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Grades Matter in Performance: Morningstar Stewardship Grades and Mutual Fund Performance

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Grades Matter in Performance: Morningstar Stewardship Grades and Mutual Fund Performance[⊥]

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Abstract:

Investors in mutual funds have the unenviable task of disentangling two mutually confounding effects. First, to fathom the future performance of the funds based on current evidence, and second, to assess how well the mutual fund managers will steward their investments under uncertain economic conditions. We corroborate the dependence of weighted risk-adjusted returns (*viz.* the Star Ratings) on corporate governance score (*viz.* Stewardship Grade) accounting for fund specific characteristics. We document Stewardship scores Granger cause Star Rating. We propose an objective data-driven corporate governance score based on the components of Stewardship Grade. Both the static and dynamic fixed-effects models show strong predictive relationship between performance with corporate governance accounting for the *endogeneity* bias from unobserved fund-specific traits. We conclude that corporate governance scores form an effective yet low-cost tool for predicting performance, hence mutual fund investors can only focus on one problem, i.e., find the better stewards for their funds.

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1 Introduction

Mutual fund investors have the daunting task of choosing which funds to invest in from thousands of available funds. We can analyze their dilemma as two seemingly mutually confounding problems. First, to fathom the future performance of the funds based on current available evidence, and second, to assess how well the mutual fund managers steward their investments under uncertain economic conditions.

It has been well established that the relationship between past and future short-term performance (or "hot hands") of mutual fund managers are tenuous at best (Jensen, 1969, Grinblatt and Titman, 1992 , Hendricks, Patel and Zeckhauser, 1993, Goetzmann and Ibbotson, 1994, Brown and Goetzmann, 1995, Elton, Gruber and Blake, 1996, Carhart, 1997). In this paper, we explore what role Morningstar Stewardship Grades (a corporate governance score for mutual funds) play in mutual fund performance.

The Morningstar Star Ratings have been widely used by retail and institutional investors alike as tools for selecting mutual funds. A comprehensive study on the influence of the Star Ratings found significantly large inflows in response to rating upgrades or initiation of top rating (Del Guercio and Tkac, 2008). The enormous popularity of the Star Ratings has prompted other researchers to study their effectiveness as a performance measure. One such strand of research focuses on gauging the predictive ability of these ratings. It was documented that poor ratings indeed indicate weak future performance but good ratings were rarely followed by superior returns for a sample of

funds rated by Morningstar between 1992 and 1997 (Blake and Morey, 2000). Subsequent work examining funds rated after June 2002[1] found that best-rated funds outperform lower-rated funds over a three-year post-rating period (Morey and Gottesman, 2006).

Adam Smith observation in the Wealth of Nations, "…*Like the stewards of a rich man, they are apt to consider attention to small matters as not for their master's honour, and very easily give themselves a dispensation from having it. Negligence and profusion, therefore, must always prevail, more or less, in the management of the affairs of such a company*" (Smith, 1776, 700) almost prophetically lends its voice to the world of mutual funds governance in the beginning of the millennium.

Unsurprisingly, the eruptions of the 2003 U.S. mutual fund scandals that involved late trading, market timing and other irregularities put corporate governance of mutual funds in the spotlight, and subsequently led to a series of regulatory reforms. One interesting development that ensued was the launch of the Morningstar Fiduciary Grades (renamed the *Stewardship Grades* in 2005) which evaluated funds based not on their past performance, but on their standard of corporate governance. Stewardship Grades, ranging from A (best) to F (worst), are calculated as the aggregate scores of five components – Corporate Culture, Board Quality, Manager Incentives, Fees and Regulatory History (*cf.* Morningstar, 2007).

[1] Morningstar changes its rating methodology in June 2002.

Corporate Finance literature has long established the nexus between corporate governance and mutual funds as large shareholders. Past academic interests have reviewed on how regulations, through restrictions on ownership concentration and control, have restrained institutional investors like mutual funds from playing an influential role in the governance of corporations whose assets they own (Roe, 1990, Shleiffer and Vishny, 1997, p. 38; for a more current outlook, see Bebchuk and Weisbach, 2010). However, interest in the corporate governance of the mutual funds themselves is of more recent vintage. Although academic research on corporate governance of large investors like mutual funds is still burgeoning, scholarly work on mutual fund corporate governance scores such as the Morningstar Stewardship Grades is relatively scarce (Li, Moshirian, Pham and Zein, 2006, Zhou Ng and Wang, 2011 and Chen and Huang, 2011). Hitherto, to the best of our knowledge, the work by Wellman and Zhou (2007) is probably the most comprehensive study on the Stewardship Grades.

Using the first release of the Stewardship Grades since August 2004, Wellman and Zhou (2007) document that funds with top Stewardship Grade outperform those with poor grades by 19 to 23 basis points per month over the period Jan 2001 – July 2004, and by 10 to 16 basis points over the period September 2004 – December 2004. Furthermore, their study on fund flows pattern reveals that upgrades and downgrades of Stewardship Grades lead to positive and negative fund flows respectively. In addition, they find that among the five stewardship components, only Fees and Board Quality exhibit significant explanatory power, thus demonstrating an indirect relation between corporate governance and fund performance. Their work corroborates academic studies that report a positive

association between firm valuation and corporate governance scores like the widely used G-index (Gompers, Ishii and Metrick, 2003).

Gil-Bazo and Ruiz-Verdu (2009) find some evidence that better governance is associated with fees that are more aligned with fund performance, thus offering a partial explanation for the anomaly that funds with worse before-fee performance charge higher fees. In a similar spirit, Navone (2011) find that funds with better Board Quality grade is associated with less aggressive fees re-pricing by fund companies, although there is no evidence that better Board Quality grades translate into lower expense ratio. Zhou and Wang (2011) study the role governance plays in mutual fund voting. Their findings suggest that funds with good corporate governance, as indicated by their Stewardship Grade, tend to act in the interest of their shareholders by voting responsibly for governance issues of their portfolio firms and investing only in well-governed firms.

Chen and Huang (2011) employ both OLS regression and quantile regressions to examine the contemporaneous relation between fund performance and corporate governance using both the overall Stewardship Grades and two stewardship component grades – Manager Incentive and Board Quality. While OLS regression reveal a strong contemporaneous association between overall Stewardship Grade and fund performance, they do not find evidence of any relation between performance and any of the stewardship components. However, quantile regressions demonstrate a strong positive relation between Manager Incentive and fund performance at the right tail of the performance distribution. In addition, Board Quality is found to have a significant ability

to predict future performance when quantile regression is used. Along the same vein but performing dummy variable OLS regressions, Gottesman and Morey (2012) find no evidence that any of the stewardship component can consistently predict future performance. Hence among published work, there is at best mixed evidence of the effectiveness corporate governance components in performance prediction.

There has been growing interest among academics in using Stewardship Grades as a proxy for corporate governance quality to examine the role governance plays in various dimensions of fund management. Among the working papers that involve the use of Stewardship Grade are Casavecchia and Tooman (2012) and Lai, Tiwari and Zhang (2010). The former investigate how governance is associated with managerial herding behavior. Their results indicate that a higher manager incentive grade is associated with a lower intensity of managerial herding activities. The latter document three key results related to board quality of mutual funds. First, they report that for funds in the bottom quintile based on past performance, those with a good Board Quality grade suffer significantly lower outflows. Second, they find that for funds with bad boards, a negative past performance is strongly predictive of future negative performance. Finally, they document that following poor performance, funds with better boards are more likely to change their fund strategy compared to funds with bad boards. More recently, Kurniawan, How and Verhoeven (2012) explore whether governance matters to fund style drift. Their analysis provides evidence that style-drift is negatively related to individual stewardship components such as Board Quality, Fees Structure and Regulatory History. Such ongoing

interest and work help establish the unmistakable link between governance components and better operation of the fund, which consequently leads to performance.

Evidently, the salient factors in corporate governance that affect firm value cannot be observed in isolation, in this paper we explore the main drivers controlling for other factors. The main objective of our study is to address the dearth of research in possibly predictive determinants of mutual fund ratings by investigating how well Stewardship Grades can predict future Star Ratings, and hence future fund performance. We address potential econometric issues like *endogeneity* associated with predictive regressions of panel data with a *Two-stage Least Squares* framework, and hence, dynamic panel data regressions to capture the feed-back dynamics of the relationship in a more comprehensive way. Our findings complement existing studies on the relation between mutual fund performance and the performance-based Morningstar Star Ratings, thus providing some insights on the extent to which corporate governance of mutual fund should be considered by investors in searching for the best performing mutual funds. Mutual fund ratings have been widely publicized to, and often used by retail mutual fund distributors as a marketing tool for selling mutual funds. Individual investors also use ratings as a primary criterion for screening mutual funds. The results of our studies have important ramifications for retail investors' financial well-being.

We follow up with a brief preview of our contribution. In a panel data model, we find consistent predictability of US mutual fund performance using both monthly and yearly Stewardship Grades after controlling for fund specific characteristics. In the

monthly data, we find that Stewardship Grades, while being quite persistent, does indeed Granger cause long term performance measures like the Star Rating.

From the yearly panel data, we have several key findings. First, using Principal Component Analysis, we propose an effective yet procedure agnostic score based on the five components of the Stewardship as the first principal component (Baker and Wurgler, 2006)[2]. Second, employing a naïve fixed effects model, we establish a strong predictive relationship between corporate governance and risk adjusted four-factor alpha (besides the Star Rating) after adjusting for *endogeneity bias* due to unobserved fund characteristics like managerial ability. Third, with the use of a dynamic panel data model, we demonstrate that even in the presence of lagged performance measures, a strong relationship between Stewardship Grades and performance holds. Finally, our findings lend credence to the view that the Morningstar Stewardship Grades supplement the Star Rating as a mutual fund evaluation tool and are particularly effective during crisis periods.

The rest of this paper proceeds as follows. Section 2 provides a description and some statistics of the data we employ. Section 3 presents the methodology we use and Section 4 reports our findings. In Subsection 4.1, we explore the out-of-sample predictability of performance with the Star Rating and Stewardship. We discuss the relationship of short term performance and Stewardship in Subsection 4.2. In Subsection

[2] The first principal component that we calculate based on the total variation of the full 79 monthly data is FPC=0.35Board Quality+0.65Corporate Culture+0.37Fee Score+0.09Manager incentive+0.55Regulatory History. The loadings are almost the same up to second place for 7 yearly December data. We acknowledge that there is some level of selection in the data, however, the closeness of the yearly and monthly proportions give us enough credibility. The results are a little different after 2007 (not reported here) with Board Quality weighted down while Managerial Incentive is increased.

