Analysis of the Fee Structure and Expense Ratios of U.S. Equity Mutual Funds

HONORS UNDERGRADUATE THESIS

Presented in Partial Fulfilment of the Requirements for the Degree of Business Administration of

The Ohio State University

By: Evan Lingrel

Undergraduate Program in Finance

The Ohio State University

2018

Committee:

Dr. Michael Schwert

Dr. Roger Bailey

Abstract

A plethora of research exists showing the relationship between a mutual fund's performance, in the form of its percentage return to investors, and a fund's expense ratio. Existing research, by Hooks (1996), Haslem, Baker, and Smith (2008), and Bello and Frank (2010), show across different samples and controls that funds with higher than average expenses under-perform compared to those with a lower ratio. With this being the case, how do mutual funds justify having a higher than average expense ratio and what are the actual factors of a fund that determine this ratio? This is a major gap in mutual fund research and although some findings do exist on the determinants of these expenses, this paper hopes to add to those findings through analysis of additional variables and controls. To do this, data was collected via the independent mutual fund database Morningstar. A screening was used to control the data set so that the results of this research would be most applicable to casual investors who are most susceptible to high expense ratios. From this screening both a year to date cross sectional set of data and a time series dataset of annual data from 2013 to 2017. A regression analysis was conducted on the cross-sectional data set and results show that both the year to date absolute return percentile and the rank percentile of the funds are both significant in determining the expense ratio. Four multiple-regression models adapted from previous research by Ferris and Chance (1987) were used to come up with results from the time-series dataset. These models resulted in coefficients of determination between 50%-60%, with the size of the fund, additional load fees, and the use of a 12-b1 plan being the most significant variables.

Acknowledgments

I would like to share my gratitude toward my thesis committee for all the help and guidance they have provided me throughout this process. I would also like to thank my peers as they helped to support this project and provided strong feedback to make this all possible.

Vita

May 2014……Olentangy Liberty High School

May 2018……B.S. Finance and Operations Management, Max M. Fisher College of Business, The Ohio State University

Field of Study:

Major Fields: Finance and Operations Management
Minor Field: Sociology

Table of Contents

List of Tables

List of Figures

Introduction

The purpose of this research is to expand the knowledge base of mutual fund investors. Specifically, this research uses data provided by Morningstar, such as returns, risk indicators, managerial information, and portfolio information to determine the key variables that are significant in determining the expense ratio of a fund. The scope of this research will focus on U.S. equity funds open to new investments and with no minimum investment. The specific screening used in Morningstar to collect data is noted later in the paper. In conducting this research, the goal is to expand the utility of Morningstar and through regression analysis deem what factors are the most relevant in determining the expense ratio for any given fund.

As will be noted in the next section, past research on mutual funds have found that an inverse relationship exists between a mutual fund's performance and its expense ratio. This means that typically the mutual fund that has a lower expense ratio can be expected to perform better and return more to the investor than the mutual fund with a higher expense ratio. This is a conclusion that countless researchers have come up with and the inverse relationship continues to exist today. Since this is a conclusion that countless researchers have come up with it appears it should be the case that investors would stop buying in to higher expense ratio funds, thus making the market more competitive and lower the average expense ratio for all funds. Although it is the case that the average has gone down slightly, funds still exist with high expense ratios and investors continue to invest in them.

Further this research works to update results from previous research, specifically research conducted by Ferris and Chance (1987). In their research Ferris and Chance tested variables of mutual funds against the expense ratio looking for significance, and mainly their work focused on the introduction of 12-b1 plans into some mutual funds, plans that allowed funds to charge

additional fees for distribution and marketing of their fund. The goal of part of this research was to update their results and look to see if a stronger model could be created to explain the variation in expense ratios among funds. Thus, the two main questions this research works to answer are what variables have a significant interaction with the year-to-date expense ratios of mutual funds and can a stronger model of expense ratio variation be created compared to that of Ferris and Chance?

This research is important to the investment community as it can help to shine a light on what exactly the additional fees investors pay to actively managed mutual funds go towards. Commonly it has been thought that these fees mostly go towards payment of the manager actively running the mutual fund, this is represented in this research on the basis of skill in terms of the annual and year-to-date returns, both absolute and risk-adjusted. By targeting a more casual investor through the screening this research works to educate those that are not fully knowledgeable on mutual funds and their expense ratios and hopes to help those investors make the best possible decision when choosing what fund to invest in.

