

Do Mutual Fund Ratings Provide Valuable Information for Retail Investors? Empirical Evidence on Ratings Non-Persistence and the Risk of Mutual Fund Closure

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Abstract

Retail investors use information provided by mutual fund rating agencies to make investment decisions. Using hand-collected data on Morningstar's mutual fund ratings we examine the rating migration and closure risk of mutual funds from 2005 to 2012. We differentiate between buy-and-hold investment strategies and dynamic investment strategies. To assess the information content of mutual fund ratings for buy-and-hold investment strategies, we determine the rating migration based on the first and the last mutual fund rating during two-, four-, six-, and eight-year horizons. With respect to dynamic investment strategies, we calculate the number of rating changes per fund during these time horizons on a monthly basis. We find that mutual fund rating persistence is low or even inexistent in particular during longer time periods. Only for lower-rated funds the rating appears to indicate higher risk of fund closure. In addition, mutual funds face a large number of up to 38 monthly rating changes in the eight-year window. Overall, due to the extensive rating migration and the high number of monthly rating changes, we conclude that retail investors barely benefit from using mutual fund ratings.

JEL Classification: G11, G14, G24

Key Words: Mutual fund ratings, Mutual funds, Rating Migration, Investor information, Rating persistence

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Abstract

Retail investors use information provided by mutual fund rating agencies to make investment decisions. Using hand-collected data on Morningstar's mutual fund ratings we examine the rating migration and closure risk of mutual funds from 2005 to 2012. We differentiate between buy-and-hold investment strategies and dynamic investment strategies. To assess the information content of mutual fund ratings for buy-and-hold investment strategies, we determine the rating migration based on the first and the last mutual fund rating during two-, four-, six-, and eight-year horizons. With respect to dynamic investment strategies, we calculate the number of rating changes per fund during these time horizons on a monthly basis. We find that mutual fund rating persistence is low or even inexistent in particular during longer time periods. Only for lower-rated funds the rating appears to indicate higher risk of fund closure. In addition, mutual funds face a large number of up to 38 monthly rating changes in the eight-year window. Overall, due to the extensive rating migration and the high number of monthly rating changes, we conclude that retail investors barely benefit from using mutual fund ratings.

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1 Introduction

Investment companies use mutual fund ratings that are provided by mutual fund rating agencies to signal the quality of their portfolio management ability. Retail investors typically possess only little knowledge about mutual funds. Instead, retail investors rely on publicly available information as given by, e.g., mutual fund ratings to choose from a wide array of funds available. In this sense, mutual fund ratings provide highly aggregated information which might help retail investors to overcome potential biases from information and choice overload when purchasing mutual fund shares and restructuring their investment portfolio.¹

Mutual fund ratings are primarily based on past fund performance. In this context, Goetzmann and Peles (1997) and Sirri and Tufano (1998) find that retail investors' investment decisions are strongly influenced by prior fund performance. In addition, Kräussl and Sandelowsky (2007) argue that previous performance of funds is the most important source of information for fund investors. However, already Jensen (1968), Malkiel (1995) and Carhart (1997) find only little persistence in equity funds' risk-adjusted returns which, in turn, would disqualify past performance as signal of expected future performance. Since fund performance has already been widely studied by prior research (Jensen, 1986; Lehmann and Modest, 1987; Grinblatt and Titman, 1992; Hendricks, Patel, and Zeckhauser, 1993; Goetzmann and Ibbotson, 1994; Carhart et al., 2002), we do not examine the persistence in mutual fund performance. Instead, we assume that mutual fund ratings adequately reflect past performance, and we analyze whether investors can benefit from choosing mutual funds based on their current rating. We approach the analysis by assuming that investors follow one of two types of investment strategies: First, a *buy-and-hold strategy* and, second, a *dynamic trading strategy*. In the latter case investors select mutual funds from a certain rating category (e.g. funds with five-star ratings), and – in the event of a rating change – they disinvest the funds and reallocate their money to funds with the predefined rating.

When mutual fund investors rely on fund ratings for their investment decisions, these fund ratings have strong impact on the allocation of retail investors' financial assets and on

¹ See, e.g., Miller (1956) and Malhotra (1984) for an examination of humans' limited ability to perceive and utilize information, and Plous (1993) and Baron (2000) for the respective impact on decision making. For an approach to reduce information and choice overload of retail investors see, e.g., Oehler, Höfer, and Wendt (2014).

subsequent financial performance for these investors. Since mutual fund rating persistence has hardly been analyzed for funds offered to retail investors so far, we attempt to close this gap in the literature.

We use Morningstar equity mutual fund ratings from 2005 to 2012 as data for our analysis. Kinnel (2005) argues that the Morningstar rating system is superior to rating system of other rating providers. In addition, Pozen (1998) argues that Morningstar is the most popular supplier of fund ratings. Specifically, we analyze the persistence of Morningstar mutual fund ratings for each of the five rating categories from five-star to one-star ratings and provide empirical evidence for whether funds in each of the rating categories retain their ratings in the short, medium and long run. We include funds offered globally, and funds offered in Europe. For each fund and rating category we calculate rating migration matrices and provide a series of measures of rating changes over time in order to address investors' buy-and-hold strategies or dynamic trading strategies, respectively. Furthermore, we examine the information content of mutual fund ratings that would put investors in the position to avoid funds that face considerable closure risk. In addition, we examine whether the recent financial crisis had an effect on mutual fund rating persistence.

We find that mutual fund rating persistence is low or even inexistent in particular during longer time periods. Thus, the fund rating is no suitable predictor for a buy-and-hold-strategy. In addition, mutual funds face a large number of up to 38 monthly rating changes in the eight-year window. Besides high costs resulting from transaction fees, investors that follow a dynamic investment strategy would also not benefit from using fund ratings as investment guideline. However, ratings exhibit some information value with respect to fund closure. We find that particularly lower rated funds face higher closure risk. From this result we conclude that mutual fund ratings only contain very low information content for retail investors who seek guidance when making investment decisions.

Our contribution to the literature and the public debate is twofold. *First*, we provide a detailed empirical analysis of mutual fund ratings persistence from the perspective of retail investors. *Second*, we discuss implications for retail investors and for mutual fund rating agencies and all related fund testing organizations.

