PREDICTABILITY OF MORNINGSTAR RATING FOR FUTURE PERFORMANCE ON CANADIAN MUTUAL FUNDS

by

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PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF FINANCIAL RISK MANAGEMENT

In the Financial Risk Management Program
of the
Faculty
of
Business Administration

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SIMON FRASER UNIVERSITY

Summer 2010

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ABSTRACT

This paper analyzes the predictability of Morningstar Rating for future performance of Canadian equity mutual fund by applying dummy variable regression analysis on three performance metrics - Sharpe Ratio, Jensen's Alpha, and Two-index Alpha. The examination period is from May 2004 to April 2009. The results show that Morningstar Rating System can predict future performance of Canadian mutual fund. Specifically, the higher rated funds significantly outperform lower rated funds. Similar results are obtained irrespective of the reference group used for the dummy variable regression.

Keywords: Morningstar Rating System, Sharpe Ratio, Jensen's Alpha, Two-index Alpha, Dummy Variable Regression

ACKNOWLEDGEMENT

We would like to express our sincere gratitude to our supervisor, Christina Atanasova, whose valuable feedback, encouragement and patience have helped us throughout this project. She has offered us stimulating comments and suggestions with her rich research experience.

Also, we would like to give special thanks to the second reader, Evan Gatev, for his valuable comments to our project.

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1. INTRODUCTION

Morningstar Rating System has gained importance for the mutual fund investors in North America. It helps investors to identify fund managers who add value, distinguish between similar funds, and provide a more intuitive measure of historical risk adjusted returns. Moreover, investors appear to use the Morningstar Rating system as shorthand metric to identify supposedly superior funds. According to Guercio and Tkac (2001), most rating changes are always accompanied by abnormal fund flows in the expected direction and the upgrade and downgrade of four- and five-stars have the strongest dollar effects.

However, do higher rated funds always have persistently good future performance, and do lower rated funds have consistently poor performance? Over the last two decades, there have been many papers published addressing the persistence or predictability of Morningstar Rating System over US mutual fund performance. Khorana and Nelling (1998) find that the star rating system only has predictive power in the short term. Blake and Morey (2000) analyzed the predictive power of the future performance of open-ended US-mutual funds based on Morningstar rating system. They used four performance metrics – Sharpe ratio, mean monthly excess return, Jensen's alpha, and the modified four-index alpha to examine the out-of-sample performance of the Morningstar rating. They concluded that Morningstar had low predictability when it came to low performance funds. Only weak statistical evidence was found that five-star funds outperform the four and three star funds. The paper also concluded that the Morningstar rating is only slightly better than the four alternative performance metrics mentioned above.

In 2002, Morningstar changed its rating methodology and Morey (2007) extended the research paper by Blake and Morey (2000) with the objective of finding the predictability of the new rating system on US-mutual funds.[1] According to Morey (2007), the new rating system predicted future performance accurately at least three years out-of-sample showing short-term persistence in fund performance. The report also showed that higher rated funds significantly outperform lower rated funds. After comparing the methodology with the old one on the same out-of-sample period, Kraussl and Sandelowsky (2007) also concluded that the old rating system is superior in predicting short-term fund performance, but both systems are about equal in

[1] The rating system is explained later in the paper.

predicting longer-term performance, and the new system can only be used as investment guide for few categories of funds.

There have been other papers on persistence of mutual fund performance, which use other performance metrics instead of Mornningstar rating. Goetzmann and Ibbotson (1994) studied whether mutual fund performance persists from year to year by using a contingency table test to detect persistence in raw returns and risk adjusted returns. They found out that when a winner is in the top half of the sample, the winning pattern repeats over multiple year horizons. Carhart (1997) analyzed the factor-based explanation for US-mutual fund performance persistence by using the Capital Asset Pricing Model (CAPM), Fama French 3-factor model and a 4-factor model. His findings showed that funds that are underperformers last year tend to be underperformers even in the future years. In addition to this, he also concluded in his paper that funds that are high-performers last year give more than the expected return for the following year but do not follow the growth pattern after that. He also showed that load costs and transaction costs have a negative impact on fund performance. Zheng and Xie (2009), students of Master of financial risk management, conducted a similar research on data from Jan 1993 to Dec 2008. They used the CAPM and Carhart's 4-factor model to examine the performance persistence of mutual funds under nine investment styles. Their results confirmed the results obtained by Carhart (1997).

All the papers listed above focus on US mutual fund market, and some of them consider only US equity funds. In this paper, we applied a similar research methodology as in Blake and Morey (2000) to evaluate the predictive power of the new Morningstar Rating system for future performance of Canadian Equity mutual fund industry from May 2004 to April 2009. We divided the data into three time series (1-year, 3-year, and 5-year) in order to analyze the time series effect on the performance measurement.

The organization of the paper is as follows. Section 2 describes the data, followed by the explanation of the new Morningstar Rating System (MRS) in Section 3. Section 4 elaborates the methodology used to examine the predictability of Morningstar Rating System (MRS). In Section 5, we present our statistical result and analysis, with our conclusion in Sector 6. There is

always scope for further research and improvement in any empirical study. We discuss these aspects in Section 7 of this paper.

2. DATA

We examine two broad sample groups in our study, Canadian Equity (Large Cap group) and Canadian Small/Mid Cap Equity (Small/Mid Cap group). Funds in the Canadian Equity category must invest at least 90% of their equity holding in securities domiciled in Canada, and their average market capitalization must be greater than the Canadian Small/Mid cap threshold. In contrast, funds in Canadian Small/Mid Cap Equity must have an average market capitalization lower than the Canadian Small/Mid cap threshold.

Using monthly total return of mutual fund from May 2004 to April 2009, we calculate the alternative performance metrics[2]. We use total return rather than average annual compounded rate of return because the total return includes dividend and capital gains or losses, changes in Net Asset Value (NAV) and dividends or interest on reinvested dividends. All the data is from Morningstar EnCorr[3] software. Since Morningstar rates the mutual funds monthly and the latest monthly return we can get is May 2009, we choose to use May as our focal month. Furthermore, in Canada the fund returns are not load-adjusted as it is in United States. As a result, the total returns we use in calculating the alternative performance metrics are not load-adjusted. On the other hand, due to unavailability of Morningstar rating history, we calculate the historical Morningstar Rating based on the methodology provided by Morningstar Inc. In the following section, we explain this rating process. Morningstar does not rate funds that are less than three years old. As a result, we only select funds that have at least three years history at the time we calculate alternative performance metrics.

The two broad sample groups are divided into three time horizons: one-, three-, and five-year. As a result, we can give both short- and long-term analysis of the predictive abilities of Morningstar rating and the alternative predictors. Morningstar ratings are provided at the beginning of each time horizons. Then we rank the funds based on alternative performance

[2] Alternative performance metrics are Sharpe's Ratio, Jensen's Alpha and Four-index Alpha
[3] Encorr is a database software provided by Morningstar which provides mutual fund information

metrics for each time horizon. By doing this, we examine whether the funds retain their ranking as that in Morningstar rating.