In the next section previous research that is related to this problem and ways in which this research will add to the wealth of knowledge that is already out there will be explored. From there, the paper will continue with an explanation of the hypotheses, the variables that will be analyzed, the data that will be collected, and the overall method in which the research will be conducted. Finally, the results of the analysis will be shown and the overall conclusion to the research question will be stated, along with implications for future research.

Literature Review

Throughout the field of mutual fund structure and management there is a plethora of knowledge on the performance-flow model of mutual funds as well as the numerous factors that lead to higher returns for investors and higher inflows of investments for funds. Berk, J. B., & Green, R. C. (2004), Del Guercio, D., & Tkac, P. A. (2002), and Bello, Z. Y., & Frank, L. A. C. (2010) all look at the effects of the performance flow model throughout various categories of mutual funds and with a combination of different variables. The first works to create a benchmark to test the performance-flow relationship against. The paper uses three key elements, the limited amount of capital among investors, the ability of managers to generate above average returns, and the idea of previous manager's returns to predict future returns, to create the benchmark. The second paper looks at the differences in the performance-flow model among two distinct categories of mutual funds, equity funds and pension funds. Finally, the third paper shows the findings of the massive 60% decrease in the average expense ratio of mutual funds and discusses how this decrease effected performance-flow model of funds. In looking at this previous research it is clear that there is a wealth of knowledge already conducted on the performance-flow of mutual funds. However, there does seem to be a large gap in knowledge of the specific factors that influence a funds expense ratio and fee structure. Furthermore, there seems to be no active model available to compare mutual funds based on their expense ratios, to help investors determine which funds are priced the most fairly relative to the competition. In addition to these three papers there has been a lot of literature in the past on the effects of the expense ratio of a fund on its performance.

Although, much of the research differs on the additional factors used to analyze this relationship, much previous research has shown that the expense ratio has an inverse relationship

to the performance of a fund. Haslem, J. A., Baker, H. K., & Smith, D. M. (2007) first develop a sample through Morningstar of mutual funds with high expenses and management fees, from there they test the association of the expense ratio and management fees to descriptive performance measures by Morningstar categories. Such variables include, Sharpe Ratio, Jensen's Alpha, Morningstar star ratings, and 5 year annualized total returns. These results are then compared to a sample of funds with lower expenses and the researchers find there is in fact a significant difference in the performance of those funds with low expense ratios compared to high ratios, where the funds with high ratios are negatively associated with performance. Garyn-Tal, S. (2015) gleans new insight into the relationship of expenses to fund performance by pulling a sample from 2001-2010 and splitting the samples based on the category the mutual fund falls under, furthermore she splits these samples once again into pre-crisis data (2001-2006) and post-crisis data (2007-2010). Through regression analysis the researcher found once again that previous findings do hold and expenses are negatively associated with performance, however, she also found that by splitting the sample by the varying categories the association is far less. This research once again helped to show that the expense ratio of a fund is highly influential on the performance and thus in this paper's opinion should be considered more.

There has been some previous research that has looked at the factors that are significant in the valuation of the expense ratio of a mutual fund. The first, a dissertation thesis, by Aitenov Sanzhar (2013) uses data obtained from the Center for Research in Security Prices to examine the relationship between different characteristics of funds and the expense ratios they charge. Sanzhar's research focuses on diversified U.S. equity mutual funds and thus a specific screening and cleaning process was conducted which resulted in a final workable sample of 3654 funds. Statistical analysis was conducted on the funds in various different segments. The funds were

portioned based upon year groupings and based on the Lipper Investment Services Classifications. Results showed that size, age, performance, and load all have negative impact on the expense ratio, whereas turnover and volatility of returns hold a positive impact. This research paper hopes to conduct similar research to Sanzhar, by looking at a different sample collected from Morningstar and looking at some different factors and controls.

This research paper is also heavily influenced by previous research conducted by Ferris and Chance (1987). Ferris and Chance wanted to look at the effects of the newly implemented 12b-1 plan among some mutual funds, a plan that allowed funds to deduct a sum of money from net assets for distribution fees that would be paid to selling agents. Although this was the primary focus of the research Ferris and Chance created four models that included many additional variables along with the use of a 12b-1 plan in their attempts to find interactions among these variables with the expense ratio of funds. The base multiple-regression model they used was E = a + b1SIZE + b2GROWTH + b3INCOME + b4AGE + b5LOAD + b612B1 + e.