Our study is organized as follows. In the next section, we review the related literature. The hypotheses for our empirical analysis are derived in Section 3. In Section 4, we describe

our dataset and methodology. Our empirical results are presented in Section 5. In section 6 we discuss the implications and limitations of our findings and conclude.

2 Related Literature

The usability of mutual fund ratings as a signal for fund quality is controversial. Blake and Morey (2000) argue that cash inflows due to good ratings are not “necessarily justified by subsequent performance” (p. 482). They find that one-star and two-star funds tend to have a below-average future performance and infer that Morningstar ratings can be used to identify low-performing funds. In addition, Blake and Morey (2000) and Gerrans (2006) find hardly any significant evidence that funds with five-star rating outperform those with lower ratings. Hence, Gerrans (2006) argues that fund ratings hardly serve as a quality indicator, substantiating Morningstar’s recommendation not to use the rating alone as a basis for an investment decision (Morningstar, 2014).

Nevertheless, retail investors appear to pay close attention to mutual fund ratings and use them as a quality characteristic. Del Guercio and Tkac (2008) find that Morningstar’s mutual fund ratings significantly impact funds’ inflows and outflows. Funds that receive a five-star rating for the first time attract about 50 percent higher inflows. On the other hand, down ratings results in beyond-average outflows. Since mutual fund ratings are based on prior fund performance their findings are in line with the results provided by Goetzmann and Peles (1997) and Sirri and Tufano (1998) that retail investors’ investment decisions are strongly influenced by prior fund performance.

The question whether past performance acts as a signal for future performance is reflected by a large body of research on performance persistence. Studies of Lehmann and Modest (1987), Grinblatt and Titman (1992), Hendricks, Patel, and Zeckhauser (1993), Goetzmann and Ibbotson (1994), Brown and Goetzmann (1995), Malkiel (1995), Elton, Gruber, and Blake (1996) and Carhart (1997) analyze performance persistence using one-factor and/or multi-factor models.² Lehmann and Modest (1987), Grinblatt and Titman (1992) and Cremers and Petajisto (2009) find evidence for persistent mutual fund alphas. Hendricks, Patel, and Zeckhauser (1993) observe performance persistence using several risk-

² On average, funds do not beat the respective benchmarks. Malkiel (1995) and Gruber (1996) show that funds underperform by about 65 basis points p.a. after expenses. See also Jensen (1968) and Chen/Hong/Jiang/Kubik (2013).

adjustment measures. After eliminating survivorship-related biases Carhart et al. (2002) show that fund performance is persistent. However, Brown and Goetzmann (1995), Elton, Gruber, and Blake (1996) and Carhart (1997) highlight that (relative) performance persistence seems to be a short-term phenomenon since the performance of previously winning funds drops in the longer run (e.g., after three year horizons). Brown and Goetzmann (1995) offer two explanations for performance persistence: First, due to similar investment strategies performance persistence might be correlated across managers. Second, since not all underperforming funds disappear, their existence supports pattern of relative performance persistence. Beyond that, Carhart (1997) and Busse, Goyal, and Wahal (2010) show that almost all evidence of performance persistence disappears after accounting for return momentum and Barras, Scaillet, and Wermers (2009) and Fama and French (2010) find hardly any evidence of performance persistence among mutual funds.

Furthermore, performance persistence of actively managed funds is discussed with respect to fund managers' skill. Fama and French (2010) find that only few fund managers have enough skill to cover costs. Fang, Kempf, and Trapp (2014) highlight that investment companies allocate more skilled fund managers to less efficient segments because managers' skill is only rewarded in high yield markets. In addition, Khorana (2001) finds that the removal of fund managers that performed badly leads to an enhancement in post-removal performance relative to the previous fund performance. However, the successors in fund management do not exhibit stock picking abilities that result in an outperformance of standard benchmarks. Brown, Harlow, and Starks (1996) and Khorana (2001) document that underperforming funds have higher portfolio risk; a replacement of poorly performing fund managers leads to a decline in portfolio risk.³ Berk and Green (2004) argue that investors compete with each other to find skilled managers. Therefore, investors base their investment decision (resulting in in- and outflows) depending on the past fund performance. The inflows (outflows) in turn affect future fund performance negatively (positively). Bris et al. (2007) and Berk and Tonks (2007) find empirical support for the Berk and Green (2004) model.

In addition, empirical evidence suggests that bad performing funds “disappear more frequently from the mutual fund universe” (Brown and Goetzmann, 1995, 680) than funds

³ For further empirical evidence on fund risk and fund in and outflows see Spiegel and Zhang (2013).

with average and above-average performance (also: Carhart et al., 2002). Ippolito (1992) and Lakonishok, Shleifer, and Vishny (1992) document that investors make investment decisions based on prior fund performance, resulting in two effects. First, managers of well performing funds increase risk levels in order to remain well performing which causes a decline of performance in the longer run (Busse, 2001; Morey 2005). Second, investment companies decide to merge or close funds due to a lack of investor interest and weak fund profitability (Brown and Goetzmann, 1995; Carhart et al., 2002). Bauer, Koedijk, and Otten (2005) highlight the relevance of fund disappearance and show that in their sample for Germany, the United Kingdom, and the United States the share of disappearing funds was 6 percent, 28 percent, and 19 percent respectively.

Evidence for the effect of the recent financial crisis is still scarce. Petajisto (2013) finds evidence that the financial crisis had an impact on the performance of different categories of mutual funds. However, the effect of the financial crisis on fund disappearance has not fully been analyzed so far.