3. MORNINGSTAR RATING SYSTEM

Although Morningstar rating for mutual funds has been in existence since 1984, it was launched in Canada in 1999. In June 2002, Morningstar substantially changed the methodology they used to rate funds. According to the new rating system, funds are categorized into smaller groups based on similar investment strategies instead of the broad asset classes. For instance, in the original methodology, funds that are categorized based on value investment style resulted in high ratings for most value funds and lower ratings for most growth funds. Thus, by dividing the funds into even smaller categories, the new rating system has minimized the "tail wind" effect, which was affecting the ratings of funds that invest in specific areas of the market.

In Canada, mutual funds are categorized into 59 categories based on the investment class of each fund's portfolio. Morningstar uses the monthly risk-adjusted rate of return for its rating methodology. This rate of return accounts for only management fees and does not gives special consideration to sales commission, loads or other fees.

For computing Morningstar rating, we took the monthly risk adjusted return for each fund under the Candian Equity and Canadian Small/Mid Cap Equity category from May 1994 to April 2004 using the Encorr Analyzer. We convert the monthly risk adjusted returns into 3-years, 5-years and 10-years annualized returns. Using these returns and the following Morningstar criteria, we compute weight-adjusted returns.

Age of the fund	Weight
At least 3 years but less than 5	1
At least 5 years but less than 10	0.6 5 year returns 0.4 3 year returns
At least 10 years	0.5 10 year returns 0.3 5 year returns 0.2 3 year returns

The weight-adjusted returns are ranked and stars given according to the following scale:-

5-star	4-star	3-star	2-star	1-star
10%	22.5%	35%	22.5%	10%

The above methodology is used to rank the funds in Canadian Equity and Canadian Small/Mid Cap Equity category separately. The funds are ranked at the beginning of May for the year 2004, 2005, 2006, 2007, and 2008.

4. METHODOLOGY

In order to compare with the performance measurement applied by Morningstar Rating System, we use Sharpe Ratio, Jensen's Alpha and 2-index alpha to measure the performance of Canadian equity mutual fund. To examine the predictability of Morningstar ratings over future fund performance we use dummy variable regression analysis, which uses these three alternative metrics.

4.1 Sharpe Ratio

Sharpe Ratio (1996) also known as "reward-to-variability" ratio, measures excess return (or risk premium) per unit of risk in an investment asset. Sharpe ratio for fund, i is

$$SH_i = \frac{\overline{R_i - R_f}}{\sigma_i} \qquad \textit{Equation (1)}$$

where,

$\overline{R_i - R_f}$ = the average risk-premium during certain time-period for fund, *i*. The risk-premium of fund, *i* was measured as the difference between monthly total return of fund, *i* and 30-day T-bill rate during the same time-period,

σ_i = the standard deviation of the monthly return for fund, *i* during the sample period.

4.2 Jensen's Alpha

Jensen single-index alpha is obtained from the following model,

$$R_{it} - R_{ft} = \alpha_i + \beta_i\,(R_m - R_f)_t + \varepsilon_i \qquad \textit{Equation (2)}$$

where,

R_i = monthly risk-adjusted return for each fund i at time t,

R_f = 30-day T-bill rate obtained from Bank of Canada's website for time t,

α_i = Jensen's alpha for fund i,

β_i = sensitivity of the fund i's excess return to the index return Rm,

R_m = monthly lognormal return on the index,

ε_i = random error for fund i.

For large cap Canadian Equity funds, S&P 60 is used as the market index. Since there is no combined index for Small/Mid cap equity, the equally weighted average of S&P small cap index and S&P mid cap index is used as the reference index. This average is used as the volatility for small cap and mid cap is similar with little or no difference. The above model is implemented using OLS[4] regression in Matlab code. The code is run for different data sub-samples obtained for the years 2004-05, 2004-07, 2004-09, 2005-06, 2005-08, 2006-07, 2006-09, 2007-08 and 2008-09. This regression model is used separately for Canadian Equity and Canadian Small/Mid Cap Equity categories.

4.3 Two-index Alpha

Though we are unable to rebuilt the Fama French three factor model (FF3), we set up a similar model as FF3 and call it as the two-index alpha model, which is shown below.

$$R_{it} - R_{ft} = \alpha_i + \beta_{1i}(R_m - R_f)_t + \beta_{2i}\,(EP)_t + \varepsilon_i \qquad \textit{Equation (3)}$$

where,

α_i = 2-index alpha for fund i,

R_m = market return (different from index return used in Equation (2)),

β_{1i} = sensitivity of the fund i's excess return to the market return R_m,

[4] Ols is the standard procedure in Matlab used to run ordinary least squares regression

β_{2i} = sensitivity of the fund i's excess return to the Earnings-to-Price ratio,

EP = Earnings-to-Price ratio,

The rest of the symbols have same meaning as given for Equation (2).

To obtain the 2-index alpha, we use country data for Canada from Fama-French's website. It is to note that the above model factors are different from the conventional Fama-French model, where portfolios are arranged based on SMB[5] and HML[6]. This is due to the non-availability of data on SMB. However, the EP ratio in Equation (3) includes HML values. Since the data on the Fama French's website is only available until 2007, we can only assess the data for 2004-05, 2005-06, 2006-07, and 2004-07, rather than the nine time horizons used in the other models. We take the results from two-index alpha as a supplementary guide to check the consistency of our result from the other two performance measurements. Since the two-index model uses an additional risk factor, EP compared to a single-risk factor, β used in CAPM, we expect a more accurate result from this model.

4.4 Dummy variable regression

To examine how well the Morningstar Star Rating (MSR) predicts the performance of Canadian Equity Mutual Fund, we use dummy variable regression analysis. It allows us to test the predictability of different Morningstar ranking groups.

For each sample group (Large Cap and Small/Mid Cap), we rank all the funds based on their Sharpe Ratio, Jensen's alpha and 2-index alpha. In order to compare with the Morningstar's Star Rating performance, we use same scale for each group as that in each MSR group, and we name each group as 'Sharpe Five', 'Sharpe Four', 'Sharpe Three', and so on.

We applied similar methodology to Blake and Morey (2000) to examine the predictability of MSR. Each sub-sample is analyzed using the following Dummy Variable regression equation.

$$S_i=\gamma_0+\gamma_1 D_{4i}+ \gamma_2 D_{3i}+ \gamma_3 D_{2i}+ \gamma_4 D_{1i}+\varepsilon_i \qquad \textit{Equation (4)}$$

[5] Small Minus Big
[6] High Minus Low

S_i=alternative performance metrics, e.g. Sharpe Ratio, Jensen's alpha or 2-index alpha for fund i,

D_{4i}=1 (if the fund is in Four-Star group or Sharpe Four), or 0 if not,

D_{3i}=1 (if the fund is in Three-Star group or Sharpe Three), or 0 if not,

D_{2i}=1 (if the fund is in Two-Star group or Sharpe Two), or 0 if not,

D_{1i}=1 (if the fund is in One-Star group or Sharpe One), or 0 if not,

i=1 to N, where N is the number of funds in each sub-sample.