The variables were defined as:

E: The expense ratio.

SIZE: End-of-year net assets as reported. Because the effect of economies of scale may be nonlinear, we also examined this variable in logarithmic form.

GROWTH: A dummy variable that equals 1 if classified by Weisenberger's as having a GROWTH objective and 0 if not.

INCOME: A dummy variable that equals 1 if classified by Weisenberger's as having an INCOME objective and 0 if not. Firms with their objectives stated as MAXIMUM CAPITAL GAINS constitute the omitted class.

AGE: Number of years since formation of the fund. As with SIZE, we examined this variable in logarithmic form.

LOAD: Load status where 0 = no load and 1 = load.10 12B1: Status of 12b-1 plan, where 1 = plan in effect and 0 = plan not in effect.

The second model they used replaced AGE with the natural log of AGE, the third replaced SIZE with the natural log of SIZE, and the fourth used both natural logs. This research paper adapts these models to analyze data collected from Morningstar. Ferris and Chance used these models to analyze their sample of 300 funds from *Weisenberger's Investment Companies.* Results showed that the power of the models ranged from 25%-45% effectiveness of explaining the variation in expense ratios. Size and category were significant across all models and the two years studied, 1984 and 1985, age was ambiguous and only significant in 1984, Load was not significant. This research paper hopes to adapt the models used by Ferriss and Chance, update their findings and look at additional factors from and controls. The next section of this paper works to clarify the hypotheses for this research.

Hypotheses

Based on the previous research and their findings this paper hypothesizes that return data will be highly significant with the expense ratio of mutual funds as well as the ranking data of funds based on those returns. It is anticipated that absolute returns will likely have a stronger influence on the expense ratio of funds rather than the risk-adjusted returns. Furthermore, size is likely to be highly significant with the expense ratio as economies of scale are noted in almost all previous research.

It is expected that by adapting Ferris and Chance's models and including both absolute returns and risk adjusted returns the coefficient of variation will be increased from that of previous research. It can also be hypothesized that inclusion of load fees and a 12b-1 plan will be highly significant with the expense ratio as they are directly related to the fees and expenses of mutual funds. The category of the mutual fund is also likely to be significant with the expense ratio the previous research looked at Income, Growth, and Maximum Capital Gains, whereas this research paper looks at Growth, Value, and Blend.

Methodology

The data for this research was collected via Morningstar's investment research center that is provided though Ohio State University. Two sets of data were created to answer the two research questions posed. To answer the first question the first dataset was based around year-to-date returns, trailing returns of 4-weeks, 1-year, 3-years, and 5-years, portfolio variables such as the P/E ratio, risk factors such as the Sharpe ratio, and manager tenure and their interactions with the current expense ratios of funds. To narrow the scope of this research to a manageable degree the mutual funds found on Morningstar were filtered according to the screen seen below (figure 1).

	(Index Funds = No)
and	(Enhanced Index Funds = No)
and	(Socially Conscious Funds = No)
and	(Life Cycle Funds = No)
and	(Fund of Funds = No)
and	(Equity Style Box = Large)
and	(Morningstar Analysis Available = Available)
and	(Closed to New Investment = No)
and	(Fund Category = U.S. Equity)
and	(Minimum Initial Purchase = 0)

Figure 1. Morningstar Mutual Fund Screen

This screening created a sample of 315 mutual funds for the first dataset where 23 variables were looked at against the expense ratios. Those variables were Year-To-Date Return %, 4-Week, 1-Year, 3-Year, and 5-Year Trailing Returns and Rankings, Standard Deviation, Sharpe Ratio, Bear Market % Rank, 3-Year, 5-Year, 10-Year Tax Cost Ratio %, Potential Cap Gains Exp %, P/E Ratio, P/B Ratio, Average Market Cap ($ mil), Turnover %, Assets in top 10 holdings %, and Yield (%). The first four filters in the screen were used to remove any special fund types, so that this research can focus only on Large U.S. Equity funds. Furthermore, this

research is focusing only on open mutual funds with no minimum investment. These filters allow for a manageable amount of data and by using the filter of no minimum investments, the factor of institutional investors and their effect on expense ratios is removed.