3 Hypotheses Development

As soon as retail investors use mutual fund ratings when choosing which fund(s) to invest in, they implicitly or explicitly assume that the information content of mutual fund ratings includes at least some information about (expected) future performance of mutual funds. Specifically, Blake and Morey (2000) conclude that, although Morningstar highlights in most of their publications that fund ratings do not serve as predictors of future performance, many investors still use fund ratings as guidance for future performance. This prospective information content might relate either to fund managers' stock selection and portfolio management skills (Kosowski et al., 2006; Fama and French, 2010) or to persistence in fund performance that might result from momentum effects (Carhart, 1997; Carhart et al. 2002). The prospective information content should, in turn, result in persistence in mutual fund ratings, since mutual fund ratings are fundamentally based on fund performance. However, empirical research on performance and rating persistence reveals at best a mixed picture. In particular, Barras, Scaillet, and Wermers (2010) and Fama and French (2010) show that mutual fund performance persistence is weak and Brown and Goetzmann (1995), Elton, Gruber, and Blake (1996) and Carhart (1997) highlight that persistence is rather a

short-term phenomenon. With respect to mutual fund rating persistence Kräussl and Sandelowsky (2007) argue that Morningstar's rating system is at best as good as a random walk model. In addition, Moray (2005) finds a significant decrease in fund performance three years after a fund received its initial top rating (Morningstar five-star rating). Based on these empirical findings, retail investors will barely benefit from using fund ratings in their decision making process. This leads us to hypothesize:

Hypothesis 1: *Mutual fund ratings show no persistence over time.*

Although a specific fund rating might not contain information on future fund performance, investors might still benefit from fund ratings as a signal of risk that a specific fund will be closed. Bauer, Koedijk, and Otten (2002) show that a substantial proportion of funds disappears. This risk is of particular importance for mutual fund investors since they are typically confronted with considerable losses if a fund is closed due to, e.g., forced sale of the funds' assets, administrative expenses and legal fees during the liquidation phase and potential negative tax effects.⁴ There are two potential channels between mutual fund ratings and the risk that a fund might be closed. First, funds that performed poorly in the past, i.e. they currently have a low rating, might already have experienced considerable cash outflows that force managers to liquidate the fund's assets in the near future. Second, if investors choose funds based on their current ratings, lower rated funds will accumulate less cash inflow than better rated funds. Low cash inflow for lower rated funds, in turn, increases the risk that fund management will decide to close these funds (e.g., Brown and Goetzmann, 1995; Carhart et al. 2002). Both effects might result in lower closure risk the better the specific fund is rated. Based on this line of argument we form the following hypothesis:

Hypothesis 2: *The lower the mutual fund rating, the higher is the investors' risk that a fund will be closed.*

⁴ See, e.g., IndexUniverse (2012). Although mutual funds might also be closed in order to stop capital inflow into the fund, we assume that closure due to weak performance is more relevant in the period we analyze.

4 Data and Methodology

4.1 Data

Our empirical analysis is based on monthly mutual fund ratings. Specifically, we include the fund-specific *overall rating* provided by the Morningstar Direct database. The overall rating is constructed from up to three period-specific ratings: The three-year rating and, if available, the five- and ten-year ratings (Morningstar, 2014). Funds which have not been on the market for at least three years are consequently not rated. The methodology of the three period-specific ratings is as follows: Morningstar identifies the performance based on risk-adjusted returns (after accounting for all sales charges and expenses) for every fund within a predetermined *Morningstar category* and ranks the funds according to their performance. To assign the rating category, the ranking is divided into five sections containing in descending order the 10, 22.5, 35, 22.5 and 10 percent (reflecting a classic bell-shaped curve) of the funds, respectively. The funds in the top 10 percent section receive a five-star rating; the funds belonging to the 22.5 percent in the second best section receive a four-star rating and so on.⁵

Based on the group of equity mutual funds whose investment area is listed as *global*, we include data for two fund categories. These categories are characterized by the respective countries in which the funds' shares are sold. The first category comprises funds which are offered in at least two countries on at least two continents; we refer to this category as *funds offered globally*, whereas the second category includes funds that are offered in at least two European countries (*funds offered in Europe*).

For each of the two mutual fund categories we form two samples. The first sample includes all funds with an existing rating at the beginning of 2005; this means that they were rated in December 2004. The second sample covers funds that were rated in December 2008 and therefore had an existing rating at the beginning of 2009. For both samples we collect monthly mutual fund ratings until December 2012. For mutual funds whose rating ceased during our observation period, we conducted a series of Google web searches in order to

⁵ For a more detailed description of the construction of Morningstar ratings see, e.g., Amenc and Le Sourd (2007).

identify whether they had been merged or closed or whether they are still traded. Table 1 provides an overview of the number of funds included in our dataset.

Please insert Table 1 about here.

For the observation period beginning in 2005 our dataset includes 425 funds offered globally and 571 funds offered in Europe. The samples starting in 2009 include 837 funds and 1,103 funds offered globally and in Europe, respectively. The larger number of funds in the samples starting in 2009 results from an increase in the number of mutual funds rated by Morningstar.

4.2 Methodology

We first determine the rating migration for each of the two mutual fund categories; this means for mutual funds offered globally and funds offered in Europe. To determine, whether the Morningstar rating is valuable for retail investors that follow a buy-and-hold strategy, we calculate the rating migration for each initial rating category (five stars to one star). Specifically, we calculate the percentage of the funds that had the same rating or a different rating at the end of a two-year and four-year horizon. For the samples starting in 2005 we additionally consider the six-year and eight-year horizon. For the funds with a different rating, we show to which rating category they migrated to. In this context, we sort funds that no longer had a rating at the end of the respective horizon into three categories: funds that were still traded, funds that were merged with another fund (or several other funds), and funds that had been closed.

In addition to the rating migration matrices, we determine the median rating of the funds in each of the initial rating categories in the respective time windows. We provide tests of equality of the rating categories in a non-parametric approach using Mann-Whitney *U*-tests. Finally, we calculate the number of rating changes for each of the funds in the initial rating categories in order to analyze the usability of the ratings for dynamic investment strategies. Again, we report median values and additionally maximum and minimum values for the number of rating changes. We exclude funds whose rating ceased during our observation

horizons from the calculation of median ratings and the number of rating changes. Leaving these funds in the dataset would require setting their rating to zero stars which is not justified, because (1) we do not know whether funds that were still traded exhibited worse performance than funds rated one star, and (2) we would presume that merged or closed funds would still exist. These funds would lead to a downward bias in the median ratings and in the number of rating changes (since ceased ratings will not change over time). We are aware that this procedure might imply a survivorship bias in this step of the analysis.