We take the 5-star funds and 3-star funds as two reference groups, where the intercept factor γ_0 is just the expected Sharpe ratio/Jensen's alpha/2-index alpha, if the fund is also in the reference group (hence, $\gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = 0$). The coefficients γ_1 to γ_4 represent the differences between the dummy variables and the reference group. We use t-statistics to test the significance level of these differences.

5. EMPIRICAL RESULTS

In this section, we will discuss our dummy variable regression results based on three performance measurements metrics - Sharpe ratio, Jensen's alpha, and 2-index alpha. The regression results are shown in Table 1 through Table 14. For each performance metric, the outcomes are shown based on three sample groups - Canadian Equity (Large Cap), Small/Mid Cap Canadian Equity (Small/Mid Cap), and combined sample. The regression is first run using 5-star reference group similar as Black and Morey (2000) used. Since Morningstar only ranks top 10% of the funds as 5-star, only limited number of Canadian Equity mutual funds (including both Large Cap and Small/Mid Cap) qualify for our selection criteria. We then try to use 3-star group as the reference group because Morningstar rating rates the 35% of the funds in the middle as 3-star, and by taking 3-star group as reference group, we get more data to run the dummy variable regression and expect a more accurate and robust result.

5.1 Dummy Variable Regression Analysis using Sharpe Ratio

Five-Star Reference Group: Table 1 to Table 3 shows dummy variable result using 5-star as reference group. The γ_0 coefficient, which is also the constant factor in dummy variable regressions, differs from time to time and sample to sample. For Large Cap sample group, most of the constant factors are negative and significant under 95% confidence level. Except for 2005-2008 sub-sample, the $\gamma 0$ coefficient is positive and insignificant (t-statistic lower than 1.96). More insignificant constant factors appear in combined sample group. 4 out of 9 constant factors are insignificant compare with one in Large Cap sample and one in Small/Mid Cap sample group. Different $\gamma 0$ coefficient indicates that the reference group (5-star group) performs differently in different time horizon and for different type of funds.

If the Morningstar rating does show obvious predictability over future fund performance, we expect all the slope coefficients (γ_1 to γ_4) are increasingly negative and significant. For Large Cap sample group, the dummy variable regression result does not show clear difference between high rated funds and low rated funds in terms of performance. Only 3 out of 36 coefficients (γ_1 to γ_4) are significant, and two of them are from γ_3 and γ_4 coefficients. There is no evidence to suggest that higher rated funds always outperformance lower rated funds. Regression results from Small/Mid Cap group shows similar outcome as that from Large Cap group. Combined sample shows better result than the other two samples. 7 out of 36 coefficients (γ_1 to γ_4) are significant. Furthermore, there are more negative coefficients appear in lower rated funds (γ_3 and γ_4) than that from higher rated funds (γ_1 and γ_2). As a result, there are only weak evidences indicating that lower rated funds performance worse than higher rated funds. Furthermore, Morningstar rating does suggest some level of predictability over lower rated funds (2-star and 1-star). For lower rated funds, their coefficients suggest that 2-star fund can outperform 1-star funds. On the other hand, R^2 also varies a lot from different time horizons and samples and only few F-tests are significant at 95% confidence level (two for Large Cap, three for Small/Mid Cap and three for combined sample). This reveals that the dummy variable regression model we used does not fit our data very well. Although the result is better from combined sample, it still could not suggest more predictability power of Morningstar rating over future performance.

Three-Star Reference Group: Although using 3-star funds as references group bring us more data to run the regression, the result does not come out as we expected. Result using 3-star funds as reference group displays in Table 4 through Table 6. Different rated funds, no matter high or low, do not show different performance outcomes. Only 2 out of 36 coefficients (γ_1 to γ_4) are significant for Large Cap sample group, none for Small/Mid Cap and only one for combined sample. For result from 3-star group as reference group, we expect coefficients for higher rated funds (γ_3 and γ_4) positively increase, and coefficients for lower rated funds (γ_1 and γ_2) we expected them negatively increase. Morningstar predictability over lower rated funds also works for 3-star reference group result. 3 out of 9 coefficient pairs (γ_1 and γ_2) with different horizons satisfy the increase trend for Large Cap, 2 for Small/Mid Cap, and 2 for combined sample. The R^2 is low, and no more than two out of nine F-test result suggests significance under 95% level.

5.2 Dummy Variable Regression Analysis using Jensen's alpha

Five-Star Reference Group: From Table 7, it can be seen that, though the γ_0 coefficients are all negative, they differ in magnitude over the various time horizons and have highly significant t-stats. Hence, the 5-star reference group performs differently in different years for Large Cap sample group funds. R^2 is close to one for all the results and the F-test shows significant values. The coefficients γ_1 to γ_4 are negative with highly significant t-stats, showing that the 4-, 3-, 2-, and 1-star funds perform worse than the 5-star funds for large cap Canadian Equity funds over 1-, 3- and 5-year time horizons. Similar results are shown in Table 8 for Small/Mid Cap group funds. However, it is to observe that there are some missing values of γ coefficients due to small data sample. R^2 is close to one and F-stat is highly significant. Regression results for combined group are shown in Table 9. We show that for the combined sample, the coefficient γ_0 varies for different time horizons, but most of the coefficients are significant for most sample period. The signs of the coefficients γ_1 through γ_4 are not consistent and show that most of the t-stats are insignificant. In addition, the value of R^2 is less than 0.5 and F-stat is insignificant. Hence, nothing concrete can conclude from the regression results of the combined data using 5-star as reference group.

Using 5-star as reference group, the results show that 5-star funds perform better than the 4-, 3-, 2- and 1-star funds. Though the combined sample group should give even better results, it shows inconclusive results. Moreover, the number of observations is less when using 5-star

reference group. Hence, one cannot rely on the regression results obtained using 5-star reference group.

Three-Star Reference Group: The results of the dummy regression using 3-star reference group show in Table 10 through Table 12. Some similarities appear as that using 5-star funds as reference group.

Coefficient γ_0 varies for each sub-sample time-period with highly significant t-stat. Table 10 and 11 show that γ_1 and γ_2 are positive, while γ_3 and γ_4 are negative, and are all significant. This reveals that 5-star and 4-star funds perform better than the 3-star funds, while 2-star and 1-star funds perform worse than the 3-star funds. In addition, the magnitude of the coefficients is decreasing from γ_1 to γ_2 and increasing from γ_3 to γ_4, showing that the 5-star funds perform better than 4-star and 1-star funds perform worse than 2-star. The t-stats are highly significant for all the coefficients. R^2 is close to one and F-stats are highly significant for both the fund groups.

Table 12 shows the result of the combined regression. Though the signs and magnitudes of the γ coefficients confirm to the results obtained in Table 10 and 11, it shows insignificant t-stats, low R2 and insignificant F-stats for most of the sample periods.