To answer the second research question a time-series dataset was created. Annual absolute returns, risk-adjusted returns based on the S&P500 and the category type of the fund, total net assets, category type, age, load fees, use of the 12b-1 plan, and the annual expense ratio were all collected from the years of 2013-2017. To ensure accurate data an additional filter was added to the screening to ensure that the inception date of each fund in the sample was in or before 2013, this reduced the sample of funds down to 235.

Data Cleansing

This screen narrowed down the funds inside Morningstar, however further data cleansing had to take place. The access Ohio State university has with Morningstar is limited and the data was presented in snapshots of 25 funds. More so, variables were separated in each snapshot based on their likeness. For example, one snapshot would consist of 25 mutual funds and variables all having to do with performance an example can be seen in the figure below, thus, for the first dataset 5 snapshots of each group of 25 mutual funds was copied and re formatted into a complete workable data set.

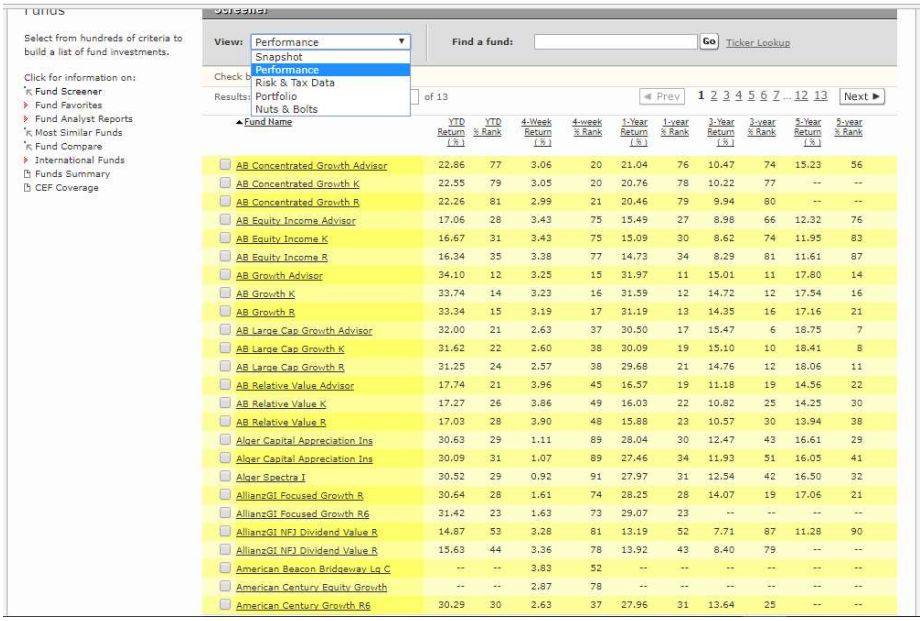

Figure 2. Morningstar data snapshot

In order to collect the time-series data from 2013-2017 for each fund further steps had to take place which required additional manual copying and pasting and reformatting, all in resulting in a process that was repeated nearly 50,000 times. Both these datasets were than organized into excel workbooks were analysis could accuratley be conducted.

To answer the first research question analysis was conducted on the dataset collected from Morningstar with factors related to the year-to-date expense ratios. Single regression analysis with a 95% confidence level was conducted on each of the 23 variables to test for significance with the current expense ratio. To analyze the time-series dataset multiple-regression models adapted from Ferris and Chance were utilzed.

Base model:

E=a+b1Abs+b2S&P+b3Cat+b4Size+b5Blend+b6Value+ b7Load+ b8Age+b912B1+e

Where:

E: Expense Ratio of the fund

Abs: Annual absolute return of the fund

S&P: Risk adjusted return of the fund compared to the S&P500

Cat: Risk adjusted retrun of the fund compared to the return of the fund category

Size: Size of fund defined by total net assets

Blend: Dummy variable to represent what category the fund was in, Blend=1 if the fund is of the blend category 0 if not

Value: Dummy variable to represent what category the fund was in, Value=1 if the fund is of the valuw category, 0 if not, Growth was the ommitted category where both dummy variables would be 0

Load: Binary variable 1 if a load fee existed in the fund, 0 if not

Age: Years since the inception date of the fund

12B1: Binary variable 1 if the fund follows a 12b-1 plan, 0 if not

The second model replaced size with the natural log of size, the third model replaced age with the natural log of age, and the fourth replaced both, just like in previous research. These variables were replaced with the natural log, as to try and make them more linear. The significance of each variable in the models and the power of the models were tested against the expense ratios across all 5 years.

