3)</td>
<td>425 (118)</td>
</tr>
<tr>
<td></td>
<td>315 (17)</td>
<td>328 (49)</td>
</tr>
<tr>
<td></td>
<td>351 (35)</td>
<td>180 (15)</td>
</tr>
</tbody>
</table>

**Notes:** This table shows results of the estimation of timing skill in the funds’ focus market using two models: The Treynor-Mazzuy (TM) timing model: $r = \alpha + \sum j \beta_j r_j + \delta \rho_j + \epsilon$; and the Henriksson-Merton (HM) timing model: $r = \alpha + \sum j \beta_j r_j + \delta \max [ \tau_{\rho_j}, 0 ] + \epsilon$. Panel A presents annualized mean values of all coefficients in the models, while Panel B presents the amount of positive/negative and significant timing coefficients; the period definitions are Period 1 from January 1999 to October 2003, Period 2 from November 2003 to December 2007 and Period 3 from January 2008 to December 2010. These definitions are based on the use of the Bai-Perron method (Bai and Perron, 1998), which allows the identification of breaks in a time series. These sub-periods were determined using the Bai-Perron method (Bai and Perron, 1998), which identifies breaks in a time series.
As abovementioned, Sub-Period 3 includes, not only the recent financial crisis but also the beginning of the USA’s recovery. During this sub-period, the vast majority of our sample focused on the USA. Irrespective of the model used, contrary to our findings for Sub-Periods 1 and 2, we found that during Sub-Period 3, FMFs exhibited good market timing skill. Under TM, the timing coefficient average is 41.17, while under HM, it is 4.01, both averages being statistically significant at the 1 per cent level.

Panel B of Table IV displays the tally of positive and negative timing coefficients for the study period and each sub-period. Consistent with the average timing coefficient obtained, we found that most funds showed a negative timing coefficient. Under TM, during the study period, 403 of 699 FMFs (58 per cent) exhibited a negative timing coefficient, but only 38 of these coefficients (9 per cent) being statistically significant. Similarly, under HM, 489 funds (70 per cent) showed negative timing coefficients, 80 of these (16 per cent) being statistically significant. As we found for the study period, in Sub-Periods 1 and 2, most funds lacked timing skill, evidenced by the tally of negative timing coefficients. This result is robust to the timing model used. However, Sub-Period 3 is the exception, as there, not only did we find a positive average timing coefficient (see Panel A) but also determined that most funds exhibited a positive timing coefficient. Specifically, the TM estimation revealed that 386 funds (55 per cent) exhibited a positive timing coefficient, 74 of those (19 per cent) being statistically significant, while the HM estimation revealed that 351 funds (50 per cent) exhibited a positive timing coefficient, 35 (9 per cent) being significant.

In general, we found that US-based FMFs do not properly adjust their portfolios to accurately time their geographical focus market. An exception arises in Sub-Period 3, where funds exhibited positive and statistically significant market timing skill. Interestingly, the vast majority of funds (501; 72 per cent) focused on their domestic market during this sub-period.

4.4 Single versus multiple focus markets
This section analyses fund managers’ decision to change or keep their geographical focus and their corresponding market timing skill. In Table V, we report the average timing coefficient for managers who keep their geographical focus or change their focus during their funds’ lifespan or study period, whichever is shortest. We only considered funds that were active during at least two full sub-periods. Of 541 funds, 194 funds (36 per cent) focused in just one market, whereas the remaining 347 (64 per cent) changed their geographical focus at least once. Irrespective of the model used, we found that the evidence of single-focused FMFs’ market timing skill is inconclusive. On the other hand, multi-focused funds exhibited statistically significant, negative market timing skill. The average timing coefficients for single-focused funds are −1.06 under TM and −0.89 under HM, although neither is statistically significant. By contrast, the average timing coefficients for multi-focused funds are −59.98 under TM and −10.43 under HM, both being statistically significant at the 1 per cent level. Although not included in the table, we found that differences in average timing coefficients between single-focused and multi-focused funds are statistically significant and consistent to both estimation models.
<table>
<thead>
<tr>
<th>Focus market change</th>
<th>Count of funds</th>
<th>Mean of beta focus (annual)</th>
<th>Count of positive and significant</th>
<th>Count of funds</th>
<th>Arithmetic mean of focus (annual)</th>
<th>Count of positive</th>
<th>Count of positive and significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change (p-value)</td>
<td>194</td>
<td>-1.0577 (0.9324)</td>
<td>108</td>
<td>194</td>
<td>-0.8866 (0.4155)</td>
<td>91</td>
<td>8</td>
</tr>
<tr>
<td>One or more change (p-value)</td>
<td>347</td>
<td>-59.9789 &lt; (0.0001)</td>
<td>109</td>
<td>347</td>
<td>-10.4276 &lt; (0.0001)</td>
<td>59</td>
<td>3</td>
</tr>
</tbody>
</table>

This table displays results of the estimation of timing skill in the funds’ focus market and its relation to the count of focus market changes during the estimation period; we report annualized mean values of the timing coefficient, $\delta$ estimated from the Treynor and Mazzuy (TM) timing model: $r_i = \alpha_i + \sum \beta_j \delta r_j + \delta r_{m0} + \epsilon_i$; and the Henriksson and Merton (HM) timing model: $r_i = \alpha_i + \sum \beta_j \delta r_j + \delta \max [r_{m0}, 0] + \epsilon_i$; complementing our analysis, we report the tally of positive/negative and significant timing coefficients.
5. Conclusion
In this study, we analyzed the market timing skill of US-based FMFs during 1999 to 2010 using two multi-factor extensions of the TM and HM models. We measured timing skill in the funds' geographical focus market using daily mutual fund and index return data to model foreign funds' returns. Our model includes four geographical market factors that cover all investment opportunities available to fund managers, representing the USA, Europe, the Pacific and Emerging Markets, as well as a factor standing for the cash portion of funds' portfolios.

We report that, during the period of the study (1999-2010), most funds focused on Europe; however, during Sub-Period 3 (2008-2010), most focused on the USA. Regarding market timing skill, we found that, in general, FMFs do not correctly time their focus market. However, during Sub-Period 3, which includes the 2008 financial crisis, FMFs' timing skill was positive and significant. Moreover, timing skill is worse for multi-focused than for single-focused funds. These results are robust to the two timing models.

Notes
1. This measurement is the same specification of Koski and Pontiff (1999).
2. We thank a referee for pointing out this issue.
3. NBER certified that the crisis lasted 18 months, from December 2007 to June 2009.
5. Kenneth R. French data can be found at: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

References


Further reading


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