5.3 Dummy Variable Regression Analysis using 2-index alpha

Table 13 and Table 14 show the results of the dummy variable regression using 2-index alpha. The results in Table 13 are consistent with the results obtained for Jensen's alpha using 5-star as the reference group. However, using 2-index alpha shows better result for the combined data sample with high R^2 and significant t-stats and F-stats.

As can be seen from Table 14, using the 2-index alpha in the dummy variable regression model and using 3-star as the reference group, the results have improved with high R^2 and significant t-stats and F-stats. The value of the coefficients increases from γ_4 to γ_1, showing that the 5-star funds perform better than 4-star funds, 4-star funds perform well than 3-star, and so on.

6. CONCLUSION

Although Morningstar Inc strongly states that their Morningstar Rating System cannot predict the future mutual fund performance, more investors prefer to use it as an investing guide and make investment decision based on the MRS. Blake and Morey (2000) suggest, "Morningstar is able to predict low-performing funds", and "only weak statistical evidence that the five-star funds outperform the four-, and three-star funds". The aim of this paper is to investigate the predictability of Morningstar five-star rating system over the mutual fund performance. This is an important issue not only because that highly ranked funds attract the greatest investor cash inflow, but also the investors should be aware of the accuracy of the investing model they use.

We choose both Large Cap and Small/Mid Cap Canadian Equity mutual fund as our data set. We use monthly total funds return from May 2004 to April 2009 to examine the predictive abilities of the MSR over different time horizons with different performance metrics. A dummy variable regression analysis, similar to Blake and Morey (2000) has been applied to the process. We then pick three well-known risk adjusted performance metrics to compare with the Morningstar performance measurement---Sharper ratio, Jensen's Alpha and Two-index alphas.

The results show some similarities to Blake and Morey (2000), which used U.S. domestic equity mutual funds. Results from dummy variable regression analysis using Sharpe ratio give weak evidence that higher rated funds can always outperform lower rated funds. However, there is more evidence to suggest that funds with less than three stars performs worse than higher rated funds (four- and five-star funds), and this trend is expected to continue. This result is relatively robust over different time horizons. A stronger result is obtained from Jensen's alpha and two-index alpha. Result from dummy variable regression using Jensen's alpha reveals that higher rated funds (five-star) could outperform lower rated funds, but this result is not stable. However, lower rated funds (one- and two-star) perform worse than higher rated funds (four- and five-star). Furthermore, worse funds tend to perform even worse, which means one-star funds always perform worse than two-star funds. Using two-index alpha model brings out similar results, and the data fits better into the model we built.

In Canada, the mutual fund market is much more complicated than the U.S. market. Morningstar star rating may have more directory ability in U.S., but based on our analysis, we do not suggest Canadian mutual fund investors to use Morningstar star rating as their investment "Bible" because the stars do not seem to identify funds with persistently superior future performance. On the other hand, the Morningstar rating does have certain level of predictability over the future mutual fund performance, especially for poor performed or lower rated funds. As a result, the star ratings may help to identify inferior funds that are more likely to continue to perform poorly in the future.

7. DIRECTIONS FOR FUTURE RESEARCH

The biggest problem with our data is survivorship bias. Since Canadian Morningstar Inc only lists existing funds, we are unable to reconstruct the whole database for the whole time horizon. However, survivorship bias has significant affect over the dummy variable regression results. As a result, several papers had addressed this issue. For example, Morey (2006) set up three methods to tackle this problem. For the first method, investor could choose one of the other surviving funds of the same category. The second method includes only funds that survived for least one year. For the last method, he picked a similar fund that survived to fill the position of the fund disappears.

Canadian mutual fund market may seem simple compared with U.S. mutual fund market because of its size but it is much more complicated in terms of other factors. U.S mutual fund managers run a $11,120.73 billions of dollars of total net assets value and 7,691 mutual funds at the end of 2009, but Canadian mutual fund managers operate $596.9 billion net assets. Compared with U.S. market, Canadian mutual fund market is quite small. As a result, after dividing funds into different investment styles and categories, number of funds in each group is limited. Furthermore, in our paper, to simplify our analysis, we only use Canadian equity. This may cause insufficient data. If we can expand our dataset, and use multi-category funds or different investment style, it may improve our result a lot more.

On the other hand, a research report about global fund investor experience, published by Morningstar Inc. shows that Canadian mutual fund received the lowest grade in terms of fees and

expenses. Canada has notoriously high management expense ratios. The article states, “Funds domiciled and sold in Canada have considerable higher costs than those sold in its North American neighbourhood, the U.S.”. In our paper, we use non-load adjusted returns, because Morningstar Canada does not consider loading during the calculation of star rating. However, we believe that high fees and expenses would make fund returns negative and make the predictability of Morningstar Ratings even weaker.

APPENDICES

Table 1
Dummy variable regression using Sharpe's ratio for large-cap Canadian Equity;
5-star reference group

Sample	γ0(constant)	γ1(4-star)	γ2(3-star)	γ3(2-star)	γ4(1-star)	R^2	F-Stat
One-year							
2004-2005	-0.3035	0.0000	0.0431	0.0159	0.0000	0.2343	0.7650
	(-12.1250)	N/A	(1.2165)	(0.5199)	N/A		
2005-2006	-0.1208	-0.0003	0.0638	0.0547	0.0000	0.2757	0.5076
	(-2.4697)	(-0.0034)	(1.0646)	(0.6456)	N/A		
2006-2007	-0.7194	0.0000	-0.3374	0.0000	-0.2818	0.8587	21.2650
	(-16.2787)	N/A	(-6.4527)	N/A	(-4.9383)		
2007-2008	-0.6153	-0.0188	-0.0117	0.0034	0.0000	0.0743	0.2943
	(-27.3194)	(-0.6612)	(-0.3680)	(0.1156)	N/A		
2008-2009	-0.4738	-0.0056	0.0061	0.2692	0.0207	0.6011	3.7665
	(-6.3547)	(-0.0531)	(0.0709)	(2.7962)	(0.1967)		
Three-year							
2004-2007	-0.4585	0.0000	-0.0345	0.0000	-0.0712	0.3872	1.5798
	(-18.0009)	N/A	(-0.9589)	N/A	(-1.7675)		
2005-2008	0.2357	-0.0596	-0.0014	-0.0941	0.2924	0.6591	1.4502
	(1.7389)	(-0.3111)	(-0.0088)	(-0.5668)	(1.5255)		
2006-2009	-0.5571	0.0000	-0.0303	-0.0263	-0.0430	0.3606	1.1282
	(-38.2606)	N/A	(-1.4720)	(-1.2794)	(-1.4771)		
Five-year							
2004-2009	-0.4771	0.0000	0.0294	0.0244	-0.0034	0.4788	1.2251
	(-33.8882)	N/A	(1.4748)	(1.3426)	(-0.1391)		

Table 2
Dummy variable regression using Sharpe's ratio for small-mid cap Canadian Equity;
5-star reference group