Results

Table 1 presents the significant results from the single regression analysis conducted on the year-to-date data set. Analysis was conducted with a 95% confidence level and the table shows the p-value statistics of each of the 8 out of 23 significant variables.

Table 1.

Single Regression Analysis Year-To-Date Dataset							
Significant Variables P-Values							
YTD Ret %	1-Yr Tr Ret %	3-Yr Tr Ret %	5-Yr Tr Ret %	3-Yr Rank %	5-Yr Rank %	Sharpe Ratio	Yield %
0.0192	0.0113	0.0001	0.0005	0.0001	0.0004	0.0002	0.0028
*Analysis was conducted on a 95% confidence level, where P-value<.05 shows significance							

The year-to-date return % was significant with the current expense ratio of funds and every trailing return % was significant with the expense ratio save the 4-week trailing return. All of the returns were positivley correlated with the expense ratio as well, which is in conflict with the previous research cited in this paper. Only the 3-year trailing rank % and the 5-year trailing rank % had a significant interaction with the expense ratio. The only non-performance variables that held significance were the Sharpe Ratio, a measure that indicates the average return minus the risk-free return divided by the standard deviation of return on an investment, and the Yield, the amount of cash (in percentage terms) that returns to the owners of the security, in the form of interest or dividends received from it.

The results of the models run on the time series dataset are presented in table 2-6, where the tables are seperated by each year from 2013-2017.

Table 2.

Regressions of Mutual Fund Expense Ratios								
2013 Data								
	Equations							
Variables	1		2		3		4	
	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value
Intercept	-30.649	0.079	-29.510	0.064	-30.579	0.080	-29.356	0.063
Abs Return	0.972	0.071	0.942	0.055	0.969	0.072	0.931	0.056
+/-S&P Trailing	-0.967	0.071	-0.943	0.054	-0.963	0.073	-0.933	0.055
+/-Category	-0.008	0.871	0.000	0.994	-0.009	0.862		
Size	-0.000	0.002			-0.000	0.001	0.000	0.997
NatLogSize			-0.054	0.000			-0.055	0.000
Value	-0.111	0.408	-0.090	0.460	-0.107	0.423	-0.084	0.484
Blend	-0.027	0.828	-0.044	0.697	-0.023	0.850	-0.042	0.709
Load	0.364	0.000	0.323	0.000	0.353	0.000	0.326	0.000
Age	-0.001	0.743	0.006	0.101				
NatLogAge					0.011	0.812	0.108	0.016
12B-1	0.458	0.000	0.388	0.000	0.458	0.000	0.380	0.000
R Square	0.531		0.610		0.531		0.616	
Adjusted R Square	0.512		0.595		0.512		0.600	
*Analysis was conducted with a 95% confidence level, P-Values<.05 show significance								

Table 3.

Regressions of Mutual Fund Expense Ratios								
2014 Data								
	Equations							
Variables	1		2		3		4	
	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value	Coeff	P-Value
Intercept	1.320	0.099	1.654	0.021	1.333	0.099	1.527	0.033
Abs Return	-0.015	0.830	-0.029	0.642	-0.017	0.808	-0.029	0.640
+/-S&P Trailing	0.085	0.042	0.078	0.036	0.085	0.042	0.077	0.037
+/-Category	-0.067	0.240	-0.058	0.247	-0.065	0.256	-0.057	0.252
Size	-0.000	0.002			-0.000	0.002		
NatLogSize			-0.057	0.000			-0.059	0.000
Value	-0.140	0.001	-0.099	0.007	-0.139	0.001	-0.095	0.010
Blend	-0.118	0.074	-0.116	0.048	-0.114	0.084	-0.114	0.051
Load	0.337	0.000	0.360	0.000	0.322	0.000	0.360	0.000
Age	-0.003	0.383	0.003	0.331				
NatLogAge					-0.012	0.778	0.068	0.088
12B-1	0.445	0.000	0.344	0.000	0.445	0.000	0.338	0.000
R Square	0.561		0.649		0.559		0.652	
Adjusted R Square	0.543		0.635		0.542		0.638	
*Analysis was conducted with a 95% confidence level, P-Values<.05 show significance								

Table 4.