4.3, we investigate the predictive panel regressions of the dynamic models. Section 5 concludes the paper.

2 Data

Morningstar provided monthly Star Ratings, including the 3-year, 5-year and 10-year ratings (whichever available[3]) and Stewardship Grades. We further obtained all Stewardship Grade components (Corporate Culture (CC), Board Quality (BQ), Fees Score (FS), Manager Incentive (MI) and Regulatory History (RH), important fund information like average and longest manager tenure and various fund classifications, over the period November 2004 – May 2011. For simplicity and for subsequent reference, we shall enumerate the months as follows: November 2004 is month 1, December 2004 month 2 and so on, with the last month, May 2011 being Month 79.

We merge the Morningstar data with the Centre for Research in Securities Prices (CRSP) Survivorship Bias Free Mutual Fund database. The CRSP database includes the Fama-French-Carhart's four factors (Carhart (1997)), monthly total returns, monthly total net assets, quarterly expenses, quarterly portfolio turnover, date of inception and a 'Dead Fund Flag' that indicates whether the fund has ceased to exist. We include only funds

[3] Funds whose age is 3 – 5 years will receive a 3-year rating; funds with age 5 – 10 years will receive a 5-year rating; those with age 10 years or longer will receive a 10-year rating. The overall Morningstar rating is derived from a weighted sum of these ratings. More details can be found in Morningstar Factsheets on Ratings.

whose fund identifiers from Morningstar (identifier = 'Ticker') and CRSP (Fund Identifier = 'Nasdaq') databases match. Only three funds are identified as 'Dead' fund.

Table 1 displays the frequency distributions of Star Ratings (Panel A) and Stewardship Grade (Panel B) for the January samples. We select only funds that receive both Star Rating and Stewardship Grade over the sample period[4]. We observe that only a small percentage of funds receive the best and worst mutual find ratings and Stewardship Grades. We can also observe an asymmetry in the proportions with the best grades proportions outnumbering the worst ones. This phenomenon can be assigned to both the selection issue and the non-imposition of a symmetric bell curve structure on the scores. For Stewardship Grades, the percentage of funds that receive the top grade of 'A' ranges from 6.1% to 10.2% compared to 9.66% to 16.46% for top star rate funds. For the worst grade of 'F', the proportions are 0.8% to 3.69% as compared to 1.93% to 6.7% 1-star rated funds. The two-way frequencies for both ratings in Panel C reveals that Star Rating and Stewardship Grades are associated with each other for each year (Chi-squared test of Contingency Table results not included).

< Insert Table 1 >

Table 2 reports the descriptive statistics of the fund variables that we shall use in the empirical part of this paper. Based on Morningstar's 'US Broad Asset Class' , we divide the samples into 5 groups, namely balanced funds, bond funds ('municipal bond'

[4] Choosing only funds that have both Stewardship Grade and Star Rating does entail some level of selection bias in the data as only the funds which are widely held, larger and more familiar to the Morningstar analysts get Stewardship Grades and only the ones with longer history gets favorable star rating (Lutton et. al., 2011, p. 4-5)

or ‘taxable bond’), ‘international stock funds’, ‘specialty funds’ and ‘U.S. stock funds’). We notice that an overwhelming number of funds are of US equity type (624) nearly twice as much as the next biggest number of bond funds (315). As expected, expense ratio is 50% higher for US equity funds than bond funds and the absolute flow is about two and a half times more. Average manager tenure is between 6.5 and 7.5 years. The turnover ratio for bond funds (1.08) is nearly 50% more than the US equity funds (0.73). The monthly logarithm of age and size are comparable through all categories.

< Insert Table 2 >

The methodology for the Stewardship Grades for funds is independent from the Morningstar Star Rating for funds and thus should have no impact on a fund’s Star Rating, through better governance might make the fund more attractive (Morningstar Fact Sheet, 2007). Using the six January samples (2005 to 2011), we compute the Pearson product-moment correlation coefficient between contemporaneous the Star Ratings and Stewardship Grades. From Table 3 Panel A, in most cases there is at best some weak though statistically significant positive correlation between Star Ratings and components of the governance measures. The overall Stewardship Grade and Corporate Culture score are significantly correlated with the Star Rating for all the six monthly data.

In Table 3 Panel B, we perform Granger causality tests with lag length of 2 on the raw scores of ratings from the January samples. For the Star Rating, the raw score can be estimated as follows

Raw score for Star Rating (SR) =

$$\begin{cases} SR_3 & \text{if fund has } 3-5 \text{ years of returns} \\ 0.6\,SR_5 + 0.4\,SR_3 & \text{if fund has } 5-10 \text{ years of returns} \\ 0.5\,SR_{10} + 0.3\,SR_5 + 0.2\,SR_3 & \text{if fund has } > 10 \text{ years of returns} \end{cases}$$

where SR_t is the t-year MorningStar Rating. For the Stewardship Grade, the raw score is simply the arithmetic average of the cores for the five stewardship component – Corporate Culture (CC), Board Quality (BQ), Manager Incentives (MI), Fees Score (FS) and Regulatory History (RH) (*cf.* Morningstar 2007).

We find in monthly data that raw Stewardship Grade and raw Star Rating strongly Granger cause each other which suggests there is a long term feedback relationship between the two variables. This result however has one caveat as Stewardship Grades are quite persistent (possibly non-stationary) and Star Ratings are not (i.e., stationary), hence such results could be biased. When we examine the difference series of both the Stewardship Grades and the Star Rating, we find no evidence of Granger causality. In an ongoing work (Ng and Ghosh, 2012) and subsequent sections of this paper, we shall explore this interesting finding further by using a rigorous long panel data models and dealing with asymptotic results on large cross section (large N) and large time series (large T).

<Insert Table 3>

3 Methodology for Ranked Portfolio Tests and Regressions

Of the 24 provisions of the Investor Responsibility Research Center (IRRC) that the G-Index focused on, only 6 provisions forming the subsequent *Entrenchment* or E-Index turned out to be the main drivers for firm valuation (Bebchuk, Cohen and Ferrell, 2009). Some salient features of the main drivers, and the possibly endogenous control variables for corporate governance, deserve a re-evaluation.

First, although opinions are divided whether entrenchment reduces firm value, it has been documented that managers of firms with low value are often entrenched, hence it is challenging to decipher how much of this entrenchment is *causal* to the low value of the firm (*cf.* Bebchuk 2002, for a survey). This *correlation* could be an outcome of the simultaneous evolution of firm value and managerial incentives (Bebchuk et al., 2009). We account for this endogeneity with the *Two-stage Least Squares* framework applying variables like indicators of managerial ability (e.g., tenure) as instruments. These instruments are assumed to affect the variable reflecting firm performance (in the current context, the shareholders' risk adjusted return) only through the Stewardship Grade, i.e., satisfy the required *exclusion restriction* for a valid instrument (Wooldridge, 2010, p. 242, eq. 9.3).

Second, corporate governance for firms is notoriously sticky or persistent. This feature has been effectively used to "fill in" interim yearly data between the irregular publications of the IRRC volumes where the governance scores are assumed to essentially remain constant (Gompers et al., 2003, Bebchuk et al., 2009). For the current paper, we are in a unique position to assess the transitions of the corporate governance

scores, both monthly as well as yearly. Hence, with the longer time dimension in the longitudinal or panel data, we find strong evidence of the *simultaneity* between our governance score and performance measures using Granger Causality tests. This evidence of co-evolution of corporate governance in mutual funds and their corresponding performance through different business cycles gives us a remarkable insight into their inter-dependence.

Third, in the current context mutual funds are part of financial sector where the major component of the firm performance is risk adjusted return rather than the *Tobin's Q*. However, the components of Stewardship like Managerial Incentive might be pivotal in the performance of the mutual fund for its shareholders. We also observe that limits to shareholder control according to the IRRC provisions like staggered board might be subsumed within Board Quality and Managerial Incentive, while Golden Parachute will most likely be linked with Corporate Culture, Managerial Incentive and Fee Score. Finally, Regulatory History probably is also related to Board Quality and managerial incentive. The other factors not in the E-Index (for example, Director indemnification and relevant contracts, Director's limited liability and severance packages) might also play significant roles (Bebchuk et al., 2009, Lutton et al., 2011). This does put us into a difficult position to extract the true components of stewardship protection, we delegate this responsibility and seek the advantage of aggregating to an objective or data-driven Stewardship score.

Finally, both the G-Index and the subset of drivers for managerial entrenchment (or the E-Index) are dependent on the questions, and are constructed previously with equal weightage on the constituent questions (Gompers et al., 2003, Bebchuk et al., 2008). However, as has been the case, the effectiveness of these questions to elicit corporate governance practices has been varying with time. To elucidate this problem, Bebchuk et al. (2008) observes:

"…institutional investors deciding which firms to include in their portfolios and which governance changes to press for would likely be better served if shareholder advisory firms were to use governance measures based on a small number of key provisions rather than attempt to count all the trees in the governance forest."

We propose to use a Principal Component Analysis based methodology that will look at the variation of the entire evaluation dataset to determine the adaptive weights on the components of Stewardship. This reduces the subjective bias that might be affected by recent or more noteworthy events. In a way we can call this proposed method a really *question agnostic* and *data dependent* framework.

To examine the predictive power of fund ratings, we employ a standard methodology in which we study the relation between in-sample ratings of funds with their out-of-sample performance, as measured by some standard performance metrics over some evaluation period. Our main benchmark is the four-factor model of Carhart (1997):

$$R_{it} - R_{ft} = \alpha + \beta_{i1} RMRF_t + \beta_{i2} SMB_t + \beta_{i2} HML_t + \beta_{i4} UMD_t + \varepsilon_{it}$$

which is an extension of the celebrated Fama and French (1993) three-factor model. In this model, $RMRF_t$ is the value of the market return in excess of monthly T-Bill rate (or the *market risk premium)*; SMB_t (small minus big factor) is the difference in returns across small and big portfolios (or the *size premium)*; HML_t (high minus low factor) is the difference in returns between high and low book-to-market equity portfolios (or the *value premium)*; UMD_t (monthly momentum factor) is the difference in average returns on two high ex-ante return portfolios and two low ex-ante return portfolios (defined as the *momentum factor* or momentum premium).

