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**Hedge-Fund-Like Strategies for Retail Investors:
Alternative Mutual Funds vs. Alternative ETFs**

An honors thesis presented to the
Department of Finance,
University at Albany, State University of New York
in partial fulfillment of the requirements
for graduation with Honors in Business Administration
and
graduation from The Honors College

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Research Advisor: Ying Wang, Ph.D.

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Abstract

Hedge fund-like strategies in mutual funds and exchange-traded funds (ETFs) have grown in popularity in the recent decade. This paper examines the value alternative strategies add for retail investors by comparing the performance of alternative ETFs and alternative mutual funds. Using a set of 50 ETFs and 324 mutual funds that offer alternative strategies (such as long/short equity and market neutral from Morningstar Direct) from November 2009 – December 2017. This study finds that alternative mutual funds do not outperform alternative ETFs on a gross return or a net return basis. Several factors have a significant impact on the return of alternative mutual funds and alternative ETFs. Investors should be aware of the differences between mutual funds and ETFs to decide which better suits their investing style.

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Hedge-Fund-Like Strategies for Retail Investors: Alternative Mutual Funds vs. Alternative ETFs

Introduction

Traditional retail investors invest their capital in stocks and bonds in hopes of growth from the stock market and stability from the bond market. Over the course of an investor's life, their risk appetite changes as they grow closer to retirement. When individuals begin investing their capital they are more interested in stocks because they have higher returns than bonds, but are riskier. In the last decade, retail investors have become more interested in alternative mutual funds (AMFs) and alternative exchange traded funds (AETFs) as an investment vehicle.

Investors that seek returns that are uncorrelated with the market seek investments that give hedge fund-like returns. Hedge funds are notably different from traditional investments because they can utilize securities such as derivatives and have more flexibility in their investing style due to less regulation. Traditional mutual funds and ETFs do not implement derivative securities and do not take short positions in equities. A retail investor is not inclined to do so themselves because investment professionals suggest not to. Advisors will tell their clients that these types of securities are risky and hard to understand. Retail investors should never invest in a product that they do not truly understand.

AMFs and AETFs are new investment products in the market and offer retail investors the type of risk and returns that they are seeking but cannot obtain on their own. Mutual funds and ETFs are similar in that they both track a certain index or strategy and try to replicate the returns in a different manner. Mutual funds allow individual investors to invest their capital into a diversified portfolio of many stocks and emulate the return of the total stock market (or strategy). ETFs offer the same concept but in a different way. ETFs are traded like stocks on an

exchange and are much more liquid investments. Investors can trade in and out of ETFs more frequently than mutual funds and can be shorted or even bought on margin. Mutual funds trade by their net asset value at the end of every trading day. Investors can only move into or out of mutual funds at the end of the trading day, which is a disadvantage to ETFs.

Alternative strategies are attractive to retail investors because they can diversify their portfolio and are an investment that they usually would not invest in on their own. Allowing investors to take advantage of derivative securities allows them to have professional fund managers take “bets” on the swings in the market to make a profit. Derivative securities also allow a fund manager to hedge their long position during a volatile time in the market or before a quarterly earnings announcement. If there is increased market volatility, a fund manager and invest in derivatives to secure a profit in either a downward movement in the stock or an upward movement in the stock. This is also the case for an upcoming earnings announcement. If the fund manager does not know what to expect for an earnings announcement, they can invest in a derivative security to ensure that either way they make a profit.