Sample	γ0(constant)	γ1(4-star)	γ2(3-star)	γ3(2-star)	γ4(1-star)	R^2	F-Stat
One-year							
2004-2005	0.0092	-0.0736	0.0000	0.0000	0.0000	0.1511	0.5338
	(0.1437)	(-0.7306)	NA	NA	NA		
2005-2006	0.4064	-0.1721	0.0000	0.0000	-0.1144	0.3628	0.5693
	(3.4531)	(-1.0338)	NA	NA	(-0.8420)		
2006-2007	-0.4297	-0.2317	0.0000	-0.2133	0.0474	0.5072	0.6862
	(-3.0223)	(-0.9407)	NA	(-0.8662)	(0.2358)		
2007-2008	-0.5619	0.0000	0.0722	-0.0211	0.0000	0.6200	3.2634
	(-19.5266)	NA	(1.7730)	(-0.5678)	NA		
2008-2009	-0.3840	-0.0288	-0.0342	0.0574	0.0000	0.7119	4.1187
	(-12.3360)	(-0.8026)	(-0.9524)	(1.5043)	NA		
Three-year							
2004-2007	-0.1605	0.0476	0.0000	0.1862	-0.0494	0.9779	14.7523
	(-6.0767)	(1.4732)	NA	(4.9848)	(-1.3222)		
2005-2008	-0.2905	-0.0604	0.0000	0.0000	0.0119	0.2704	0.3705
	(-3.9807)	(-0.5848)	NA	NA	(0.1413)		
2006-2009	-0.8643	0.0690	0.0251	0.0000	0.0000	0.5386	1.7507
	(-26.1337)	(1.7038)	(0.6577)	NA	NA		
Five-year							
2004-2009	-0.3338	0.0429	-0.0417	0.0451	0.0000	0.6162	0.5352
	(-5.5257)	(0.5798)	(-0.4879)	(0.5277)	NA		

Table 3
Dummy variable regression using Sharpe's ratio for all Canadian Equity;
5-star reference group

Sample	γ0(constant)	γ1(4-star)	γ2(3-star)	γ3(2-star)	γ4(1-star)	R^2	F-Stat
One-year							
2004-2005	0.0092	-0.1931	-0.2696	-0.2967	0.0000	0.6249	4.9983
	(0.1505)	(-2.3995)	(-2.8026)	(-3.6868)	NA		
2005-2006	0.0550	0.0017	-0.1120	-0.1210	0.2370	0.4397	1.5696
	(0.4955)	(0.0096)	(-0.7631)	(-0.5457)	(1.5111)		
2006-2007	-0.5746	-0.0868	-0.4823	-0.0684	-0.1791	0.4736	2.4744
	(-4.7209)	(-0.3190)	(-2.9536)	(-0.2515)	(-1.0966)		
2007-2008	-0.5939	-0.0402	0.0218	-0.0055	0.0000	0.1630	1.1687
	(-24.9979)	(-1.1959)	(0.6497)	(-0.1783)	NA		
2008-2009	-0.4439	0.0044	-0.0073	0.1904	-0.0092	0.4993	4.7370
	(-8.6677)	(0.0680)	(-0.1241)	(2.9397)	(-0.1136)		
Three-year							
2004-2007	-0.1605	0.0476	-0.3326	-0.1770	-0.2626	0.4705	1.7773
	(-0.8998)	(0.2181)	(-1.6149)	(-0.8876)	(-1.2752)		
2005-2008	-0.0274	-0.0600	0.2618	0.1690	-0.0495	0.2166	0.5529
	(-0.1203)	(-0.1861)	(0.8895)	(0.5244)	(-0.1774)		
2006-2009	-0.5571	-0.2382	-0.1562	-0.0263	-0.1751	0.4475	2.2271
	(-8.6457)	(-2.3373)	(-1.9789)	(-0.2891)	(-1.7184)		
Five-year							
2004-2009	-0.3338	-0.0402	-0.0778	-0.0780	-0.1468	0.2222	0.7858
	(-6.0313)	(-0.6133)	(-1.1485)	(-1.1502)	(-1.5312)		

Table 4
Dummy variable regression using Sharpe's ratio for large-cap Canadian Equity;
3-star reference group

Sample	γ0(constant)	γ1(5-star)	γ2(4-star)	γ3(2-star)	γ4(1-star)	R^2	F-Stat
One-year							
2004-2005	-0.4993	-0.0201	0.0100	0.0122	0.0274	0.1442	0.5897
	(-35.2969)	(-0.8203)	(0.4775)	(0.5468)	(0.7316)		
2005-2006	-0.2256	0.0196	-0.0111	0.0248	0.0399	0.2034	1.4047
	(-26.6252)	(0.6193)	(-0.8077)	(1.4204)	(1.2596)		
2006-2007	-1.2783	0.0226	0.0215	-0.0018	-0.0152	0.0808	0.6376
	(-110.7980)	(0.9483)	(1.0467)	(-0.0979)	(-0.4796)		
2007-2008	-0.8178	-0.0062	0.0274	-0.0160	-0.0068	0.1132	1.0851
	(-80.7474)	(-0.3792)	(1.3115)	(-1.0701)	(-0.2925)		
2008-2009	-0.5461	0.0026	-0.0044	-0.0002	-0.0031	0.0945	1.1216
	(-295.8466)	(0.7455)	(-1.5314)	(-0.0839)	(-0.6666)		
Three-year							
2004-2007	-0.6203	-0.0414	-0.0276	0.0166	0.0000	0.3371	2.5427
	(-67.0333)	(-1.4136)	(-1.6548)	(1.0690)	NA		
2005-2008	-0.0131	0.0277	0.0197	0.0070	-0.0034	0.6292	9.3324
	(-4.9278)	(3.1460)	(5.2518)	(1.4144)	(-0.5225)		
2006-2009	-0.6563	-0.0031	-0.0015	-0.0018	-0.0172	0.0478	0.3642
	(-125.2274)	(-0.2588)	(-0.1785)	(-0.2153)	(-1.1987)		
Five-year							
2004-2009	-0.5398	-0.0272	-0.0116	-0.0025	-0.0144	0.2753	1.3297
	(-86.9824)	(-2.0689)	(-1.2115)	(-0.1886)	(-1.2701)		

Table 5
Dummy variable regression using Sharpe's ratio for small-mid cap Canadian Equity;
3-star reference group