The SMB factor which is designed to capture the size effect is based on a portfolio comprising a long position in a portfolio of small-cap stocks financed by a short position in a portfolio of large-cap stocks. The HML factor which is meant to capture the book-to-market factor is calculated by building a portfolio that takes a long position in a portfolio of high book-to-market (value) stocks and a short position in a portfolio of low book-to-market (growth) stocks. The UMD factor, described in Jegadeesh and Titman (1993), is a momentum factor estimated from a portfolio long in high-momentum stocks and short in low-momentum stocks.

Following the methodology in Elton, Gruber and Blake (1996), we perform a two-stage procedure to estimate the monthly out-of-sample performance measures of mutual funds. In stage 1, for each one-year evaluation period [t – 11, t], we regress each fund's

monthly excess return on the monthly four risk factors over 36 months (that is, month t – 35 through month t) prior to the last month of the evaluation period. In the second stage, we add the average residuals over one-year prior to and including month t (that is month t – 11 to month t) to the estimated intercept term at month t from stage 1 to get the estimated one-year out-of-sample measure.

Our first approach to examining the strength of predictive power of ratings consists in forming portfolios by their mutual fund ratings and examining the portfolio mean out-of-sample performance over a 12-month evaluation (post-rating) period. Specifically, for each month over the period November 2004 (month 1) to May 2010 (month 67), sample funds are ranked by one or both of the Morningstar Stewardship Grades (abbrev. SG) and/or Morningstar Star Ratings (abbrev SR) and the difference in mean four-factor alpha for funds in any two groups is observed. A Newey-West robust t-test is then performed on the time series of differences.

Funds with SR (respectively SG) = 1 or 2 is in the bottom SR (respectively SG) group. Funds with SR (respectively SG) = 5 is in the top SR (respectively SG) group. The remaining finds are placed in the middle rating group. Funds in the top SG*SR group are those in both top SR and top SG groups. Similarly, funds in the bottom SG*SR group are those in both bottom SR and bottom SG groups. The remaining funds are placed in the middle SG*SR group. Similar criteria apply to the five Stewardship Grade components - Corporate Culture (CC), Board Quality (BQ), Manager Incentives (MI), Fees Score (FS) and Regulatory History (RH).

As we seek to find a linear sum of the five stewardship components that possibly possesses a stronger predictive power than the overall Stewardship Grade, we employ the Principal Component Analysis on the time series of stewardship components to construct a new corporate governance score which we name the First Principal Component (FPC). Funds are sorted by their FPC and divided into three portfolios - approximately 30% in each of the top and bottom groups and the remaining 40% in the middle group. The next step is to compute, for each rating, the difference in mean out-of-sample return of portfolio. This produces a time series (from month 1 to month 67) of difference in returns between groups 1 and 2, 2 and 3 and 1 and 3. We use the symbols 2_1, 3_2 and 3_1 to denote these differences.

Another standard way to assess predictability of ratings is to run a regression of out-of-sample return on rating dummies. Blake and Morey (2000) perform a cross-sectional dummy-variable regression of the form

$$S_{it} = \mathbf{b}^{T}\mathbf{d} + e_{it}$$

where S_{it} (in %) is the out-of-sample performance measure of fund i at time t and $\mathbf{d}$ is a vector of rating-based binary dummy variables. In their model, $\mathbf{d} = (d_1, d_2, d_3, d_4)$ is a vector of binary response variables with $d_k = 1$ if a fund has a Morningstar Star Rating of k-star. The best rating group (5-star) is used as the control group. Under the hypothesis that rating is predictive, the following condition on the estimated regression coefficients of d_k hold:

$$b_1 < b_2 < b_3 < b_4 < 0.$$

In this study, we consider the following specification

$$S_{it} = \mathbf{b}^T \mathbf{d} + \mathbf{c}^T \mathbf{x} + e_{it} .$$

Our regression model differs from the preceding in several ways. First, we use the raw scores of ratings instead of dummy variables. We estimate different regression specifications in which different ratings, including the Star Rating, the overall Stewardship Grade, the five stewardship component grades and the First Principal Component grade, are used. Second, we include **x**, a vector of control variables that are found in the literature to be potential determinants of fund performance.

We are mindful that any results on predictability could be driven by factors such as fund size and fund age. Control variables in **x** include prior one year expense ratio and turnover ratio reported in the CRSP mutual fund database, prior one month absolute fund flow defined as $TNA_t - (1 + R_{i,t-1})TNA_{t-1}$ (TNA_t and R_t being the total net assets and total monthly return provided by CRSP), prior one month natural logarithm of net asset, prior one month natural logarithm of fund age (in months), prior one year average manager tenure and time dummy variables.

Third, instead of treating our data as cross-sectional data at different observation time, we perform panel data regressions which is known to be more informative than its cross-sectional counterparts. We have a unique dataset that provides us with monthly values of the overall Stewardship Grade and the five component grades, hence we are able to use standard panel data models. Our panel methods help us identify the effect that Stewardship Grades as well as the individual components have on standard risk-adjusted

returns such as the four factor alpha (Carhart, 1997) or a longer-term performance measure like Morningstar Star Rating.

Finally, for the sake of ensuring the robustness of our results and addressing the issue of potential endogeneity, we employ static fixed effect regression, two-stage least square regression and dynamic panel regressions with instrumental variables. For a detailed description of these regression models we refer to Wooldridge (2010).

We repeat the same analysis on our study of the relationship between the two Morningstar ratings by regressing Star Ratings on the Stewardship Grade or its component grades. As we are dealing with the time series of ratings that are not necessarily stationary, especially the Stewardship Grade or its component grade as we have observed from the data, we perform unit root tests on both series using their raw scores. As expected, while there is no evidence that the Star Rating is non-stationary, we cannot reject the hypothesis that the Stewardship Grade is non-stationary using panel unit root tests (see Baltagi, 2008). In fact, when we further test for stationarity of the first order difference of the Stewardship score time series, we find that the Stewardship score is not distinguishable from a *I(1)* or non-stationary process.[5]

In 2007, Morningstar implemented the following methodology changes to the Stewardship Grades:

[5] These panel unit root tests on monthly data however are based on the assumption that the Stewardship Grade is updated as soon as there are any changes in the governance structure. As these grades are followed by Morningstar analysts and a report written at least once every year, we cannot be certain of this hypothesis (Lutton et. al., 2011). We have ongoing research where we pursue the persistence of the Stewardship Grade and its implication on the performance grade relationship (Ng and Ghosh, 2012)

1. The weighting on Corporate Culture is increased from 2 to 4 (out of 10)
2. The requirement that independent directors make up 75% of the board be mandatory.
3. Regulatory history score is changed from a scale of 0- 2 to -2 to 0.

We refer the reader to Lutton et. al. (2011) for more details. In view of the above changes, we repeat every regression by restricting the sample to data that corresponds to the period January 2007 through May 2011.

We acknowledge the fact that monthly Stewardship Grades might not be updated regularly. There is a significant chance that any changes in ratings are probably related to the time at which Morningstar team evaluates the component Stewardship scores from both direct and indirect sources (Lutton et al., 2011). We also observe a strong persistence of Stewardship Grades vis-à-vis the performance measures. We intend to address this issue in this paper and a follow-up work on persistence (Ng and Ghosh, 2012).

4 Results on Performance Predictability of Star Rating and Stewardship Grade

4.1 Out-of-sample Predictability

Table 4 presents the results of our statistical tests of the difference in out-of-sample performance of portfolio of funds in different rating groups. Applying the Newey-

West robust t-test on these time series we can infer that the Star Rating is the best predictor of performance, demonstrating a significant and monotonic relation between rating and return. In contrast, neither the overall Stewardship Grade nor any of its constituent grade exhibits the same extent of predictability after controlling for Star Rating. In fact, in many cases, funds from a better rating portfolio underperform. Results for Board Quality (difference 3_2) and Fee Score (2_1) are examples of such occurrences. Although the joint rating SR*SG indicate the desired positive rating-return relation, the result lacks statistical significance. Nonetheless, the First Principal Component yields a significant and positive results for 2_1 and 3_2.

Furthermore, once classified by their First Principal Component (FPC) score, the mean monthly out-of-sample performance measured by the Carhart (1997) four-factor alpha between the middle and top groups, is significantly affected by the Star Rating. The only other factors important among the components are the Fee Structure (negative) and Manager Incentive (positive), that are both intuitive. For the difference between the top and the middle groups, we also find the Star Rating playing a significant positive role, and so does Corporate Culture. We however find that Board Quality plays a significant negative role while Fee Score plays a significant but positive role. These last two results are counter-intuitive as better boards are expected to have a positive impact on performance while higher fees would have made the funds less profitable. Finally, comparing the top and the bottom groups by Star Rating, the FPC and the interaction between the two, we report that individually as well as jointly, the Star Rating and the

FPC score play an important and positive role in the difference in four factor alpha between the highest and lowest governance groups.

Overall, we can infer that in the presence of the standard Stewardship Grade, our proposed FPC measure, while being objective, seems to be doing a better job in predicting the difference in out-of-sample four factor alpha together with the Star Rating.

<Insert Table 4>

4.2 Predictive Panel Regressions of Short term Performance and Stewardship

Predictive performance analysis in Section 4.1 indicates that Morningstar Star Rating does have a strong impact on the out-of-sample predictability of the Carhart (1997) four-factor alpha when grouped by the First Principal Component (FPC) scores. Furthermore, as we observed in Subsection 4.1, the FPC score also plays a significant role in determination of both the out-of-sample performance and the effectiveness of the Star Rating. We would first perform predictive panel regressions on the various performance measures including the four-factor alpha, a monthly or yearly performance measure, followed by the Star Rating which is a weighted long term risk-adjusted performance measure.

We perform different specifications of the predictive panel data regression models. We first estimate the standard fixed effect model for the yearly data (collected in December, 2005-2011) assuming *strict exogeneity* of the regressors in Specification EX

(Table 5, Panel A, Model Spec EX) (Wooldridge, 2010). In model (SR_EX), we find that the four-factor alpha is well explained by the Star Rating. We further observe that size plays a significant negative role, consistent with the story that bigger funds can water down returns (Berk and Green, 2004). However, for the fixed effect (FE) regression models with just the Stewardship Grade (SG_EX) and the First Principal Component (FPC_EX), neither the Stewardship Grade (SG) nor the First Principal Component (FPC) are have a significant impact on short-term performance. In both models (SG_EX) and (FPC_EX), size seems to play a positive and significant role in determining short-term performance as opposed to the specification (SR_EX). Age, on the other hand, shows a negative but statistically insignificant association with short term performance. The main reason for the insignificance of the SG and FPC scores in the models (SG_EX) and (FPC_EX) is possibly attributed to the violation of the strict exogeneity assumption in these models which makes the coefficient estimates inconsistent.