5 Results

5.1 Rating migration

For investors who follow a buy-and-hold strategy and are interested in the fund rating at the time they select specific mutual funds, Table 2 presents the rating migration matrix for funds offered globally. Beginning in 2005 the rating migration is computed until the end of 2006, 2008, 2010 and 2012, respectively. During the longest period from 2005 to 2012 (reported in Panel D), for example, 90 funds had a four-star initial rating at the beginning of 2005. 4.4% of them migrated to a five-star rating at the end of 2012. 23.3% of the funds kept their initial rating. 21.1% and 10.0% migrated to a three-star and a two-star rating, respectively. 4.4% of the 90 funds migrated to one star. None of the ratings ceased and no fund had been merged, but 36.7% of the funds had been closed until the end of 2012.

Overall, the findings reported in Table 2 reveal already strong short-run rating migration which is considerably increasing (i.e. decreasing rating persistence) over time. Panel A illustrates the rating migration for the period from 2005 to 2006. By and large, about 43 to 54 percent of the funds that were primarily assigned a five-star, four-star, three-star, two-star, and one-star rating retain their ratings. About 20 percent of primarily five-star funds lose their top rating and are classified as four-star funds, and about 20 percent of the initially five-star funds are downgraded to three-star funds at the end of 2006. Notably, about 10 percent of funds with a five-star and four-star rating are closed in this short period of time. While only a minor share (roughly 7 percent) of funds primarily rated as four-star funds receives a better rating, about 25 percent (20 percent) of three-star funds become four-star (two-star) funds at the end of 2006. In addition, this short-term examination

unfolds that a smaller proportion of three-star and two-star funds are closed than four-star and five-star funds. Specifically, there is no single one-star fund closed and more than half of the one-star funds receive a better rating in the short run. Hence, investing in highly rated funds did not minimize the investors' risk of fund closure in the short run.

Please insert Table 2 about here.

The results for the longer periods (four years, six years, and eight years) in Panels B to D of Table 2 reveal substantially increased rating migration and less rating persistence compared to the two-year period. Only a marginal share of funds with the highest Morningstar rating retains the top rating of five stars. More than 60 percent of funds initially rated as five-star funds lose their top rating and are classified as four-star or three-star funds at the end of 2008, 2010, and 2012. This indicates that the risk of down-rating is less pronounced in the short run and more pronounced in the case of longer holding periods of five-star funds. In addition, the share of funds being closed increases sharply. However, there is no clear-cut pattern. Although there tends to be a higher closure risk for funds with lower ratings, a larger portion of three-star funds than of two-star funds are closed. In addition, between 2005 and 2010 the risk of fund closure is more pronounced for four-star funds than for two-star funds. Panel D shows, however, that particularly one-star funds face high risk of disappearance; more than half of the funds classified as one-star are closed until the end of 2012 and 5 percent are merged.

Table 3 provides evidence for the rating migration as of 2005 for mutual funds offered in Europe. During the longest period from 2005 to 2012 (reported in Panel D), for example, 89 funds had a four-star initial rating at the beginning of 2005. 2.2% of them migrated to a five-star rating at the end of 2012. 20.2% of the funds kept their initial rating. 25.8% and 9.0% migrated to a three-star and a two-star rating, respectively. 2.2% of the 89 funds migrated to one star. None of the ratings ceased, but 11.2% of the funds had been merged and 29.2% of the funds had been closed until the end of 2012.

Please insert Table 3 about here.

In contrast to mutual funds offered globally, a larger proportion of five-star funds offered in Europe retain their top rating and, hence, fewer funds receive lower ratings. Investors in four-star funds offered in Europe also had a higher chance that their funds receive a higher rating in our sample period. In addition, Panel A and Panel B show that a higher proportion of four-star, three-star, and one-star funds offered in Europe retain their rating between 2005 and 2006 and between 2005 and 2008 than funds offered globally. Panel C and Panel D also document that more three-star and two-star funds see no rating adjustment than funds offered globally. By and large, Table 3 documents that investors of lower rated funds face a larger risk of fund closure than investors holding higher rated funds. Comparing the risk of fund closure between funds offered globally and funds offered in Europe also reveals that investors of the latter funds are less confronted with closure risk.

Tables 4 and 5 present the results for the analysis of the rating migration after the recent financial crisis. Specifically, rating migrations are examined during the periods from 2009 to 2010 and from 2009 to 2012. During the period from 2009 to 2012 in the subsample of funds offered globally (reported in Panel B of Table 4), for example, out of the 179 funds with an initial four-star rating 10.1% migrated to a five-star rating at the end of 2012. 40.2% of the funds kept their initial rating. 30.7% and 1.7% migrated to a three-star and a two-star rating, respectively. 1.1% of the 179 funds migrated to one star. 0.6% of the ratings ceased and no fund had been merged, but 15.6% of the funds had been closed until the end of 2012. Overall, the results in both tables show that rating persistence is again weak in this period. Panel A of Table 4 (funds offered globally) indicates that only 40 to 50 percent of funds with five-star, four-star, and three-star ratings retain their rating after the financial crisis. About 45 percent of initially five-star funds receive a down-rating and are re-classified as four-star funds. Panel B of Table 4 shows that only 20 percent of five-star funds keep their rating during the four-year horizon. By and large, the proportion of funds being closed after the financial crisis is in line with the findings on the pre-crisis period. Investors that invested in five-star funds offered in Europe after the crisis (Table 5) had a higher chance of rating persistence compared to funds offered globally. In addition, slightly fewer funds offered in Europe are closed in the post-crisis period than funds offered globally.

Please insert Tables 4 and 5 about here.

Overall, from the perspective of retail investors that follow a buy-and-hold strategy fund rating persistence is low or even inexistent in particular during longer time periods. Given the findings of our analyses, we find evidence that supports Hypothesis 1. Since we find that fund ratings contain some information with respect to fund closure risk, the results also support Hypothesis 2.