Sample	γ0(constant)	γ1(5-star)	γ2(4-star)	γ3(2-star)	γ4(1-star)	R^2	F-Stat
One-year							
2004-2005	-0.3665	-0.0484	0.0778	0.0226	0.0150	0.1667	0.5501
	(-12.8266)	(-0.7976)	(0.9622)	(0.4775)	(0.2477)		
2005-2006	-0.0393	0.0032	-0.0549	-0.0452	0.0000	0.1909	1.1012
	(-1.3394)	(0.0627)	(-1.5267)	(-1.0902)	NA		
2006-2007	-1.0146	-0.0641	-0.0240	-0.0154	-0.1226	0.1890	0.9905
	(-35.3089)	(-0.7434)	(-0.4828)	(-0.3654)	(-1.9081)		
2007-2008	-0.7909	0.0000	-0.0172	-0.0210	-0.0201	0.0603	0.4704
	(-58.1359)	NA	(-0.8962)	(-1.0533)	(-0.7707)		
2008-2009	-0.4932	-0.0278	-0.0253	-0.0153	0.0000	0.1266	1.2562
	(-50.2810)	(-1.5137)	(-1.6546)	(-1.0734)	NA		
Three-year							
2004-2007	-0.4389	0.0584	-0.0233	0.0031	0.0529	0.1667	0.5501
	(-15.3516)	(0.7720)	(-0.5150)	(0.0631)	(0.9244)		
2005-2008	-0.6070	-0.0777	-0.0039	-0.0153	0.0000	0.1474	0.8069
	(-26.5265)	(-1.5182)	(-0.1057)	(-0.3493)	NA		
2006-2009	-0.6228	0.0058	-0.0152	-0.0037	-0.0063	0.1342	0.6588
	(-114.2447)	(0.4184)	(-1.4395)	(-0.3539)	(-0.3331)		
Five-year							
2004-2009	-0.4959	0.0467	0.0280	0.0085	-0.0069	0.3827	1.7049
	(-53.6905)	(1.9112)	(1.9145)	(0.5848)	(-0.2831)		

Table 6
Dummy variable regression using Sharpe's ratio for all Canadian Equity;
3-star reference group

Sample	γ0(constant)	γ1(5-star)	γ2(4-star)	γ3(2-star)	γ4(1-star)	R^2	F-Stat
One-year							
2004-2005	-0.4278	-0.0498	-0.0281	0.0123	0.0362	0.0823	0.6730
	(-17.4681)	(-1.0713)	(-0.6437)	(0.3106)	(0.6393)		
2005-2006	-0.1818	0.0890	0.0163	0.0391	-0.0039	0.0755	0.8172
	(-8.6188)	(1.6351)	(0.5396)	(1.0489)	(-0.0436)		
2006-2007	-1.1778	-0.0425	0.0083	0.0072	-0.0375	0.0168	0.2181
	(-40.2537)	(-0.6368)	(0.1612)	(0.1617)	(-0.5124)		
2007-2008	-0.8076	-0.0165	0.0079	-0.0177	-0.0102	0.0729	1.1983
	(-98.7092)	(-1.0589)	(0.5987)	(-1.4719)	(-0.5905)		
2008-2009	-0.5258	-0.0087	-0.0123	-0.0044	-0.0234	0.0448	0.8554
	(-95.5099)	(-0.8346)	(-1.4311)	(-0.5303)	(-1.3691)		
Three-year							
2004-2007	-0.5477	0.0267	-0.0073	0.0070	0.1617	0.1276	1.0973
	(-19.7711)	(0.3300)	(-0.1555)	(0.1486)	(2.0019)		
2005-2008	-0.2771	-0.1745	0.0779	0.0069	0.2606	0.0686	0.7370
	(-3.7760)	(-0.8990)	(0.7154)	(0.0497)	(1.1230)		
2006-2009	-0.6437	0.0013	-0.0075	-0.0039	-0.0150	0.0292	0.3833
	(-124.4887)	(0.1036)	(-0.8334)	(-0.4301)	(-0.9640)		
Five-year							
2004-2009	-0.5196	-0.0082	0.0052	0.0139	-0.0218	0.0700	0.5649
	(-47.6087)	(-0.3264)	(0.3050)	(0.7149)	(-0.9700)		

Table 7
Dummy variable regression using Jensen's alpha for large-cap Canadian Equity;
5-star reference group

Sample	γ_0(constant)	γ_1(4-star)	γ_2(3-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-0.9690	0.0000	-0.2945	0.0000	0.0000	0.8248	18.8341
	(-15.6413)	NA	(-4.3398)	NA	NA		
2005-06	-0.4662	0.0000	-0.3117	-0.5834	0.0000	0.9099	25.2443
	(-5.8807)	NA	(-3.4051)	(-6.5819)	NA		
2006-07	-1.4196	-0.9885	-1.1162	-1.3732	0.0000	0.9719	69.0521
	(-17.0391)	(-8.3896)	(-12.2301)	(-14.2736)	NA		
2007-08	-2.8109	-0.2011	-0.6406	-0.8280	-1.8871	0.9783	78.9212
	(-38.0546)	(-2.1521)	(-4.3366)	(-5.6051)	(-16.1580)		
2008-09	-1.5196	-0.6613	-0.7722	-1.4474	-2.2808	0.9239	27.3092
	(-8.2420)	(-3.3206)	(-3.7462)	(-6.4096)	(-8.7473)		
Three-year							
2004-07	-1.4793	0.0000	-0.0767	-0.3092	0.0000	0.9585	34.6329
	(-41.3046)	NA	(-1.8539)	(-7.0480)	NA		
2005-08	-1.9090	-0.1900	-0.3545	-0.6104	-1.2490	0.9955	164.9354
	(-48.5930)	(-3.9479)	(-7.8140)	(-10.9867)	(-22.4810)		
2006-09	-2.7668	0.5964	0.4892	0.2005	0.0000	0.9438	33.5886
	(-54.0821)	(9.0299)	(7.4068)	(2.7713)	NA		
Five-year							
2004-09	-1.5980	0.0000	-0.1023	-0.2850	-0.6180	0.9770	28.3170
	(-29.4237)	NA	(-1.6313)	(-3.7107)	(-8.0463)		

Table 8
Dummy variable regression using Jensen's alpha for small-mid cap Canadian Equity;
5-star reference group

Sample	γ_0(constant)	γ_1(4-star)	γ_2(3-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-10.2511	0.0000	0.0000	2.6938	0.0000	0.5808	4.1567
	(-10.0161)	NA	NA	(2.0388)	NA		
2005-06	8.0706	-3.5593	-6.8349	-7.8405	0.0000	0.9607	8.1457
	(6.4273)	(-2.3144)	(-3.8489)	(-4.4152)	NA		
2006-07	174.8221	-26.1144	-81.6391	-113.2482	0.0000	0.9564	14.6385
	(13.6644)	(-1.1785)	(-3.6841)	(-6.2591)	NA		
2007-08	4.7071	0.0000	0.0000	-9.1407	-12.3372	0.9803	99.3331
	(7.0437)	NA	NA	(-12.4863)	(-13.0541)		
2008-09	6.6060	-2.1608	-2.7238	-3.8444	0.0000	0.9604	40.4670
	(27.7557)	(-5.2416)	(-9.6722)	(-9.3257)	NA		
Three-year							
2004-07	4.2430	-1.6743	-2.0472	0.0000	0.0000	0.9976	424.3438
	(72.4737)	(-23.3497)	(-28.5510)	NA	NA		
2005-08	11.1047	0.0000	-8.0326	-9.0187	0.0000	0.9639	26.7288
	(10.2873)	NA	(-5.2618)	(-7.2355)	NA		
2006-09	-3.6358	0.0000	1.8730	0.4440	0.0000	0.9168	16.5346
	(-11.4924)	NA	(4.8338)	(1.2154)	NA		
Five-year							
2004-09	-0.0712	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(-0.8187)	NA	NA	NA	NA		