To address the problem of *endogeneity* we use two stage least squares estimators in the predictive panel regression setting in Table 5 Panel A (Specification EN). The instruments used for the static two stage least squares specification includes lagged values of the average tenure of the manager, the longest tenure of the manager, the turnover ratio, the expense ratio and the absolute flow variable. These instruments are correlated with the Stewardship or FPC scores, and hence to the Star Rating. Furthermore, these instruments only affect the four-factor alpha (or the dependent variable) through the explanatory variables satisfying the *exclusion restriction* (or *exogeneity*) or valid

instruments. We have also included the included explanatory variables size and age as instruments to make sure that the necessary rank condition is satisfied.

From model (SR_EN), we observe that the lagged Star Rating does continue to have a positive impact on the four-factor alpha and size has a negative and significant effect, consistent with findings in Berk and Green (2004) and Bebchuk et. al. (2009). Compared to the preceding model, we find that the Stewardship has a significantly positive relation with four-factor alpha in model (SG_EN). In addition, we find once again that fund size has a significantly negative effect on performance. The same results are echoed when we replace Stewardship score with the First Principal Component in model (FPC_EN).

With a predictive panel data model, we can exploit the dynamic behavior and possibly inter-relationship between the lagged four-factor alpha as a covariate as well. However, given only 6 years of data after accommodating for the year lost for constructing the four-factor alpha, the results are expected to be weak at best. Even then, we find that in the overall model (SGA_DY) after controlling for the lagged dependent variable or lagged four-factor alpha, fund size continues to exhibit a significantly negative relation with performance. This result holds across all the regression specifications analysed. Surprisingly, we also find that Corporate Culture too plays a significantly negative role in predicting performance. One possible explanation for this anomaly is that after controlling for past performance (in terms of lagged alpha), Corporate Culture seems to create possible managerial entrenchment and generate a

negative effect (Brown, Harlow and Starks, 1996, Ding and Wermers, 2009, Bebchuck and Cohen, 2004, Bebchuk et al., 2009). This finding is also highlighted by a significant negative effect on fund size (Berk and Green, 2004). We also observe that lagged four-factor alpha tends to have a negative impact on future alpha after controlling for other covariates. Although this effect is economically significant in all four dynamic models, it is only statistically significant in Model (SR_DY) with the Star Rating. Finally, we conclude from models (SG_DY) and (FPC_DY) that neither the Stewardship score nor FPC score have a significant positive impact on performance after controlling for lagged four-factor alpha.

Since the methodology for Stewardship Grade was revamped substantially in 2007, we re-estimate all the regression models using data over the period on and after 2007. Both under strict exogeneity (Models EX) and incorporating endoeneity (Models EN), results in Panel B are qualitatively the same as those in Panel A for the full sample. The former again indicates no statistical significance between corporate governance score (SG or FPC) and future returns while the latter yields the same strong significance of both SG and FPC scores in predicting four-factor alpha.

<Insert Table 5>

4.3 Predictive Panel Regressions of Long term Performance and Stewardship

The main objective of pursuing good governance is to ensure a long-term and sustainable performance. This brings us to the search of an appropriate measure of

performance. While the four-factor alpha suffices to be a short term measure of mutual fund performance, its single (monthly or yearly) horizon does not make it a more viable measure for long term objectives. There are a few reasons for this premise. First, an accurate evaluation of the four-factor alpha substantially reduces the data series, particularly for a yearly data in which only a few years of Stewardship Grades are availability. Second, it is fairly well accepted now that good mutual fund performance (or "hot hands") is not very persistent (Hendricks et al., 1993, Goetzman et al., 1994, Brown et al., 1995). Consequently, using a yearly measure generates a "bounce" which might deviate from longer run objectives. Third, it is not clear how risk adjusted returns of different time horizons may be combined into a consolidated long term performance measure, making it a challenge to reach a consensus on the use of such a measure. Finally, published ratings data from sources like Morningstar are more readily available to and trusted by individual investors than model-based risk adjusted returns. Taking all of these into account, a weighted measure of risk adjusted returns of different durations like the Star Rating have gained tremendous popularity among both academics and practitioners (Blake and Morey, 2000, Wellman and Zhou, 2007, Del Guercio and Tkac, 2008).

Hence, with a long term investment objective in mind, we prefer to analyze the raw Star Rating measure with respect to a corporate governance score and other control variables in a predictive panel data setting. Table 6 Panel A, Specification EX uses the assumption of strict exogeneity in the Fixed Effect panel data model. We observe that in Model (SGA_EX) all the components of the Stewardship score except Manager Incentive (MI) are statistically significant, and so are the controls average manager tenure and

longest manager tenure (measures of stability), size and age (measures of maturity). We do, however, find that while size has a positive impact on Star Rating, age shows a significant negative impact. This dichotomy is persistent for models (SG_EX) and (FPC_EX) where we use the Stewardship Grade and the FPC score respectively consistent with findings in Bebchuk et. al. (2009).

In Table 6 Panel B models of specification EX for data on or after 2007, we also find a positive effect of average manager tenure being higher, and a slight negative effect (in Model SGA_EX) of the longest manager tenure. This last result could be real (say, previously discussed managerial entrenchment, as documented in Brown et al., 1996, Ding and Wermers, 2009) or an artifact of the possible endogeneity in the model. It is also possible that the high collinearity between age and size is causing some anomalies.

To address the possible endogeneity issue that can make the estimated coefficients inconsistent, we use two stage last squares on more parsimonious models described in Table 6 Panel A (Specifications EN). Instruments used are lagged values of stewardship scores, average and longest manager tenure, log(age), expense ratio, log(size), turnover ratio and fund flows. The included variables are Stewardship scores components (Model SGA_EN), the Stewardship score itself (Model SG_EN) or the FPC score (Model FPC_EN). In model (SGA_EN) we observe, among the components Fee Score has a significant negative effect on Star Rating while others are all positive and significant. We also estimate that size and turnover ratio would have a positive impact on Star Rating. Unlike the short term performance measure, size having a positive impact on

Star Rating or weighted long term performance is more reasonable as the bigger funds tend to have better Star Rating which also adds to its size. We should also note that funds that are selected by Morningstar to receive the Stewardship Grade tend to be those with a larger assets (Lutton et al., 2011).

In Model SG_EN, both Stewardship Grade and turnover ratio have a positive and significant impact on Star Rating. However, size had an economically significant but statistically insignificant negative coefficient for the full sample. We can reconcile the somewhat counter-intuitive result on turnover by noting that Star Rating is a long-term measure of past performance which might not be affected by recent active portfolio management. Besides, the relationship between portfolio turnover and fund performance has been a controversial issue. For example, both Carhart (1997) and Malkiel (1995) document a negative association between fund performance and turnover. But results from Grinblatt and Titman (1994) and Wermers (2000) report a positive relation between performance and turnover, thus suggesting that active trading can be positive for fund performance (for an international perspective, see Rao, 2010).

In the dynamic panel data model for yearly data (Table 6 Panel A Specification DY), we find that both size and past Star Rating play a significant positive role in all models (SGA_DY, SG_DY and FPC_DY). We also observe that size play a significant positive role. In model (SGA_DY), both the Stewardship Grade in model (SG_DY) and the FPC in model (FPC_DY) are significantly and positively associated with Star Rating when we control for past Star Ratings. Considering that we are using only six years of

data, this result further corroborates our view of the inherent long- term relationship between Star Rating and corporate governance of the mutual funds.

Results in Table 6 Panel B Specifications EX and EN, which are based on data taken on or after 2007 (the year when there was a major revamp of the Stewardship Grades methodology), are qualitatively the same as those reported in Panel A on the whole. One notable difference is that size becomes negative and significant for Model (SG_EN), which supports the hypothesis of Berk and Green (2004) predictions.

As annual reports and financial statements are released once a year, we cannot expect the components of Stewardship Grades to change more frequently than that. However, as we have a wide cross section and different funds have different dates of release of financial statements and quarterly updates, we can assume that some variation in the monthly data on Stewardship Grades exists despite its persistence. With the variation of the Star Rating per month, and its dependence on the current Stewardship scores, it is worthwhile to explore the structural dependence of the two measures in the monthly panel. Furthermore, due to the availability of a longer monthly series, our analysis can also focus on co-evolution of the two processes controlling for other factors.

In the standard time fixed effects model with strict exogeneity reported in Table 6 Panel C Specification EX, we find that all the Stewardship components are significant with Fee Score having a negative coefficient. The other variables that are significant positive effect include lagged values of turnover, size, manager tenure average and

absolute flow. We also observe that the FPC score has a significant positive impact on Star Rating when controlled for fund characteristics, of which only expense ratio shows a significantly negative impact.

To address non-exogeneity of the explanatory variables we employ the two stage least squares techniques for panels with instruments given by two lagged dependent variable and lagged values of average manager tenure, longest manager tenure, turnover ratio, expense ratio, log of size, fund flows and a dummy for 2007 or after. In Model (SGA_EN) we find that both Fee Scores and regulatory history has negative and significant coefficients. Turn-over ratio is insignificant, and size has a positive impact. Interestingly, when we replace individual stewardship component grades with the FPC score, the coefficient of turnover turns positive and significant. Further, turnover is small positive but size has a negative and significant coefficients. Similar results follow for the Stewardship Grades which corroborates findings on effect on the E-index (Bebchuk et al., 2009).

One exciting part about the monthly data is that the number of observations on time domain is sufficiently large to do a complete analysis of the time series in the panel context. For the Model (SGA_DY), all coefficients of the stewardship components were significant and Fee Score turns out to be the only one with a negative coefficient. We also find that although lagged size is positive, lagged age has a strong negative impact on Star Rating consistently for all three dynamic models. In addition, we also find that being in financial crisis year (2008) was significantly negative for the Star Rating. In examining

the shorter sample series from January 2007 to May 2011 (Table 6 Panel D) using static, endogenous and dynamic models, we find similar results.

Our proposed objective or data-driven First Principal Component (FPC) score reduces the dimensionality problem and shows a strong positive significance in models with the more subjective Stewardship score (Table 6 Panel D Models FPC_EX and SG_EX). We also find a consistently positive effect of turnover, size, average manager tenure and absolute flow, and a negative effect of expense ratio.