Figure 1. Alternative ETFs from November 2009 – December 2017

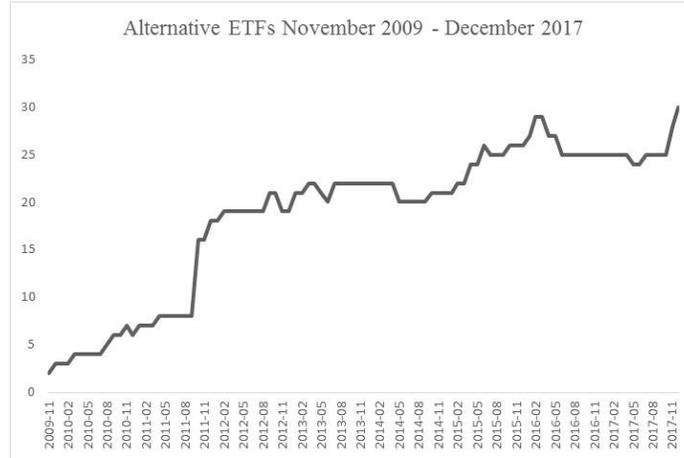


Figure 1 shows the amount of AETFs that are included in the study during the sample period (November 2009 – December 2017). The chart shows the amount of AETF funds growing from two at the beginning of the sample period to 30 funds by the end. The amount of AETFs experiences a large increase towards the end of 2011 jumping from eight funds to sixteen funds. The chart has both increases and decreases because this study includes both alive and dead funds.

Figure 2. Alternative Mutual Funds from November 2009 – December 2017

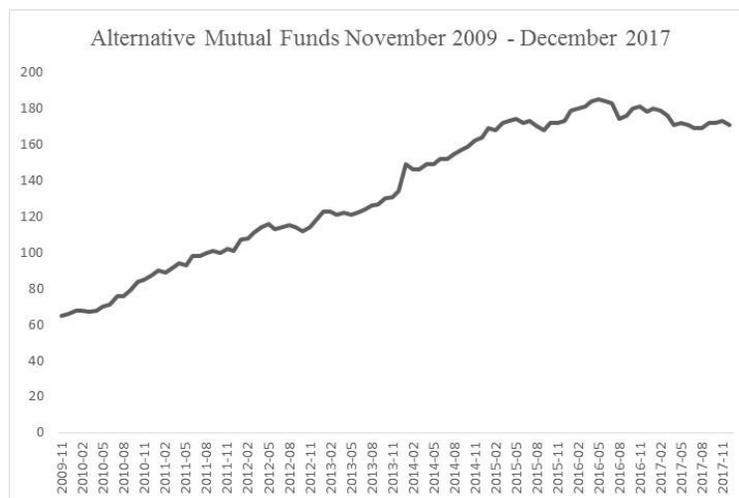


Figure 2 shows the amount of AMFs that are included in the study during the sample period. That chart shows the amount of AMFs growing from 65 funds at the beginning of the sample to 171 funds at the end. The sample size grows at a stable rate over the course of the sample. It is clear from these figures that investors are increasingly interested in alternative strategy funds by the number of funds in the market.