Table 9
Dummy variable regression using Jensen's alpha for all Canadian Equity;
5-star reference group

Sample	γ_0(constant)	γ_1(4-star)	γ_2(3-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-0.9690	0.0000	-0.2945	-6.5883	-9.2821	0.9619	58.8686
	(-1.0214)	NA	(-0.2834)	(-6.0142)	(-7.9887)		
2005-06	3.8022	0.7091	-4.0767	-4.5958	0.0000	0.5969	4.4427
	(2.4774)	(0.3267)	(-2.1688)	(-2.5308)	NA		
2006-07	116.0749	-42.9251	-102.6575	-93.1209	0.0000	0.3561	2.2119
	(3.2691)	(-0.7646)	(-2.3606)	(-2.0734)	NA		
2007-08	-0.9314	-2.0806	-2.5201	-3.3697	-4.7440	0.4738	3.1521
	(-0.9803)	(-1.6322)	(-1.1862)	(-2.7473)	(-3.2688)		
2008-09	3.8974	-5.1317	-2.7593	-4.9549	-7.6978	0.3075	1.9977
	(2.0827)	(-2.2943)	(-1.2769)	(-1.8722)	(-2.0568)		
Three-year							
2004-07	1.3221	-0.1027	-0.9915	-3.1106	0.0000	0.2409	0.7405
	(0.7641)	(-0.0460)	(-0.4679)	(-1.2712)	NA		
2005-08	4.5979	-6.6968	-5.5274	-3.6632	-7.7559	0.3528	1.0903
	(1.6498)	(-1.6991)	(-1.6194)	(-1.0732)	(-1.6067)		
2006-09	-2.1704	0.0000	0.0987	-0.7712	-0.8861	0.6573	7.6719
	(-10.2228)	NA	(0.3675)	(-2.8718)	(-2.9511)		
Five-year							
2004-09	-1.5980	0.0000	0.9159	-0.2850	-0.6180	0.4000	1.5555
	(-1.8661)	NA	(1.0083)	(-0.2353)	(-0.5103)		

Table 10
Dummy variable regression using Jensen's alpha for large-cap Canadian Equity;
3-star reference group

Sample	γ0(constant)	γ1(5-star)	γ2(4-star)	γ3(2-star)	γ4(1-star)	R2	F-Stat
One-year							
2004-05	-1.2580	0.5796	0.2226	-0.3137	-0.6338	0.9267	50.5558
	(-32.7343)	(6.7450)	(3.0253)	(-5.0627)	(-8.6128)		
2005-06	-0.7794	0.5998	0.1640	-0.3447	0.0000	0.8775	54.9406
	(-28.3799)	(9.7673)	(3.9085)	(-5.6135)	NA		
2006-07	-2.5664	0.6096	0.2695	-0.2204	-0.5217	0.8911	59.3246
	(-89.3504)	(7.7492)	(6.0019)	(-4.5400)	(-7.8648)		
2007-08	-3.3103	0.5334	0.2540	-0.4430	-1.4083	0.9126	91.3502
	(-60.1916)	(3.6655)	(3.2663)	(-5.0950)	(-14.7848)		
2008-09	-2.3111	0.6192	0.2579	-0.8824	-1.8040	0.9396	167.2699
	(-47.7931)	(6.9156)	(3.2459)	(-10.3224)	(-19.0541)		
Three-year							
2004-07	-1.5824	0.2987	0.1373	-0.1909	-0.4068	0.9308	53.7676
	(-66.4603)	(6.8703)	(3.1575)	(-5.4456)	(-8.0544)		
2005-08	-2.2685	0.3298	0.1754	-0.1625	-0.5627	0.9051	52.4591
	(-104.5705)	(8.7782)	(5.5639)	(-3.0587)	(-7.8213)		
2006-09	-2.3197	0.3103	0.1576	-0.2782	-0.5037	0.9284	94.0509
	(-118.1623)	(7.9021)	(4.6346)	(-9.5546)	(-9.6968)		
Five-year							
2004-09	-1.6593	0.3202	0.1204	-0.2158	-0.5107	0.9435	66.7393
	(-71.8667)	(6.5370)	(3.1453)	(-6.3508)	(-10.4263)		

Table 11
Dummy variable regression using Jensen's alpha for small-mid cap Canadian Equity;
3-star reference group

Sample	γ_0(constant)	γ_1(5-star)	γ_2(4-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
<u>One-year</u>							
2004-05	-0.3655	5.6536	1.7175	-7.0333	-13.1296	0.9613	68.3925
	(-1.0554)	(5.1620)	(2.4794)	(-8.6591)	(-11.9879)		
2005-06	2.3948	5.9565	3.2340	-3.2090	-7.7582	0.9434	54.1700
	(8.9004)	(6.6749)	(6.4247)	(-4.8690)	(-8.6938)		
2006-07	114.2434	73.3515	22.2939	-54.4966	-92.4729	0.9572	94.9759
	(30.2344)	(8.6815)	(3.6591)	(-8.9445)	(-10.9446)		
2007-08	-1.5978	8.0385	3.8764	-4.0146	-6.4604	0.9327	72.8126
	(-4.0100)	(10.4181)	(4.5036)	(-5.6325)	(-7.5056)		
2008-09	3.8403	2.2127	1.3866	-0.8837	-2.0727	0.9264	78.6358
	(40.1104)	(6.6716)	(9.7153)	(-5.9889)	(-6.2494)		
<u>Three-year</u>							
2004-07	2.1079	1.9930	1.3776	-1.5049	-2.2489	0.9541	57.1431
	(16.5185)	(5.5219)	(5.9132)	(-6.4593)	(-8.3078)		
2005-08	3.3243	4.5740	2.3679	-0.9566	-4.4399	0.9126	33.9340
	(9.4369)	(7.1120)	(4.0534)	(-1.2802)	(-5.9415)		
2006-09	-1.8841	1.3518	1.0492	-1.1439	-2.4754	0.9750	165.9066
	(-23.5945)	(9.7738)	(9.6413)	(-9.6575)	(-11.7163)		
<u>Five-year</u>							
2004-09	-0.1954	1.4790	0.7661	-0.7714	-1.9984	0.9267	34.7799
	(-1.0079)	(3.8151)	(3.1247)	(-3.1463)	(-6.5208)		

Table 12
Dummy variable regression using Jensen's alpha for all Canadian Equity;
3-star reference group