In our naïve models where we treat the fund specific variables as exogenous, we are assuming that these variables have a direct impact on the dependent variable: Star Rating. However, we can always argue that these variables are affecting the Star Rating through some other variables like the Stewardship. Hence, it might be more meaningful to include variables that are associated with stability (manager tenure), cost of running the fund (expense ratio) and reputational impact (fund flow) as instruments on direct variables like fund size and turnover ratio. Our two stage least squares on the subsample after 2007 shows significant negative impact of size (consistent with Berk and Green, 2004) while maintaining a positive impact on the Stewardship variable. However, turnover appears to assert a positive impact on Star Rating when composite Stewardship variable (SG or FPC)) rather than individual components is used.

With the monthly panel from 2007, we can apply the Arrelano and Bond (1991) methodology to evaluate the effect of differences in the Stewardship components and

composite indices on the Star Rating without facing a dimensionality problem caused by a short time dimension. We see from Table 6, Panel D model (SGA_DY) that controlling for lagged raw Star Rating score, turnover, size and age, the entire set of stewardship components are significant. Except for Fee Structure, all coefficients are positive. Lagged age seems to have a negative significant impact on Star Rating controlling for the difference of funds fixed effects.

Considering that Stewardship components are persistent, we proceed to explore whether changes in Stewardship could be more informative. It turns out that with the exception of Corporate Culture, the first order difference of all stewardship component scores have a negative and significant impact, controlling for past rating, size, age and turnover (Model DSGA_DY). Similar analysis with our proposed FPC score reveals that while the lagged FPC as expected has a positive and significant impact on Star Rating, the lagged first difference of FPC has a negative significant effect after controlling for lagged Star Rating, turnover, age and size (Models FPC_DY and DFPC_DY). We further observe that other than turnover ratio which continues having positive effect, variables like size, age and the indicator for the crisis period all have a significant negative impact on Star Rating. These results are more or less echoed in the results based on models (SG_DY) and (DSG_DY).

We reckon that due to strong persistence of the corporate governance structure, any changes in these ratings are taken to be highly informative to the investing public and the effect gets reflected heavily in long term investment while controlling for past Star

Rating. Hence, as opposed to the stock variable reflected in the stewardship score itself, changes in the score might communicate past problems in management and induce a negative overreaction.

To check for persistence in the Star Rating, we use two lags of the Star Rating (Model FPC_DY2). Our results suggest that the Star Rating has a lasting effect. As expected, size, age and crisis period have significant negative impact on Star Rating while turnover ratio shows a positive relation.

5 Conclusions

According to the 2012 Investment Company Factbook, ownership of mutual funds by U.S. households hit 44% in year 2011 compared with less than 6% two decades ago. As of the end of 2011, the number of mutual funds in the U.S. market exceeded 19000 while the number of mutual funds available worldwide was close to 73000. Given the multitudes of funds that small institutional investors and retail investors have to choose from, they often rely on mutual fund ratings like the Morningstar Star Rating to guide their investment decision. This throws us back to the long standing problem of evaluating future unobserved performance based on past performance, a practice which can be detrimental to the long-term financial well-being of investors.

The objective of this paper is simple, and really two-fold. First, we evaluate the predictability of performance after controlling for other factors. Second, we comprehensively uncover the relationship of performance, both short-term (like a risk adjusted performance measure like the Carhart's four factor alpha) and long-term (like Morningstar Star Rating), with some non-return-based performance measures related to the specific funds.

Stewardship Grades have been given by Morningstar since November 2004 to provide investor with an indication of how well a mutual fund performs its fiduciary duties. The evidence of the link between good corporate governance and performance have been ephemeral at best. In this paper, we evaluate and ascertain this linkage for mutual funds, and hence, give a simple alternative to the recombination of individual Stewardship scores to an objective measure that could have implications on long-term performance.

This paper, to the best of our knowledge, is the first rigorous attempt to examine two popular and influential strands of research on mutual fund ratings – Morningstar's Star Rating and Stewardship Grade – in a comprehensive and econometrically robust manner. To examine the predictive power of the ratings, we conduct a ranked portfolio test and predictive panel regressions for both monthly and annual data.

Our investigations lead to several key findings. First, all our empirical results unequivocally indicate that a good Star Rating is associated with good one-year post-

rating risk-adjusted return. Second, we further show that after adjusting for endogeneity using a two stage least squares approach, we find a strong and unmistakable link between Stewardship score or our proposed FPC score, and separately for both short term (four factor alpha) and long term performance (Star Rating) measures. Third, using a dynamic panel model, we evaluate how a corporate governance score such as the Stewardship Grade, is still strongly and positively significant in the presence of past Star Ratings. This substantiates the link claimed between governance and performance for mutual funds. Finally, we explore the implications for investors, both institutional and retail, in evaluating mutual funds with other factors like size, age, manager tenure, flow, expense ratio and turnover.

Summarizing, we find some evidence that a new fiduciary grade based on principal component analysis of the component grades possesses a stronger predictive power than the Stewardship Grade itself. This suggests that a more informative and reliable corporate governance rating can be obtained by putting weightings on the individual stewardship components based on Principal Components Analysis. In our study on the relation between the two ratings, we find that strong Granger causality exists between the two ratings. This relation holds even when we control for all potential determinants. To avoid spurious regression, we perform unit root tests on the time series of both ratings to ascertain that not both series are non-stationary. It turns out that the Star Rating is a stationary process while the Stewardship Grade cannot be proven to be stationary. However, the difference series do not Granger cause each other.

With an increasing awareness of the importance of corporate governance, investors are likely to include governance quality as one of their criteria for screening mutual funds. Given the popularity of the Morningstar Star Ratings, the Stewardship score (or better still, the proposed FPC score) has the potential of becoming a standard tool for fund selection, just like the Star Ratings. This study helps provide investors with some useful insights into the relation of two seemingly unrelated ratings. Moreover, our findings complement existing work on the predictive ability of mutual fund ratings and persistence of mutual fund performance. We acknowledge that our analyses are subject to some limitations such as the use of raw scores as continuous variables and the short duration of our data set, although this is the longest one analyzed in the literature. Nonetheless, we hope our application of appropriate econometric techniques can help to instigate further research on the efficacy of mutual fund ratings by using of more robust methods that can better handle panel data involving ordinal variables such as the Stewardship scores.

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TABLE 1

Frequency Distribution of Morningstar Ratings and Stewardship Grades

Panel A. Frequency Table of Morningstar Ratings For January Sample of Year 2004 – 2010
This panel reports the percentage of funds that receive the various Morningstar Star Ratings (1-star (Worst) to 5-star(Best)) awarded in the month of January for year 2005 - 2011. Numbers in ( ) indicate percentages.

	Star Rating					
Year	1-star	2-star	3-star	4-star	5-star	N
2005	16 (1.93)	113 (13.68)	285 (34.5)	276 (33.41)	136 (16.46)	826
2006	19 (2.04)	155 (16.66)	328 (35.26)	302 (32.47)	126 (13.54)	930
2007	34 (3.24)	177 (16.87)	376 (35.84)	330 (31.45)	132 (12.58)	1049
2008	30 (3.13)	185 (19.35)	340 (35.56)	292 (30.54)	109 (11.4)	956
2009	57 (6.58)	177 (20.46)	326 (37.68)	208 (24.04)	97 (11.21)	865
2010	44 (5.45)	169 (20.94)	294 (36.43)	222 (27.5)	78 (9.66)	807
2011	58 (6.7)	162 (18.72)	326 (37.68)	224 (25.89)	95 (10.98)	865

Panel B. Frequency Table of Stewardship Grades For January sample of Year 2004 – 2010
This panel reports the percentage of funds that receive the various Stewardship Grades (F (Worst) to A(Best)) awarded in the month of January for year 2005 - 2011. Numbers in ( ) indicate percentages.

	Stewardship Grade					
Year	F	D	C	B	A	N
2005	30 (3.63)	90 (10.89)	230 (27.84)	408 (49.39)	68 (8.23)	826
2006	19 (2.04)	80 (8.6)	285 (30.64)	459 (49.35)	87 (9.35)	930
2007	10 (0.95)	86 (8.19)	348 (33.17)	498 (47.47)	107 (10.2)	1049
2008	30 (3.13)	195 (20.39)	441 (46.12)	230 (24.05)	60 (6.27)	956
2009	32 (3.69)	157 (18.15)	427 (49.36)	196 (22.65)	53 (6.12)	865
2010	25 (3.09)	118 (14.62)	391 (48.45)	200 (24.78)	73 (9.04)	807
2011	7 (0.8)	142 (16.41)	407 (47.05)	238 (27.51)	71 (8.2)	865

Panel C. Two-way Frequency Table of Stewardship Grades and Star Ratings For January Sample of Year 2004 – 2010

This panel reports the two-way frequencies for Stewardship Grades and Star Ratings received by funds as of month of January for year 2005, 2007, 2009, 2011. Numbers in ( ) indicate percentages. (We omit results for 2006, 2008 and 2010 due to conserve space)

			Star Rating				
Year	N	Stewardship Grade	1-star	2-star	3-star	4-star	5-star
2005	826	F	1 (0.12)	3 (0.36)	18 (2.17)	5 (0.6)	3 (0.36)
		D	0	16 (1.93)	43 (5.2)	20 (2.42)	8 (0.96)
		C	8 (0.96)	52 (6.29)	93 (11.25)	60 (7.26)	17 (2.05)
		B	4 (0.48)	37 (4.47)	116 (14.04)	165 (19.97)	86 (10.41)
		A	0	5 (0.6)	15 (1.81)	26 (3.14)	22 (2.66)
2007	1049	F	0	6 (0.57)	1 (0.09)	3 (0.28)	0
		D	5 (0.47)	24 (2.28)	38 (3.62)	17 (1.62)	2 (0.19)
		C	17 (1.62)	91 (8.67)	136 (12.96)	74 (7.05)	30 (2.85)
		B	11 (1.04)	46 (4.38)	167 (15.91)	192 (18.3)	82 (7.81)
		A	1 (0.09)	10 (0.95)	34 (3.24)	44 (4.19)	18 (1.71)
2009	865	F	4 (0.46)	7 (0.8)	12 (1.38)	7 (0.8)	2 (0.23)
		D	16 (1.84)	44 (5.08)	64 (7.39)	25 (2.89)	8 (0.92)
		C	25 (2.89)	93 (10.75)	164 (18.95)	99 (11.44)	46 (5.31)
		B	11 (1.27)	23 (2.65)	67 (7.74)	65 (7.51)	30 (3.46)
		A	1 (0.11)	10 (1.15)	19 (2.19)	12 (1.38)	11 (1.27)
2011	865	F	0	1 (0.11)	2 (0.23)	1 (0.11)	3 (0.34)
		D	19 (2.19)	35 (4.04)	49 (5.66)	25 (2.89)	14 (1.61)
		C	29 (3.35)	87 (10.05)	160 (18.49)	97 (11.21)	34 (3.93)
		B	10 (1.15)	32 (3.69)	87 (10.05)	74 (8.55)	35 (4.04)
		A	0	7 (0.8)	28 (3.23)	27 (3.12)	9 (1.04)

Table 2
Descriptive Statistics of Fund Variables

This table presents descriptive statistics of important fund variables used in this study. The sample consisting of funds classified as 'U.S. Stock' , 'International Stock' , 'Specialty', 'Bond' ('Taxable Bond' or 'Municipal Bond') and 'Balanced' funds under Morningstar's 'US Broad Category' Classification) receive Stewardship Grades (abbrev. SG) (including each of the five stewardship components) and the Star Ratings (Abbrev SR) in December 2005, 2006, 2007, 2008, 2009 and 2010 November 2004 – May 2011. We report the time series averages of the cross-sectional mean, standard deviation and number of funds.