Figure 3. Long/Short AETFs from November 2009 – December 2017



Figure 4. Long/Short AMFs from November 2009 – December 2017

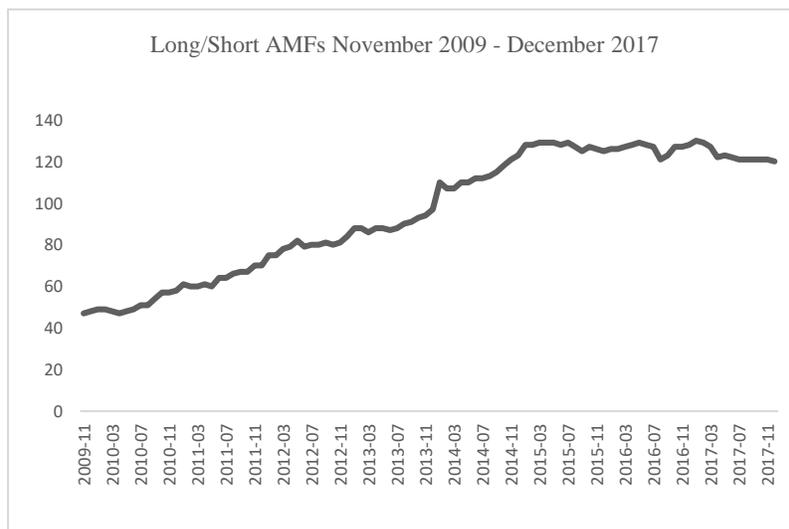


Figure 3 and Figure 4 show the amount of long/short equity AETFs and AMFs, respectively, during the sample period. Long/short equity AETFs grow from just one fund at the beginning of the sample period to 21 funds by the end. Long/short equity AMFs grow from 47 funds at the beginning of the sample period to 120 funds by the end. Once again, AETFs experience faster growth than AMFs, but that is because AMFs are more established than AETFs and have been around for longer.

Figure 5. Market Neutral AETFs from November 2009 – December 2017

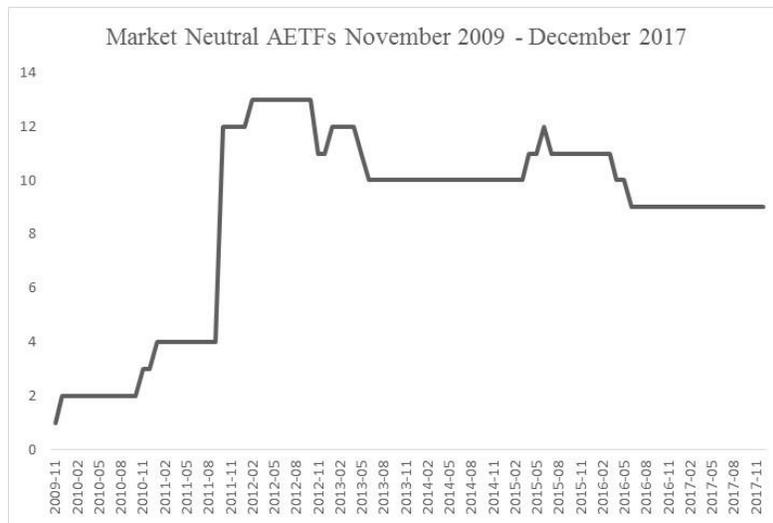


Figure 6. Market Neutral AMFs from November 2009 – December 2017

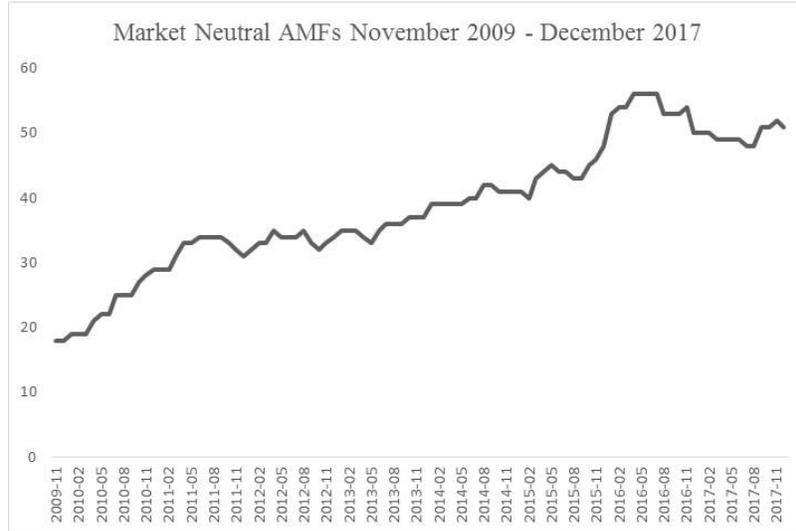


Figure 5 and Figure 6 show the amount of market neutral AETFs and AMFs, respectively, during the sample period. Market neutral AETFs grow from just one fund at the beginning of the sample period to nine funds by the end. Market neutral AMFs grow from eighteen funds at the beginning of the sample period to 51 funds by the end. Market neutral funds grow at a slower rate than long/short equity funds. This is because market neutral funds utilize an equal weighting in long and short positions while long/short equity funds do not.