Sample	γ_0(constant)	γ_1(5-star)	γ_2(4-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-0.7855	2.0960	0.9438	-2.4511	-4.0071	0.3635	4.5685
	(-1.3046)	(1.3482)	(0.8006)	(-2.1986)	(-2.9046)		
2005-06	0.6634	1.2897	0.6425	-1.6636	-6.0268	0.2148	2.7355
	(1.3055)	(0.9955)	(0.7705)	(-1.4088)	(-2.4730)		
2006-07	41.9326	50.8865	5.3542	-18.6637	-35.0772	0.1040	1.4792
	(3.2386)	(1.5721)	(0.2615)	(-0.8692)	(-1.1880)		
2007-08	-2.4913	5.8594	0.5020	-1.9771	-3.3405	0.5710	20.2969
	(-5.6862)	(6.0833)	(0.7199)	(-2.7118)	(-4.0436)		
2008-09	0.1055	-0.8293	1.2898	-0.2239	-3.3802	0.1361	2.8741
	(0.1752)	(-0.6491)	(1.3616)	(-0.2242)	(-2.5099)		
Three-year							
2004-07	0.2627	-0.2003	0.7575	-1.2439	-1.3279	0.1420	1.3242
	(0.5037)	(-0.1810)	(0.7953)	(-1.4917)	(-1.2000)		
2005-08	0.0344	1.7158	0.2679	-0.0661	-1.7219	0.0556	0.5892
	(0.0396)	(1.1159)	(0.2028)	(-0.0332)	(-0.7667)		
2006-09	-2.1745	0.7981	0.7270	-0.5668	-1.1609	0.6034	19.3948
	(-18.1586)	(3.5267)	(3.9316)	(-3.1909)	(-3.6640)		
Five-year							
2004-09	-1.2201	0.7552	0.8533	-0.2421	-0.9618	0.3530	4.3643
	(-4.5986)	(1.3674)	(2.2133)	(-0.6604)	(-1.9375)		

Table 13
Dummy variable regression using 2-index alpha;
5-star reference group

Large-cap Candian Equity funds							
Sample	γ_0(constant)	γ_1(4-star)	γ_2(3-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-0.8251	0.0000	-0.3160	0.0000	0.0000	0.8114	17.2064
	(-11.8654)	NA	(-4.1481)	NA	NA		
2005-06	-0.6155	-0.0693	-0.4008	-0.6581	0.0000	0.9426	21.8796
	(-6.8866)	-0.5483	(-3.6610)	(-6.5859)	NA		
2006-07	-0.0083	0.0000	-1.3873	-1.6543	0.0000	0.9885	301.3386
	(-0.1494)	NA	(-21.2386)	(-23.2114)	NA		
Three-year							
2004-07	-1.2759	0.0000	0.1152	0.0000	0.0000	0.7079	9.6933
	(-48.7516)	NA	(3.1134)	NA	NA		
Small-Mid Cap Equity funds							
Sample	γ_0(constant)	γ_1(4-star)	γ_2(3-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	0.4042	-0.9369	-1.5034	0.0000	0.0000	0.9958	239.2053
	(7.1903)	(-13.6073)	(-21.8355)	NA	NA		
2005-06	1.7756	0.0000	-2.0886	-3.0013	0.0000	0.9979	475.8436
	(22.3355)	NA	(-21.4511)	(-30.8258)	NA		
2006-07	0.9960	-1.5082	-2.4491	-2.7150	0.0000	0.9422	10.8702
	(3.0924)	(-3.3114)	(-4.3903)	(-4.8670)	NA		
Three-year							
2004-07	-0.0482	0.0000	-0.9916	0.0000	0.0000	0.9206	34.7881
	(-0.3205)	NA	(-5.8981)	NA	NA		
All Equity funds							
Sample	γ_0(constant)	γ_1(4-star)	γ_2(3-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	0.4042	-1.0343	-1.5333	0.0000	0.0000	0.9637	106.2621
	(3.9169)	(-8.6803)	(-13.8988)	NA	NA		
2005-06	0.5801	-1.2649	-1.2447	-1.8377	0.0000	0.6008	4.5143
	(1.3344)	(-1.6800)	(-2.3380)	(-3.6613)	NA		
2006-07	0.4939	-1.0061	-1.8990	-2.1705	0.0000	0.8909	32.6632
	(2.8209)	(-3.3180)	(-8.4023)	(-8.7668)	NA		
Three-year							
2004-07	-0.0482	0.0000	-1.0434	-1.2277	0.0000	0.9204	46.2408
	(-0.4288)	NA	(-8.6822)	(-9.4579)	NA		

Table 14
Dummy variable regression using 2-index alpha;
3-star reference group

Large-cap Candian Equity funds							
Sample	γ_0(constant)	γ_1(5-star)	γ_2(4-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-1.0580	0.3821	0.1672	-0.2626	-0.6602	0.9376	60.1127
	(-35.4114)	(6.3949)	(1.7701)	(-5.2531)	(-11.0484)		
2005-06	-0.9379	0.5281	0.1972	-0.2638	0.0000	0.8054	31.7256
	(-29.7406)	(7.8938)	(3.4243)	(-3.5133)	NA		
2006-07	-1.3722	0.5150	0.1524	-0.2663	-0.4231	0.8381	37.5240
	(-48.6990)	(7.6785)	(3.3827)	(-5.4557)	(-3.8769)		
Three-year							
2004-07	-1.0816	0.2932	0.1052	-0.1980	-0.4934	0.9146	42.8319
	(-36.5489)	(4.6710)	(2.2942)	(-4.0346)	(-9.1315)		
Small-Mid Cap Equity funds							
Sample	γ_0(constant)	γ_1(5-star)	γ_2(4-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-1.0656	0.6422	0.5713	-0.4650	-0.9568	0.9577	62.3172
	(-23.7457)	(5.0596)	(6.0013)	(-6.2485)	(-10.0512)		
2005-06	-0.4986	0.0000	0.7484	-0.4889	-1.0333	0.9044	44.1322
	(-4.8733)	NA	(5.5868)	(-3.1855)	(-5.3981)		
2006-07	-1.3529	0.0000	0.5492	-0.6163	-1.5679	0.8722	40.9563
	(-17.0062)	NA	(3.9860)	(-4.4725)	(-8.0460)		
Three-year							
2004-07	-1.0564	0.0000	0.5363	-0.2661	-0.5588	0.9575	90.1492
	(-20.1626)	NA	(7.7377)	(-4.2495)	(-6.7460)		
All Equity funds							
Sample	γ_0(constant)	γ_1(5-star)	γ_2(4-star)	γ_3(2-star)	γ_4(1-star)	R^2	F-Stat
One-year							
2004-05	-1.0613	0.4486	0.4349	-0.3526	-0.7786	0.8876	63.1802
	(-29.8944)	(5.6504)	(4.8673)	(-5.9593)	(-10.7007)		
2005-06	-0.8223	0.4125	0.6149	-0.2570	-0.7095	0.5509	12.2645
	(-10.1252)	(2.1181)	(4.8261)	(-1.6418)	(-2.6962)		
2006-07	-1.3642	0.5070	0.2930	-0.4121	-1.1815	0.7166	32.2425
	(-26.7474)	(3.3136)	(3.4865)	(-4.6650)	(-7.7217)		
Three-year							
2004-07	-1.0741	0.2857	0.3004	-0.2328	-0.5170	0.8082	33.7143
	(-23.5130)	(2.5530)	(4.5267)	(-3.6891)	(-6.5349)		

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