	Balanced Funds			Bond Funds			International Stock Funds			Specialty Funds			U.S. Stock Funds		
Variables	Mean	Standard Deviation	N	Mean	Standard Deviation	N	Mean	Standard Deviation	N	Mean	Standard Deviation	N	Mean	Standard Deviation	N
log(age in mth)	5.3683028	0.62896	110	5.3795497	0.4481573	315	5.0461288	0.4293019	213	5.2275886	0.4729978	13	5.2097018	0.572526	624
Expense Ratio	0.0082924	0.004902	110	0.0074303	0.0034062	315	0.0128939	0.0046383	213	0.0122945	0.005503	13	0.011109	0.0041892	624
Absolute Fund Flows (in mil)	12.294297	340.05229	110	3.0699238	277.36565	315	25.69938	543.22362	212	-2.5657789	28.742031	13	-7.3041424	229.12717	621
Average Manager Tenure	6.5833509	4.9476213	107	7.5845307	5.4972827	315	6.2438162	3.9192516	213	7.9215385	4.5290633	13	7.5198852	5.3072304	624
Turnover ratio	0.6644566	0.6046284	110	1.0801076	1.7108	315	0.6601213	0.7053254	213	0.6153846	0.6746283	13	0.7302717	0.604028	624
log(size in mil)	6.9439451	1.736499	110	6.6895591	1.3812719	315	6.6019083	1.7866403	213	6.4433435	1.0001594	13	6.5346641	1.6467225	624

Table 3

Correlation and Granger Causality Relation Between Star Rating and Stewardship Grades

Panel A Correlation of Star Rating with Stewardship Grade and its Components

This table reports the correlation between the Star Rating and the Stewardship Grade (SG) and each of the Stewardship Grade components - Corporate Culture (CC), Board Quality (BQ) , Manager Incentives (MI), Fees Score (FS) and Regulatory History (RH) for the January sample of 2005 , 2007, 2009 and 2011 (we omit results for 2006, 2008 and 2010 to conserve space)

	January 2005 (N=826)	January 2007 (N=1049)	January 2009 (N=865)	January 2011 (N=865)
SG	0.27183	0.28052	0.19043	0.17891
	(< 0.01)	(< 0.01)	(< 0.01)	(< 0.01)
BQ	0.23148	0.25559	0.04808	0.0048
	(< 0.01)	(< 0.01)	(0.1578)	(0.8879)
FS	0.17368	0.1345	0.05052	-0.01846
	(< 0.01)	(< 0.01)	(0.1377)	(0.5877)
MI	0.04744	0.01121	0.11455	0.20896
	(0.1732)	(0.7170)	(< 0.01)	(< 0.01)
CC	0.2898	0.30522	0.17222	0.21621
	(< 0.01)	(< 0.01)	(< 0.01)	(< 0.01)
RH	0.19754	0.22287	0.16411	-0.01057
	(< 0.01)	(< 0.01)	(< 0.01)	(0.7564)

Panel B Pairwise Granger Causality Test on raw scores of Star Rating (SR) and Stewardship Grade (SG)

This table reports the F-statistics and p-value (in parentheses) of Pairwise Granger causality test (lag length 2) between Star Ratings and Stewardship Grades or individual stewardship component grade using monthly time series data from the January 2005 – January 2011.

Variable	SR GC Variable	Variable GC SR
SG	10.0908***	9.5923***
	(< 0.01)	(< 0.01)
BQ	0.97223	4.91146***
	(0.3782)	(< 0.01)
CC	18.2667***	6.67852***
	(< 0.01)	(< 0.01)
FS	1.63902	2.19359
	(0.1942)	(0.1115)
MI	13.5747***	0.51167
	(< 0.01)	(0.5995)
RH	2.57021	8.99095***
	(0.0765)	(< 0.01)

Table 4

This table reports results for statistical tests for difference in mean monthly out-of-sample performance measure in the top and bottom rating groups. For each month over the period November 2004 (month 1) to May 2010 (month 67), sample funds are ranked by one or both of the Morningstar Stewardship Grades (abbrev. SG) and/or Morningstar Star Ratings (abbrev SR) and the difference in mean four-factor alpha for funds in any two groups is observed. A Newey-West adjusted t-test is performed on the time series of differences. Funds with SR (respectively SG) = 1 or 2 is in the bottom SR (respectively SG) group. Funds with SR (respectively SG) = 5 is in the top SR (respectively SG) group. The remaining funds are placed in the middle rating group. Funds in the top SGSR group are those in both top SR and top SG groups. Similarly, funds in the bottom SG*SR group are those in both bottom SR and bottom SG groups. The remaining funds are placed in the middle SG*SR group. Similar criteria apply to the five Stewardship Grade components - Corporate Culture (CC), Board Quality (BQ) , Manager Incentives (MI), Fees Score (FS) and Regulatory History (RH). For the First Principal Component (FPC) of the Stewardship Grade factors, funds in the top, middle and bottom group (approximately 30% in each of the top and bottom groups and the remaining 40% in the middle group) are ranked 3, 2 and 1 respectively. symbols 2_1, 3_2 and 3_1 denote the difference in mean performance measures between the middle and bottom, top and middle and top and bottom groups respectively. Numbers in parentheses are the Newey-West adjusted t-test (4 lags) standard errors. The symbols *, ** and *** denote respectively significance at the 10%, 5% and 1% level.

Difference in mean between groups	SR	SG	SG*SR	FPC	FPC*SR
2_1	0.0702***	0.0147	0.0181	-0.00392	0.0203
	(0.0188)	(0.0247)	(0.0295)	(0.0137)	(0.0180)
3_2	0.0415***	-0.0175	0.00121	0.045358***	0.0561**
	(0.0125)	(0.0178)	(0.0344)	(0.0110)	(0.0236)
3_1	0.1116***	-0.0028	0.01931	0.041434**	0.0764***
	(0.0232)	(0.0352)	(0.0293)	(0.0169)	(0.0284)

Table 5

Regressions of Risk-adjusted Returns on Mutual Fund Ratings

We report estimates of regressions to examine the extent to which Morningstar's Stewardship Grades and/or Star Ratings predict future return using yearly data comprising the December samples spanning December 2005 (respectively December 2007) through December 2010 in Panel A (respectively Panel B). The regression specification is $S_{it} = \mathbf{b}^T \mathbf{Rating}_{it} + \mathbf{c}^T \mathbf{x} + e_{it}$.

S_{it} (in %) is the one-year Carhart's four-factor alpha. $\mathbf{Rating}_{it}$ is a vector of variables that are one or a combination of the following mutual fund ratings variables: lagged raw score of Star Rating (SR), lagged raw score of Stewardship Grade (SG), lagged raw score of the five stewardship components – Corporate Culture (CC), Board Quality (BQ) , Manager Incentives (MI), Fees Score (FS) and Regulatory History (RH), and the First Principal Component (FPC) score derived from the stewardship component scores via principal component analysis. **x** is a vector of control variables known to be related to mutual fund performance. Control variables in **x** include lagged expense ratio and turnover ratio obtained from the CRSP mutual fund database, lagged fund flow, lagged logarithm of fund total net asset (in millions), lagged logarithm of fund age (in months) and lagged four factor alpha. We estimate three different models, each with various specifications involving a different set of independent variables.

(Model Specification EX) A static panel fixed time effect model.

(Model Specification EN) Two-stage least squares regression model The instrumental variables used here include prior(one-year) values of the following variables : average manager tenure, longest manager tenure. Fund flows, log (age), expense ratio, log(size) and turnover ratio.

(Model Specification DY) Dynamic Panel model Instrumental variables used in various specifications are as follows. For specification (SGA_DY): prior one-year and two-year values of S_{it}, prior one-year values of each of: average manager tenure, longest manager tenure. Fund flows, log (age), expense ratio, log(size) and turnover ratio; for specifications (SR_DY) , (SG_DY) and (FPC_DY): prior one-year values of each of: average manager tenure, longest manager tenure. Fund flows, log (age), expense ratio, log(size) and turn over ratio

Panel A (December 2004, 2005, 2006, 2007, 2008, 2009 and 2010 Samples)