5.2 Rating characteristics and number of rating changes

Table 6 presents the median values of the ratings for mutual funds offered globally (Panel A) and for funds offered in Europe (Panel B). This analysis is particularly important for investors who invest according to a dynamic strategy. In Panel A, for example, the median rating of funds offered globally with an initial rating of four stars in 2005 remains unchanged until 2008. After this, the median rating drops to three stars in 2010 and 2012. Statistical significance of the difference compared to the initial three-star category decreases over time from significance at the one-percent level in 2006 to no significant difference in 2012. Due to fund closures the number of funds in that category drops from 80 in 2006 to 57 in 2012. For the period from 2009 to 2012 the median rating of funds from the four-star category remains unchanged with significant difference compared to the three-star category.

Please insert Table 6 about here.

The median values of the ratings for funds offered globally remain equal to the initial rating for five-star to two-star rated funds during the two-year period from 2005 to the end of 2006 as reported in Panel A. Only funds with lowest initial rating (one star) exhibit a slight positive change to a two-star median rating. Since the median values for the five rating categories are significantly different from each other at the one-percent level, these results

indicate that investors following a dynamic strategy barely need to adjust their mutual fund investment in the short run. The results for the four-year, six-year, and eight-year horizons starting in 2005 indicate that funds offered globally become largely undistinguishable from each other during the longer horizons. While the median rating of initially (in 2005) five-star rated funds drops to four stars, the median values during the six- and eight-year horizons are equally three stars for initially four-, three- and two-star rated funds. The differences between the rating categories are largely statistically insignificant for the longest time window. Only the second lowest category (initial two-star rating) is significantly different from the lowest category (initial one-star rating). All in all, the findings for the mutual funds offered globally indicate some short-term persistence in mutual fund ratings, while the findings for the longer horizons support our hypothesis of no mutual fund rating persistence. This means that investors with a dynamic strategy would need to considerably adjust their fund investment over time.

The rating characteristics as of 2005 and 2009 for funds offered in Europe are presented in Panel B. By and large, the findings for funds offered in Europe support the results reported for funds offered globally. Specifically, the results for the shorter periods indicate at least some rating persistence, but ratings in all initial categories vary between five stars and one star over time (not reported in the tables). During the longer periods, there appears to be no rating persistence. The pace of rating changes appears to be slower in the more recent (crisis and post-crisis) periods.

The results for the sample period starting at the beginning of 2009 for funds offered globally support our results from above that ratings appear to be largely persistent in the short run (two-year period), but persistence weakens over time. Compared to the number of rating changes in the two- and four-year periods starting in 2005, the number of rating changes is lower in the periods starting in 2009. This indicates that post-crisis ratings are more stable than pre-crisis ratings.

Table 7 presents the number rating changes per mutual fund from 2005 until 2006, 2008, 2010, and 2012 and the rating changes from 2009 until 2010 and 2012, respectively. The number of rating changes per mutual fund increases to up to 38 over time without considerable differences between the initial rating categories. Therefore, retail investors with a dynamic trading strategy would face a considerable need to adjust their mutual fund

investments resulting in high transaction costs, independent from which rating category they choose their funds. Hence, retail investors will barely benefit from using fund ratings when making investment decisions. However, the highest number of rating changes appears to have taken place in the pre-crisis period (years 2005 and 2006) while rating changes in the subsequent periods appear to have taken place at a slower rate. This would indicate that ratings were more stable during and after the financial crisis. This effect might result from the general downward trend in asset prices during the crisis period with less focus on stock picking and more conformity among fund managers' decision making.

Please insert Table 7 about here.

6 Discussion and Conclusions

Mutual fund ratings provide highly aggregated information which might help retail investors to overcome potential biases from information and choice overload when purchasing mutual fund shares and restructuring their investment portfolio. However, mutual fund ratings are primarily based on prior fund performance. This raises the question whether mutual fund ratings provide suitable information for retail investors. To answer this question, we empirically examined the persistence of Morningstar mutual fund ratings to identify whether or not retail investors will benefit from using these ratings when making fund investment decisions.

In general, retail investors' investment decisions are strongly influenced by prior fund performance (Goetzmann and Peles 1997, Sirri and Tufano 1998, Kräusl and Sandelowsky 2007). Since fund performance itself has already been thoroughly studied by prior research, we do not examine the performance persistence of mutual funds. Instead, we analyze whether investors can benefit from choosing mutual funds based on their current rating.

Assuming investors that follow either a buy-and-hold strategy or a dynamic strategy, we hardly find empirical evidence for fund rating persistence, particularly in the long run. While about half of the funds in our sample retain their ratings during two-year periods, most funds experience rating changes during longer periods of up to eight years. Since the

construction of the Morningstar overall rating includes past performance going back over up to ten years, which generally dampens rating adjustments due to short-term performance effects, the considerable portion of rating changes – even during the two-year horizon – raises doubts with respect to the usability of mutual fund ratings for retail investors.

Overall, we conclude that mutual fund ratings contain very low information value for retail investors who seek guidance when making investment decisions. That is, retail investors who intend a long-run investment in mutual funds hardly benefit from mutual fund ratings because the Morningstar rating system cannot effectively discriminate between different rating categories for longer future investment periods. According to our findings, retail investors who use fund ratings as a trading as guidance for a dynamic strategy (e.g. solely investing in five-star funds and disinvesting when funds lose their top rating) might be confronted with frequent changes of their fund holdings. Since rating persistence is at best a short-term phenomenon, these trading strategies might lead to high costs resulting from issue surcharges and transaction fees.

However, mutual fund ratings appear to have some information content with respect to risk of fund closure because lower rated funds, in particular those in the one-star category, exhibit the highest proportions of fund closures. Fund disappearance is mostly unfavorable for investors due to, e.g., administrative and legal fees during the liquidation phase and negative tax effects. Hence, investing in funds with the highest rating might result in lower risk of fund closure. However, since we find that mutual fund rating persistence is low, even funds that initially received five stars might face closure risk after subsequent down ratings. Our findings show that about one-third of four-star funds are closed during longer periods of up to eight years. Hence, if investors decide to use fund ratings as guidance, they should pay close attention to potential rating changes.