Regressions of Mutual Fund Expense Ratios								
2015 Data								
	Equations							
Variables	**1**		**2**		**3**		**4**	
	Coeff	**P-Value**	**Coeff**	**P-Value**	**Coeff**	**P-Value**	**Coeff**	**P-Value**
Intercept	5.781	0.808	-11.898	0.584	7.129	0.764	-10.572	0.626
Abs Return	-3.605	0.834	9.379	0.552	-4.613	0.789	8.330	0.596
+/-S&P Trailing	3.619	0.833	-9.369	0.552	4.626	0.788	-8.320	0.597
+/-Category	-0.021	0.267	-0.014	0.429	-0.021	0.267	-0.014	0.425
Size	-0.000	0.001			-0.000	0.001		
NatLogSize			-0.057	0.000			-0.058	0.000
Value	-0.011	0.933	-0.011	0.926	-0.010	0.942	-0.007	0.951
Blend	0.002	0.982	-0.031	0.703	0.004	0.967	-0.029	0.718
Load	0.292	0.001	0.314	0.000	0.281	0.001	0.313	0.000
Age	-0.001	0.705	0.003	0.334				
NatLogAge					0.011	0.807	0.067	0.094
12B-1	0.432	0.000	0.342	0.000	0.432	0.000	0.337	0.000
R Square	0.543		0.622		0.543		0.625	
Adjusted R Square	0.525		0.607		0.525		0.610	
***Analysis was conducted with a 95% confidence level, P-Values<.05 show significance**								

Table 5.

Regressions of Mutual Fund Expense Ratios								
2016 Data								
	Equations							
Variables	**1**		**2**		**3**		**4**	
	Coeff	**P-Value**	**Coeff**	**P-Value**	**Coeff**	**P-Value**	**Coeff**	**P-Value**
Intercept	120.626	0.324	196.612	0.071	130.797	0.285	209.938	0.053
Abs Return	-10.022	0.327	-16.355	0.073	-10.879	0.288	-17.483	0.054
+/-S&P Trailing	10.020	0.327	16.349	0.073	10.876	0.288	17.478	0.054
+/-Category	-0.007	0.590	-0.003	0.807	-0.007	0.596	-0.003	0.815
Size	-0.000	0.000			-0.000	0.000		
NatLogSize			-0.065	0.000			-0.067	0.000
Value	-0.055	0.695	0.001	0.993	-0.052	0.711	0.008	0.948
Blend	-0.003	0.976	-0.007	0.936	0.000	0.998	-0.003	0.969
Load	0.295	0.001	0.332	0.000	0.288	0.001	0.338	0.000
Age	0.000	0.889	0.005	0.073				
NatLogAge					0.033	0.451	0.101	0.011
12B-1	0.431	0.000	0.326	0.000	0.429	0.000	0.319	0.000
R Square	0.544		0.642		0.545		0.647	
Adjusted R Square	0.526		0.628		0.527		0.633	
***Analysis was conducted with a 95% confidence level, P-Values<.05 show significance**								

Table 6.

Regressions of Mutual Fund Expense Ratios								
2017 Data								
	Equations							
Variables	**1**		**2**		**3**		**4**	
	Coeff	**P-Value**	**Coeff**	**P-Value**	**Coeff**	**P-Value**	**Coeff**	**P-Value**
Intercept	391.234	0.056	191.004	0.294	393.790	0.054	184.696	0.309
Abs Return	-17.886	0.056	-8.701	0.297	-18.005	0.054	-8.417	0.311
+/-S&P Trailing	17.888	0.056	8.706	0.297	18.007	0.054	8.422	0.311
+/-Category	-0.008	0.529	-0.011	0.335	-0.008	0.533	-0.011	0.333
Size	-0.000	0.000			-0.000	0.000		
NatLogSize			-0.064	0.000			-0.065	0.000
Value	-0.067	0.621	-0.020	0.868	-0.065	0.629	-0.016	0.895
Blend	-0.039	0.669	-0.041	0.612	-0.038	0.680	-0.039	0.631
Load	0.222	0.010	0.281	0.000	0.215	0.011	0.285	0.000
Age	0.000	0.908	0.004	0.226				
NatLogAge					0.013	0.760	0.066	0.089
12B-1	0.441	0.000	0.331	0.000	0.441	0.000	0.326	0.000
R Square	0.552		0.648		0.552		0.650	
Adjusted R Square	0.534		0.634		0.534		0.636	
***Analysis was conducted with a 95% confidence level, P-Values<.05 show significance**								