	(Model Spec EX)			(Model Spec EN)			(Model Spec DYN)			
Explanatory Variables	(SR_EX)	(SG_EX)	(FPC_EX)	(SR_EN)	(SG_EN)	(FPC_EN)	(SGA_DY)	(SR_DY)	(SG_DY)	(FPC_DY)
intercept	0.0065	0.1385	0.1611	-0.1545**	-0.6085***	-0.5740***				
	(0.1468)	(0.1169)	(0.1136)	(0.0672)	(0.1485)	(0.1359)				
lagged BQ							0.9279			
							(1.0279)			
lagged CC							-6.7727**			
							(2.6809)			
lagged FS							2.5338			
							(1.6828)			
lagged MI							1.3709			
							(2.0148)			
lagged RH							-2.19829			
							(3.0429)			
Lagged SR raw score	0.0309**			0.0899**				0.4030*		
	(0.0124)			(0.0351)				(0.2081)		
lagged SG raw score		0.0045			0.1279***				0.1971	
		(0.0063)			(0.0326)				(0.1999)	
lagged FPC			0.0013			0.2963***				0.35707
			(0.0124)			(0.0681)				(0.436)
lagged FF alpha							-0.0124	-0.4369*	-0.2767	-0.2487
							(0.12)	(0.2278)	(0.2722)	(0.2701)
lagged turn over ratio	-0.0005	-0.0009	-0.0009	-0.0005	-0.0003	-0.0006	0.0101*	0.0007	0.0005	0.0004
	(0.5003)	(0.0008)	(0.0009)	(0.0007)	(0.0007)	(0.0007)	(0.0056)	(0.0010)	(0.0018)	(0.0019)
lagged size	-0.0061**	0.0085*	0.0098**	-0.0165**	-0.0358***	-0.0376***	-0.2839**	-0.444***	-0.4096**	-0.4007***
	(0.0021)	(0.0046)	(0.0044)	(0.0077)	(0.0117)	(0.0101)	(0.1346)	(0.0624)	(0.1371)	(0.1382)
lagged age	-0.0081	-0.0379	-0.0389							
	(0.0259)	(0.0262)	(0.0262)							
Fixed Time Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Fund Effect	No	No	No	No	No	No	No	No	No	No
Fixed Fund Effect (Difference)	No	No	No	No	No	No	Yes	Yes	Yes	Yes
N	880	880	880	875	875	875	828	828	828	828

Panel B (December 2007, 2008, 2009 and 2010 Samples)

	(Specification EX)			(Specification EN)		
	(SR_EX)	(SG_EX)	(FPC_EX)	(SR_EN)	(SG_EN)	(FPC_EN)
Intercept	-0.1710**	0.0163	0.040096	-0.1250	-0.6640***	-0.5969***
	(0.0792)	(0.1151)	(0.1114)	(0.0822)	(0.2537)	(0.2272)
lagged BQ						
lagged CC						
lagged FS						
lagged MI						
lagged RH						
Lagged SR raw score	0.0355**			0.0615*		
	(0.0142)			(0.0371)		
lagged SG raw score		0.0012			0.1436**	
		(0.0089)			(0.0590)	
lagged FPC			-0.00777			0.3157**
			(0.0173)			(0.1256)
lagged turn over ratio	-0.0003	-0.0004	-0.000444	-0.0002	0.0003	-0.00037
	(0.0009)	(0.0010)	(0.0010)	(0.0008)	(0.0007)	(0.0010)
lagged size	-0.0063**	0.0087	0.010469*	-0.0008	-0.0432*	-0.04177**
	(0.0025)	(0.0059)	(0.0055)	(0.0056)	(0.0222)	(0.0202)
lagged age	0.0217	-0.0117	-0.012693			
	(0.0166)	(0.0272)	(0.0272)			
Fixed Time Effect	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Fund Effect	No	No	No	No	No	No
Fixed Fund Effect (Difference)	No	No	No	No	No	No
N	874	874	874	869	869	869

Table 6

We report estimates of regressions to examine the relation between Morningstar's Star Rating and prior period Stewardship Grades or stewardship component grades. In Panel A (respectively B) , yearly data from the December samples spanning 2005 (respectively 2007) through 2010 is used. In Panel C (respectively D) , monthly data from November 2004 (respectively January 2007) through May 2011 is used. The regression specification is

$$SR_{it} = \mathbf{b}^T \mathbf{Rating}_{it} + \mathbf{c}^T \mathbf{x} + e_{it}.$$

SR_{it} is the Morningstar Star Rating of fund I at year t.. $\mathbf{Rating}_{it}$ is a vector of variables that are one or a combination of the following mutual fund ratings variables: lagged raw score of Star Rating (SR), lagged raw score of Stewardship Grade (SG), lagged raw score of the five stewardship components – Corporate Culture (CC), Board Quality (BQ) , Manager Incentives (MI), Fees Score (FS) and Regulatory History (RH), and the First Principal Component (FPC) score derived from the stewardship component scores via principal component analysis. **x** is a vector of control variables known to be related to mutual fund performance. Control variables in **x** include lagged turnover ratio obtained from the CRSP mutual fund database, lagged logarithm of fund total net asset (in millions), contemporaneous average and longest manager tenure, contemporaneous logarithm of fund age (in months) and contemporaneous absolute fund flow. We estimate three different models, each with various specifications involving a different set of independent variables.

<u>Yearly Regression (Panel A and B)</u>

(Model Specification EX) A static panel fixed time effect model.

(Model Specification EN) Two-stage least squares regression model. For (SGA_EN), the instrumental variables used here include contemporaneous values of the following variables : average manager tenure, longest manager tenure, Fund flows, log (age), expense ratio, log(size) and turnover ratio and prior one-year stewardship component grades (BQ, CC, FS, MI and RH). For (SG_EN), instruments used are contemporaneous values of the following variables : average manager tenure, longest manager tenure, Fund flows, log (age), turnover ratio

(Model Specification DY) Dynamic Panel model. Instrumental variables used in various specifications are as follows. For all specifications, instruments used are prior one-year and two-year raw scores of SR and contemporaneous values of average manager tenure, longest manager tenure, Fund flows, log (age), log(size) and turn over ratio.

Monthly Regression Panel C and D

(Model Specification EX) A static panel fixed time effect model.

(Model Specification EN) Two-stage least squares regression model. For (SGA_EN), the instrumental variables used here include prior one-month values of the following variables : first principal component of Stewardship Grades, average manager tenure, longest manager tenure, log (age), expense ratio, log(size) and turnover ratio. For (FPC_EN) and (SG_EN), instruments used are prior one-month values of the following variables : average manager tenure, longest manager tenure, log (age), expense ratio, log(size) , turnover ratio and fund flows.

(Model Specification DYN) Dynamic Panel model

Panel C Instrumental variables used in various specifications are as follows. For specification (SGA_DY) and (SG_DY): prior one- and two-month raw Star Rating raw scores, prior one-month values of the following variables: average manager tenure, longest manager tenure, expense ratio, log(size) , turnover ratio and fund flows. For specification (FPC_DY): prior one- and two-month raw Star Rating raw scores, prior one-month values of the following variables: average manager tenure, longest manager tenure, expense ratio, log(size) , turnover ratio , fund flows and a dummy that takes a value of 1 if the time period is in or after January 2007.

Panel D Instrumental variables used in specification (FPC_DY) are prior one- and two-month raw Star Rating raw scores, prior one-month values of the following variables: average manager tenure, longest manager tenure, expense ratio, log(size) , turnover ratio , fund flows and a dummy that takes a value of 1 if the time period is in or after January 2007. Instrumental variables used in all other specifications are prior one- and two-month raw Star Rating raw scores, prior one-month values of the following variables: average manager tenure, longest manager tenure, expense ratio, log(size) , turnover ratio and fund flows

Panel A (December 2004, 2005, 2006, 2007, 2008, 2009 and 2010 Samples)

Dependent variable: Star Rating Raw Scores (SRRaw). : Dec 2005, Dec 2006, 2007, Dec 2008, Dec 2009 and Dec 2010

	(Specification EX)			(Specification EN)			(Specification DY)		
	(SGA_EX)	(SG_EX)	(FPC_EX)	(SGA_EN)	(SG_EN)	(FPC_EN)	(SGA_DY)	(SG_DY)	(FPC_DY)
intercept	2.4765***	2.7338***	2.777***	1.2699***	-1.7823***	-1.4998***			
	(0.1371)	(0.1065)	(0.1502)	(0.052)	(0.6434)	(0.5527)			
lagged BQ	0.15445***			0.1872***			3.1509*		
	(0.0313)			(0.0395)			(1.6153)		
lagged CC	0.1538***			0.20603***			0.2960		
	(0.0404)			(0.0454)			(1.0188)		
lagged FS	-0.0576***			-0.08481***			2.9335**		
	(0.0209)			(0.0208)			(1.1957)		
lagged MI	0.0361			0.0774*			0.7044		
	(0.0385)			(0.0404)			(1.3131)		
lagged RH	0.1433***			0.1648***			1.8598*		
	(0.0401)			(0.0430)			(0.9807)		
lagged SG raw score		0.0771***			0.8295***			1.9355***	
		(0.0086)			(0.1685)			(0.5835)	
lagged FPC			0.1822***			1.7811***			2.5108***
			(0.0212)			(0.3300)			(0.6054)
lagged SR raw score							0.1317**	0.2182***	0.3158***
							(0.0670)	(0.0674)	(0.0521)
Lagged Turn over ratio	0.0029***	0.0031***	0.0032	0.0022*	0.0066***	0.0050***	0.000729	0.0014	-0.0011
	(0.0011)	(0.0011)	(0.0019)	(0.0011)	(0.0021)	(0.0016)	(0.0026)	(0.0021)	(0.0012)
Lagged Size	0.1816***	0.1789***	0.1770***	0.1686***	-0.1021	-0.0705	0.2427***	0.1867**	0.2443***
	(0.0097)	(0.0124)	(0.0097)	(0.0082)	(0.0749)	(0.0605)	(0.0932)	(0.0735)	(0.0678)
Avg manager tenure	0.0198**	0.0203***	0.0200***						
	(0.0019)	(0.0033)	(0.0050)						
Longest manager tenure	0.0015	0.002	0.0036						
	(0.0038)	(0.0015)	(0.0036)						
Absolute flows	2.55E-05	2.52E-05	2.23E-05						
	(2.61E-05)	(2.56E-05)	(1.63E-05)						
Age	-0.2417***	-0.2727***	-0.2813***						
	(0.0256)	(0.0226)	(0.0260)						
Fixed Time Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Fund Effect	No	No	No	No	No	No	No	No	No
Fixed Fund Effect (Difference)	No	No	No	No	No	No	Yes	Yes	Yes
N	1088	1088	1088	1088	1088	1088	1029	1029	1029

Panel B (December 2007, 2008, 2009 and 2010 Samples)