In order to improve the information content of their ratings, mutual fund rating agencies should consider amending the criteria of rating systems. For instance, they might move away from using solely prior performance measures and focus on predictive indicators. Based on our findings mutual fund rating agencies should more clearly disclose that their ratings are primarily based on past performance which is a poor predictor of future mutual fund performance. Our results also suggest that fund testing institutions (other than rating agencies) need to apply criteria that are more informative than previous performance.

Otherwise, testing results might not be valuable for retail investors since they would not contain information with respect to future performance.

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Table 1: Number of funds included

initial rating	funds offered globally		funds offered in Europe	
	2005	2009	2005	2009
*****	43	45	43	95
****	90	179	89	234
***	143	369	209	372
**	109	189	167	269
*	40	55	63	133
sum	425	837	571	1103

Notes: Table 1 displays the number of funds included in the analysis sorted according to their initial rating at the beginning of 2005 and 2009, respectively. Data on mutual fund ratings are extracted from the Morningstar Direct database. The ratings from five stars (*****) to one star (*) represent the Morningstar Overall Rating.

Table 2: Rating migration as of 2005 for mutual funds offered globally

<i>Panel A: Rating migration 2005 to 2006</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	53.5	18.6	18.6	0.0	0.0	2.3	0.0	7.0	43
****	6.7	44.4	34.4	3.3	0.0	0.0	0.0	11.1	90
***	0.0	24.5	43.4	20.3	3.5	4.9	0.0	3.5	143
**	0.0	11.0	40.4	43.1	3.7	0.0	0.0	1.8	109
*	0.0	0.0	15.0	37.5	45.0	2.5	0.0	0.0	40
<i>Panel B: Rating migration 2005 to 2008</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	14.0	44.2	20.9	9.3	4.7	0.0	0.0	7.0	43
****	5.6	26.7	37.8	14.4	0.0	0.0	0.0	15.6	90
***	2.1	20.3	34.3	21.0	2.1	0.0	0.0	20.3	143
**	5.5	17.4	35.8	25.7	0.9	0.0	0.0	14.7	109
*	0.0	7.5	17.5	32.5	10.0	5.0	0.0	27.5	40
<i>Panel C: Rating migration 2005 to 2010</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	14.0	34.9	25.6	4.7	0.0	4.7	0.0	16.3	43
****	1.1	25.6	26.7	10.0	2.2	1.1	0.0	33.3	90
***	0.7	14.0	33.6	15.4	1.4	0.0	0.0	35.0	143
**	0.0	18.3	35.8	18.3	0.0	0.0	0.0	27.5	109
*	0.0	0.0	20.0	25.0	5.0	5.0	5.0	40.0	40
<i>Panel D: Rating migration 2005 to 2012</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	4.7	30.2	37.2	4.7	2.3	2.3	0.0	18.6	43
****	4.4	23.3	21.1	10.0	4.4	0.0	0.0	36.7	90
***	4.2	9.1	30.8	10.5	2.8	0.0	1.4	41.3	143
**	2.8	12.8	36.7	6.4	0.0	0.0	1.8	39.4	109
*	0.0	2.5	22.5	12.5	0.0	5.0	5.0	52.5	40

Notes: We report the ratings migration for mutual funds offered globally. Data on mutual fund ratings are extracted from the Morningstar Direct database. The ratings from five stars (*****) to one star (*) represent the Morningstar Overall Rating. Panel A includes the rating migration from the beginning of 2005 to the end of 2006. Panel B includes the rating migration from the beginning of 2005 to the end of 2008. Panel C includes the rating migration from the beginning of 2005 to the end of 2010. Panel D includes the rating migration from the beginning of 2005 to the end of 2012. The results are sorted based on the initial rating at the beginning of 2005 as reported in the first column. The values reported in columns two to six represent the percentages of mutual funds without a rating change and funds that migrated into a different rating category based on the rating at the end of the respective period. Funds without a rating at the end of the reporting period are reported in columns seven to nine: shares of funds in column seven are still traded, funds reported in column eight were merged and funds reported in column nine were closed during the reporting period. The number of funds included, N, is reported in the last column. Example: In Panel D 90 funds had a four-star initial rating at the beginning of 2005. 4.4% of them migrated to a five-star rating at the end of 2012. 23.3% of the funds kept their initial rating. 21.1% and 10.0% migrated to a three-star and a two-star rating, respectively. 4.4% of the 90 funds migrated to one star. None of the ratings ceased and no fund had been merged, but 36.7% of the funds had been closed until the end of 2012.

Table 3: Rating migration as of 2005 for mutual funds offered in Europe

Panel A: Rating migration 2005 to 2006

initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	58.1	30.2	7.0	0.0	0.0	2.3	0.0	2.3	43
****	10.1	57.3	23.6	6.7	0.0	0.0	0.0	2.2	89
***	1.0	20.6	56.9	17.2	2.9	0.5	0.0	1.0	209
**	0.6	3.0	37.7	43.1	12.6	1.2	0.0	1.8	167
*	0.0	1.6	11.1	31.7	46.0	4.8	0.0	4.8	63

Panel B: Rating migration 2005 to 2008

initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	34.9	25.6	20.9	9.3	4.7	2.3	0.0	2.3	43
****	14.6	28.1	31.5	14.6	3.4	0.0	1.1	6.7	89
***	1.9	17.2	41.1	17.2	10.5	1.0	0.0	11.0	209
**	4.2	9.6	37.7	25.1	6.0	2.4	1.2	13.8	167
*	1.6	4.8	11.1	34.9	15.9	6.3	1.6	23.8	63

Panel C: Rating migration 2005 to 2010

initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	25.6	41.9	16.3	9.3	2.3	0.0	2.3	2.3	43
****	9.0	23.6	24.7	12.4	0.0	0.0	6.7	23.6	89
***	1.9	12.9	37.3	19.1	4.8	0.0	4.8	19.1	209
**	1.8	13.2	25.1	19.8	3.0	3.0	4.8	29.3	167
*	0.0	3.2	17.5	31.7	4.8	6.3	1.6	34.9	63