Models 1 and 3 provided similar results across all 5 years explaining a little over half of the variation of expense ratios across the funds. Models 2 and 4 provided stronger results explaining over 60% of the variation of expense ratios among the funds. Size and the natural log of size were negative and significant across all models and all 5 years, showing economies of scale. The use of load fees and 12b-1 plans were positive and significant across all models and years. Performance measures, both absolute and risk-adjusted, were inconsistent with some instances of significance, but primarily they were insignificant in most models and years. Age and the natural log of age was insignificant in almost every year and model. The category type was interesting as Value, Blend, and the omitted variable Growth were insignificant in every year, except for a few instances of significance in the models in 2014. Value was significant and negative in every

model in 2014, Blend was only significant in model 2, and it was also negative. Thus, those funds that fall under the Growth category hold the highest expense ratios.

The results of size, load fees, and the use of 12b-1are consistent with findings from Ferris and Chance. Category type held more significant in their findings than this research, and the influence of age on expense ratios found in this research are similar to previous research. The addition of absolute returns and risk-adjusted returns improved the power of all 4 models by around 30% in models 1 and 3 and around 20% for models 2 and 4. Further although insignificant in most cases, the negative coefficient for performance measures is consistent with previous research suggesting that funds with higher returns, both absolute and risk-adjusted, actually have lower expense ratios.

Implications and Future Research

The results of this research help to update previous research on the factors of mutual funds that significantly influence the expense ratio. These results can help investors better understand where exactly the additional fees from their investments are going towards and how to better manager which mutual funds to invest in. By looking at data from Morningstar this research also works to expand from previous research and compare results from Morningstar data to those of other investment databases, like the Center for Research in Security Prices. By controlling the data to be more suitable to a casual investor who does not have to pay any minimum to invest in these funds, these results also show that similar significance to that of previous research is seen in these more casual mutual funds.

There is still a lot of room for expansion in this topic of research as this study only looks at U.S. large equity mutual funds. Future research can apply these models and analysis to different types of funds such as pension funds and index funds. Also, because of the limitations in resources the sample for this research was relatively small. Future papers, with the appropriate funding and resources, can amplify this research to a much larger sample size where results could be compared to this paper.

Furthermore, there is a lack of research comparing the expense ratios of different countries. For example, the average expense ratio has decreased quite heavily since 1980 in the U.S. where the average was around 2.5%, in Countries like Canada the average expense ratio of mutual funds is still around this figure from the 1980s. This is an avenue that future research could explore and this could help to compare the different factors to even further nail down the exact variables of mutual funds that help explain the expense ratio.

References

Bello, Z. Y., & Frank, L. A. C. (2010). A re-examination of the impact of expenses on the performance of actively managed equity mutual funds. *European Journal of Finance & Banking Research, 3*(3), 39-49.

Berk, J. B., & Green, R. C. (2004). Mutual fund flows and performance in rational markets. *Journal of Political Economy, 112*(6), 1269-1295.

Del Guercio, D., & Tkac, P. A. (2002). The determinants of the flow of funds of managed portfolios: Mutual funds vs. pension funds. *Journal of Financial & Quantitative Analysis, 37*(4), 523-557.

Ferris, S. P. & Chance, D. M. (1987). The effect of 12b-1 plans on mutual fund expense ratios: a note. *The Journal of Finance*, 42(4), 1077-1082.

Garyn-Tal, S. (2015). Mutual fund fees and performance: New insights. *Journal of Economics & Finance, 39*(3), 454-477.

Haslem, J. A., Baker, H. K., & Smith, D. M. (2007). Identification and performance of equity mutual funds with high management fees and expense ratios. *Journal of Investing, 16*(2), 32-51.

Sanzhar, A. (2013). Mutual Fund Performance and Expense Ratios: A study of U.S. domestic diversified equity mutual funds. *Tilburg School of Economics and Management, Disertation*.