Dependent variable: Star Rating Raw Scores (SRRaw). : Dec 2007, Dec 2008, Dec 2009 and Dec 2010									
	(Specification EX)			(Specification EN)			(Specification DY)		
	(SGA_EX)	(SG_EX)	(FPC_EX)	(SGA_EN)	(SG_EN)	(FPC_EN)	(SGA_DY)	(SG_DY)	(FPC_DY)
intercept	2.3515***	2.7063***	2.7194***	1.2935***	-3.2970***	-2.5787***			
	(0.2164)	(0.1711)	(0.1969)	(0.0815)	(1.1445)	(0.7433)			
lagged BQ	0.11525***			0.1238***			1.2214		
	(0.0253)			(0.0276)			(1.6101)		
lagged CC	0.1141***			0.1592***			1.4927		
	(0.0473)			(0.0520)			(1.2459)		
lagged FS	-0.08987***			-0.1175***			1.5762		
	(0.0252)			(0.0251)			(1.2973)		
lagged MI	0.0648			0.1068			-1.6448		
	(0.0664)			(0.0676)			(1.4324)		
lagged RH	0.1818***			0.1969***			1.4162		
	(0.0551)			(0.0614)			(1.9965)		
lagged SG raw score		0.0611***			1.2506***			1.2394***	
		(0.0043)			(0.3027)			(0.4458)	
lagged FPC			0.1486***			2.4299***			3.0000***
			(0.0283)			(0.4645)			(0.7991)
lagged SR raw score							0.1284	0.2271***	0.1893***
							(0.0903)	(0.0558)	(0.0567)
Turn over ratio	0.0023	0.003*	0.003	0.0016	0.0098**	0.0052*	0.0007	-0.0012	0.000336
	(0.0015)	(0.0014)	(0.0024)	(0.0017)	(0.0046)	(0.0029)	(0.0031)	(0.0016)	(0.0015)
Size	0.1817***	0.1763***	0.1726***	0.1754***	-0.3087**	-0.1853**	0.3992***	0.1766***	0.2508***
	(0.0158)	(0.0189)	(0.0121)	(0.0107)	(0.1373)	(0.0883)	(0.1436)	(0.0675)	(0.0784)
Avg manager tenure	0.0269***	0.0263***	0.0258***						
	(0.0032)	(0.0025)	(0.0065)						
Longest manager tenure	-0.0024**	-0.0006	0.0008						
	(0.0011)	(0.0010)	(0.0046)						
Absolute flows	1.85E-05	1.85E-05	1.75E-05						
	(1.87E-05)	(1.83E-05)	(1.68E-05)						
Age	-0.2151***	-0.2536***	-0.2548***						
	(0.0387)	(0.0356)	(0.0347)						
Fixed Time Effect	Yes	Yes	Yes	No	No	No	Yes	Yes	Yes
Fixed Fund Effect	No	No	No	Yes	Yes	Yes	No	No	No
Fixed Fund Effect (Difference)	No	No	No	No	No	No	Yes	Yes	Yes
N	1067	1067	1067	1067	1067	1067	1013	1013	1013

Panel C (Monthly Samples From November 2004 to May 2011)

Dependent variable: Star Rating Raw Scores (SRRaw) Sample : Dec 2004 to May 2011

	(SGA_EX)	(FPC_EX)	(SG_EX)	(SGA_EN)	(FPC_EN)	(SG_EN)	(SGA_DY)	(FPC_DY)	(SG_DY)
intercept	1.3169***	1.4168***	1.4226***	2.2050***	-1.8918***	-1.9953***			
	(0.0170)	(0.0185)	(0.0167)	(0.1709)	(0.2427)	(0.1968)			
lagged BQ	0.1636***			-0.0800			0.02490***		
	(0.0118)			(0.1892)			(0.0040)		
lagged CC	0.251***			2.4502***			0.01267**		
	(0.0123)			(0.1457)			(0.0061)		
lagged FS	-0.0726***			-1.5774***			-0.03933***		
	(0.0051)			(0.0726)			(0.0016)		
lagged MI	0.045***			0.0621			0.01093***		
	(0.0112)			(0.0877)			(0.0017)		
lagged RH	0.1401***			-0.7773***			0.08852***		
	(0.0095)			(0.1551)			(0.0022)		
lagged SG raw score			0.0976***			0.8388***			0.0270***
			(0.0029)			(0.0469)			(8.78E-06)
lagged FPC		0.2372***			1.97458***			0.0514***	
		(0.0064)			(0.1296)			(0.0001)	
lagged SR raw score							0.6866***	0.6845***	0.6883***
							(0.0004)	(2.56E-05)	(8.69E-06)
lagged turn over ratio	0.0028***	0.0030***	0.0032***	-0.000142	0.005243***	0.007335***	0.000224*	0.0003***	0.0002***
	(0.0004)	(0.0004)	(0.0004)	(0.0011)	(0.0005)	(0.0005)	(0.0001)	(5.32E-06)	(1.20E-06)
lagged size	0.1482***	0.1387**	0.1417***	0.1954***	-0.09399***	-0.08354***	0.03587***	0.0066***	0.0356***
	(0.0025)	(0.0024)	(0.0024)	(0.0061)	(0.0203)	(0.0186)	(0.0008)	(0.0001)	(9.80E-06)
lagged expense ratio	-0.0011***	-0.0007**	-0.0011***						
	(0.0003)	(0.0003)	(0.0003)						
lagged avg manager tenure	0.0194***	0.0216***	0.0205***						
	(0.0005)	(0.0006)	(0.0007)						
lagged absolute flows	6.98E-05**	7.24E-05**	7.25E-05**						
	(3.53E-05)	(3.6E-05)	(3.62E-05)						
Lagged age							-0.5635***	-0.4678***	-0.5163***
							(0.0088)	(0.0005)	(4.19E-05)
D_crisis								-0.0527***	
								(5.16E-05)	

	(SGA_EX)	(FPC_EX)	(SG_EX)	(SGA_EN)	(FPC_EN)	(SG_EN)	(SGA_DY)	(FPC_DY)	(SG_DY)
Fixed Time Effect	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Fixed Fund Effect	No	No	No	No	No	No	No	No	No
Fixed Fund Effect (Difference)	No	No	No	No	No	No	Yes	No	No
N	1273	1273	1273	1273	1273	1273	1208	1208	1208

Panel D (Monthly Samples From January 2007 to May 2011)

Dependent variable: Star Rating Raw Scores (SRRaw) Sample : January 2007 to May 2011

	Specification EX			Specification EN		
	(SGA_EX)	(FPC_EX)	(SG_EX)	(SGA_EN)	(FPC_EN)	(SG_EN)
intercept	1.2772***	1.425***	1.4307***	2.8552***	-3.6891****	-2.9308***
	(0.0264)	(0.0247)	(0.0208)	(0.2033)	(0.3725)	(0.2536)
lagged BQ	0.1182***			0.08509		
	(0.0144)			(0.1703)		
lagged CC	0.2153***			2.9896***		
	(0.0130)			(0.0933)		
lagged FS	-0.09999***			-1.856***		
	(0.0045)			(0.0751)		
lagged MI	0.0965***			-0.2688***		
	(0.0136)			(0.0776)		
lagged RH	0.1604***			-1.2844***		
	(0.0123)			(0.1039)		
lagged SG raw score			0.0802***			1.06658***
			(0.0022)			(0.0588)
lagged FPC		0.1949***			2.9766****	
		(0.0058)			(0.1910)	
lagged turn over ratio	0.0028***	0.003***	0.0032***	-0.0031**	0.0052****	0.008252***
	(0.0004)	(0.0005)	(0.0005)	(0.0015)	(0.0008)	(0.0006)
lagged size	0.1536***	0.1452***	0.1467***	0.2026***	-0.2553****	-0.1831***
	(0.0029)	(0.0025)	(0.0027)	(0.0080)	(0.0277)	(0.0226)
lagged expense ratio	-0.0012***	-0.0008***	-0.0011***			
	(0.0003)	(0.0003)	(0.0003)			
lagged avg manager tenure	0.021***	0.0242***	0.0234***			
	(0.0006)	(0.0008)	(0.0008)			
lagged absolute flows	0.0000415*	4.32E-05*	4.36E-05**			
	(2.36E-05)	(2.40E-05)	(2.42E-05)			
Fixed Time Effect	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Fund Effect	No	No	No	No	No	No
Fixed Fund Effect (Difference)	No	No	No	No	No	No
N	1250	1250	1250	1250	1250	1250

Panel D (‘contd)

Dependent Variable : Star Rating Raw Scores. Sample: Jan 2007 to May 2011

	(Specification DY)						
	(SGA_DY)	(DSGA_DY)	(DFPC_DY)	(DSG_DY)	(FPC_DY)	(SG_DY)	(FPC_DY2)
lagged BQ	0.01947***						
	(8.33E-05)						
lagged CC	0.03903***						
	(4.03E-05)						
lagged FS	-0.02026***						
	(4.11E-05)						
lagged MI	0.05483***						
	(4.02E-05)						
lagged RH	0.1017***						
	(3.35E-05)						
lagged SG raw score						0.0491***	
						(9.16E-05)	
lagged FPC					0.0788****		0.0657***
					(0.0007)		(1.83E-05)
lagged SR raw score	0.7440***	0.7501***	0.7469***	0.7501***	0.7428****	0.7454***	0.6921***
	(6.11E-06)	(0.0005)	(0.0002)	(0.0001)	(0.0001)	(1.85E-05)	(2.76E-06)
lagged SR raw score (lag 2)							0.1430***
							(4.28E-06)
Lagged First Difference of BQ		-0.0181***					
		(0.0056)					
Lagged First Difference of CC		0.0562***					
		(0.0061)					
Lagged First Difference of FS		-0.0845***					
		(0.0026)					
Lagged First Difference of MI		-0.0280***					
		(0.0045)					
Lagged First Difference of RI		-0.0288*					
		(0.0036)					
Lagged First Difference of PC1			-0.0155****				
			(0.0006)				
Lagged First Difference of SG raw score				-0.0206***			
				(0.0003)			
lagged turn over ratio	0.000133***	7.50E-05***	0.0002****	8.65E-05***	0.0003****	0.0001***	0.0005***
	(7.68E-07)	(3.97E-05)	(8.34E-06)	(2.25E-05)	(1.40E-05)	(3.80E-06)	(9.85E-07)
lagged size	0.02407***	0.0246***	-0.0208****	0.0244***	-0.0057****	0.0300***	-0.0574***
	(2.53E-05)	(0.0009)	(0.0004)	(0.0006)	(0.0002)	(7.16E-05)	(2.61E-05)
lagged age	-0.5261***	-0.3656***	-0.3731***	-0.3571***	-0.4055****	-0.4278***	-0.2971***
	(1.40E-04)	(0.0047)	(0.0019)	(0.0024)	(0.0021)	(0.0008)	(1.51E-04)
D_crisis(-1)			-0.0435***		-0.0494****		-0.0486***
			(0.0002)		(0.0001)		(4.25E-06)
Fixed Time Effect	No	No	No	No	No	No	No
Fixed Fund Effect	No	No	No	No	No	No	No
Fixed Fund Effect (Difference)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1146	1146	1146	1146	1146	1146	1146