Panel D: Rating migration 2005 to 2012

initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	11.6	41.9	23.3	9.3	4.7	2.3	2.3	4.7	43
****	2.2	20.2	25.8	9.0	2.2	0.0	11.2	29.2	89
***	1.0	12.4	34.0	10.5	4.3	1.4	7.7	28.7	209
**	1.8	11.4	25.7	8.4	0.0	3.6	10.8	38.3	167
*	0.0	11.1	11.1	15.9	1.6	6.3	9.5	44.4	63

Notes: We report the ratings migration for mutual funds offered in Europe. Data on mutual fund ratings are extracted from the Morningstar Direct database. The ratings from five stars (*****) to one star (*) represent the Morningstar Overall Rating. Panel A includes the rating migration from the beginning of 2005 to the end of 2006. Panel B includes the rating migration from the beginning of 2005 to the end of 2008. Panel C includes the rating migration from the beginning of 2005 to the end of 2010. Panel D includes the rating migration from the beginning of 2005 to the end of 2012. The results are sorted based on the initial rating at the beginning of 2005 as reported in the first column. The values reported in columns two to six represent the percentages of mutual funds without a rating change and funds that migrated into a different rating category based on the rating at the end of the respective period. Funds without a rating at the end of the reporting period are reported in columns seven to nine: shares of funds in column seven are still traded, funds reported in column eight were merged and funds reported in column nine were closed during the reporting period. The number of funds included, N, is reported in the last column. Example: In Panel D 89 funds had a four-star initial rating at the beginning of 2005. 2.2% of them migrated to a five-star rating at the end of 2012. 20.2% of the funds kept their initial rating. 25.8% and 9.0% migrated to a three-star and a two-star rating, respectively. 2.2% of the 89 funds migrated to one star. None of the ratings ceased, but 11.2% of the funds had been merged and 29.2% of the funds had been closed until the end of 2012.

Table 4: Rating migration as of 2009 for mutual funds offered globally

<i>Panel A: Rating migration 2009 to 2010</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	42.2	44.4	6.7	4.4	0.0	0.0	0.0	2.2	45
****	7.8	50.3	30.2	1.7	0.6	1.7	0.0	7.8	179
***	1.4	19.8	43.4	16.3	0.8	0.3	1.4	16.8	369
**	1.1	7.4	32.3	32.8	5.8	0.0	0.5	20.1	189
*	3.6	1.8	7.3	30.9	23.6	0.0	0.0	32.7	55

<i>Panel B: Rating migration 2009 to 2012</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	20.0	46.7	17.8	2.2	0.0	2.2	8.9	2.2	45
****	10.1	40.2	30.7	1.7	1.1	0.6	0.0	15.6	179
***	1.4	19.0	38.2	12.5	0.3	0.0	1.6	27.1	369
**	0.0	3.7	41.3	17.5	6.3	0.0	0.5	30.7	189
*	0.0	1.8	21.8	23.6	10.9	1.8	0.0	40.0	55

Notes: We report the ratings migration for mutual funds offered globally. Data on mutual fund ratings are extracted from the Morningstar Direct database. The ratings from five stars (*****) to one star (*) represent the Morningstar Overall Rating. Panel A includes the rating migration from the beginning of 2009 to the end of 2010. Panel B includes the rating migration from the beginning of 2009 to the end of 2012. The results are sorted based on the initial rating at the beginning of 2009 as reported in the first column. The values reported in columns two to six represent the percentages of mutual funds without a rating change and funds that migrated into a different rating category based on the rating at the end of the respective period. Funds without a rating at the end of the reporting period are reported in columns seven to nine: shares of funds in column seven are still traded, funds reported in column eight were merged and funds reported in column nine were closed during the reporting period. The number of funds included, N, is reported in the last column. Example: In Panel B 179 funds had a four-star initial rating at the beginning of 2009. 10.1% of them migrated to a five-star rating at the end of 2012. 40.2% of the funds kept their initial rating. 30.7% and 1.7% migrated to a three-star and a two-star rating, respectively. 1.1% of the 179 funds migrated to one star. 0.6% of the ratings ceased and no fund had been merged, but 15.6% of the funds had been closed until the end of 2012.

Table 5: Rating migration as of 2009 for mutual funds offered in Europe

<i>Panel A: Rating migration 2009 to 2010</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	56.8	27.4	8.4	2.1	0.0	0.0	2.1	3.2	95
****	4.7	44.4	28.2	7.7	0.4	0.0	3.4	11.1	234
***	0.5	12.4	48.4	19.4	3.5	0.0	2.4	13.4	372
**	0.0	3.7	25.3	41.6	6.3	1.1	4.1	17.8	269
*	1.5	0.8	14.3	27.8	23.3	1.5	1.5	29.3	133
<i>Panel B: Rating migration 2009 to 2012</i>									
initial rating	*****	****	***	**	*	no rating	merged	closed	N
*****	25.3	28.4	17.9	7.4	2.1	3.2	3.2	12.6	95
****	3.8	33.3	23.5	6.8	3.4	1.3	5.1	22.6	234
***	0.5	15.1	37.9	12.4	3.0	0.8	6.5	23.9	372
**	0.4	4.8	26.4	26.8	4.5	4.5	6.3	26.4	269
*	0.0	3.0	11.3	25.6	11.3	5.3	3.0	40.6	133

Notes: We report the ratings migration for mutual funds offered in Europe. Data on mutual fund ratings are extracted from the Morningstar Direct database. The ratings from five stars (*****) to one star (*) represent the Morningstar Overall Rating. Panel A includes the rating migration from the beginning of 2009 to the end of 2010. Panel B includes the rating migration from the beginning of 2009 to the end of 2012. The results are sorted based on the initial rating at the beginning of 2009 as reported in the first column. The values reported in columns two to six represent the percentages of mutual funds without a rating change and funds that migrated into a different rating category based on the rating at the end of the respective period. Funds without a rating at the end of the reporting period are reported in columns seven to nine: shares of funds in column seven are still traded, funds reported in column eight were merged and funds reported in column nine were closed during the reporting period. The number of funds included, N, is reported in the last column. Example: In Panel B 234 funds had a four-star initial rating at the beginning of 2009. 3.8% of them migrated to a five-star rating at the end of 2012. 33.3% of the funds kept their initial rating. 23.5% and 6.8% migrated to a three-star and a two-star rating, respectively. 3.4% of the 234 funds migrated to one star. 1.3% of the ratings ceased, 5.1% of the funds had been merged, and 22.6% of the funds had been closed until the end of 2012.

Table 6: Median ratings for mutual funds offered globally and in Europe

Panel A: Global

initial rating	median rating from 2005 to								median rating from 2009 to			
	2006		2008		2010		2012		2010		2012	
	median	N	median	N	median	N	median	N	median	N	median	N
*****	***** ^a	39	**** ^b	40	**** ^b	34	****	34	***** ^a	44	**** ^b	39
****	**** ^a	80	**** ^b	76	*** ^c	59	***	57	**** ^a	152	**** ^a	150
***	*** ^a	131	***	114	***	93	***	82	*** ^a	301	*** ^a	263
**	** ^a	107	*** ^a	93	*** ^a	79	*** ^b	64	** ^a	150	** ^b	130
*	**	39	**	27	**	20	**	15	**	37	**	32

Panel B: Europe

initial rating	median rating from 2005 to								median rating from 2009 to			
	2006		2008		2010		2012		2010		2012	
	median	N	median	N	median	N	median	N	median	N	median	N
*****	***** ^a	40	***** ^b	40	***** ^b	40	****	38	***** ^a	90	***** ^a	77
****	**** ^a	82	**** ^a	82	**** ^a	62	*** ^c	53	**** ^a	200	**** ^a	166
***	*** ^a	183	***	184	***	157	***	128	*** ^a	313	*** ^a	256
**	** ^a	138	** ^a	138	*** ^a	105	***	79	** ^a	207	** ^a	169
*	**	42	**	42	**	46	**	26	*	90	**	68

Notes: We report the median values of the monthly ratings for mutual funds offered globally and in Europe. The ratings from five stars (*****) to one star (*) represent the Morningstar Overall Rating. Panel A includes the results for globally offered funds and Panel B includes the results for funds offered in Europe. The results are sorted based on the initial rating (first column) at the beginning of the respective period. The reported values represent the median value of the ratings and the number of the included funds for the periods from 2005 to 2006, 2008, 2010, and 2012 and for the periods from 2009 to 2010 and 2012, respectively. We provide tests of equality for the median values of the ratings of each rating category (except initial one-star ratings) compared to the adjacent lower rating category using Mann-Whitney *U*-tests. The symbols a, b, and c denote statistical significance at the one, five, and ten-percent level, respectively. Funds whose rating ceased until the end of the reporting period are excluded. Example: In Panel A the median rating of funds offered globally with an initial rating of four stars in 2005 remains unchanged until 2008. After this, the median rating drops to three stars in 2010 and 2012. Statistical significance of the difference compared to the initial three-star category decreases over time from significance at the one-percent level in 2006 to no significant difference in 2012. Due to fund closures the number of funds in that category drops from 80 in 2006 to 57 in 2012. For the period from 2009 to 2012 the median rating of funds from the four-star category remains unchanged with a significant difference compared to the three-star category.

Table 7: Number of rating changes for mutual funds offered globally and in Europe

Panel A: Global

initial rating	rating changes from 2005 to												rating changes from 2009 to											
	2006				2008				2010				2012				2010				2012			
	med	max	min	N	med	max	min	N	med	max	min	N	med	max	min	N	med	max	min	N	med	max	min	N
*****	4	16	0	39	8	20	0	40	10	23	2	34	14	25	2	34	3	15	0	44	4	15	0	39
****	4	11	0	80	9	16	2	76	11	20	2	59	13	26	5	57	2	12	0	152	6	15	0	150
***	4	11	0	131	9	21	2	114	12	30	2	93	14	38	4	82	3	13	0	301	6	24	0	263
**	4	12	0	107	8	20	1	93	12	22	1	79	15	32	3	64	2	8	0	150	5	16	0	130
*	4	10	0	39	9	18	3	27	11	22	3	20	14	29	4	15	2	7	0	37	5	14	0	32

Panel B: Europe

initial rating	rating changes from 2005 to												rating changes from 2009 to											
	2006				2008				2010				2012				2010				2012			
	med	max	min	N	med	max	min	N	med	max	min	N	med	max	min	N	med	max	min	N	med	max	min	N
*****	3	9	0	40	6	15	0	40	9	22	0	40	11	26	0	38	2	11	0	90	4	14	0	77
****	5	12	0	82	9	24	2	82	11	24	2	62	15	32	2	53	3	13	0	200	6	21	0	166
***	4	13	0	183	9	16	0	184	12	22	0	157	14	29	2	128	3	11	0	313	6	18	0	256
**	5	11	0	138	8	21	2	138	11	27	4	105	12	29	4	79	3	11	0	207	6	20	0	169
*	4	13	0	42	8	19	0	42	11	25	5	46	13	30	6	26	2	13	0	90	6	19	0	68

Notes: We report the number of changes of the monthly ratings for mutual funds offered globally and in Europe. The ratings from five stars (*****) to one star (*) represent the Morningstar Overall Rating. Panel A includes the results for the globally offered funds and Panel B includes the results for funds offered in Europe. The results are sorted based on the initial rating (first column) at the beginning of the respective period. The values reported represent the median (med), maximum (max), and minimum (min) number of rating changes and the number of the included funds for the periods from 2005 to 2006, 2008, 2010 and 2012 and for the periods from 2009 to 2010 and 2012, respectively. Funds whose rating ceased until the end of the reporting period are excluded. Example: In Panel A the median number of rating changes per fund in the initial four-star rating category increases from 4 in the shortest time window (until 2006) to 13 during longest period (until 2012). The maximum number of rating changes per fund increases from 11 to 26, while the minimum number of rating changes increases from 0 to 5. Due to fund closures the number of funds in that category drops from 80 in 2006 to 57 in 2012. For the period from 2009 to 2012 the median and maximum number of rating changes increases from 2 to 6 and from 12 to 15, respectively. In this category there are also funds with no rating changes (minimum number of 0).