This is the first study to compare the performance of AMFs and AETFs. Past literature examines the performance of mutual funds and ETFs but do not include those that implement alternative strategies. Other literature examines the use of alternative strategies in mutual funds and ETFs and is discussed in the following section. Alternative strategies offer investors diversification and different risk levels that suit their needs at every stage of investing.

The remainder of the paper is organized as follows: Section 2 summarizes the literature review that helped develop the hypothesis; Section 3 expresses the hypothesis of this study;

Section 4 explains the data and methodology used in the analysis; Section 5 presents the empirical results; Section 6 concludes the paper.

Literature Review

Mutual Funds versus ETFs

Past literature shows research on the performance of ETFs and mutual funds and the performance relative to the market. The results of these studies show that both ETFs and mutual funds exude the capabilities to accurately track the performance of the market. Mutual funds were introduced to the market well before ETF. ETFs have similar characteristics in comparison to mutual funds but are traded on exchanges. Rompotis (2005) studies the performance of ETFs and mutual funds. Rompotis uses a large set of mutual funds and ETFs to compare their tracking error compared to the index they follow. Other papers note that index funds load the cost to investors in minimum investment requirements and holding periods. Similarly, ETFs load their cost in transaction costs and bid-ask spreads, creating a similar effect to mutual funds.

ETFs and mutual funds are both passive investments that track specific indexes or strategies. Rompotis (2005) explains that both investments give investors access to professionally managed funds and access to both domestic and foreign investments with great liquidity. ETFs are traded like stocks and are subject to associated fees and other expenses. While mutual funds do not have these, they do have fees when purchasing shares in the fund and redeeming your shares, similar to the fees when trading ETFs. Since ETFs and mutual funds are known to track certain indexes they are, in theory, supposed to achieve similar returns as their underlying indexes, but

don't always do so. Rompotis examines this tracking error in ETFs and mutual funds to determine how well they compare.

Rompotis (2005) evaluates the daily performance of ETFs and mutual funds that track the same index to avoid considering investments that are influenced by other factors. The study concludes that there are statistically insignificant different performance records between ETFs and mutual funds. Using regressions, Rompotis ascertains that neither produces any alpha since it is not statistically different from zero. Extrapolating from the findings, it is stated that the method for deciding between ETFs and mutual funds is based on the investor. A conservative stock investor and institutional investors without the ability to use financial derivatives as a hedge often invest in ETFs. On the other hand, traditional individual mutual fund investors avoid ETFs.

Farinella and Kubicki (2018) expand on the ideas set forth by Rompotis' study and examine ETFs and mutual funds to evaluate performance and tracking error. The growth of ETFs since their introduction to the market has sparked an increase in studies to determine how well these investments perform compared to their respective benchmarks. Assets held in ETFs and mutual funds vary from equities to fixed-income and many subcategories below that, such as long-short and market neutral. The study shows that mutual funds experience higher tracker errors than ETFs. Farinella and Kubicki examine net and gross returns as well as expenses to better understand how they perform. Investors will pay fewer expenses and receive higher gross returns in ETFs, thus indicating that ETF returns were higher during the given time period. Mutual fund expenses vary from year-to-year based on the performance on the fund, making it hard to compete with ETFs on a net basis. This paper examines returns on a gross and net basis to evaluate each before and after expenses have been incurred.

The Use of Alternative Strategies in Mutual Funds

Alternative strategies are used in mutual funds to diversify investor portfolios. Examples of alternative strategies include long/short equity and market neutral where fund managers use both long and short position of equities in their portfolios. Traditional mutual funds invest in stocks and attempt to track a certain index or sector. Introducing derivative securities to traditional equity portfolios attracts investors with access to investments that are often considered complicated and risky. Offering portfolios with historically low correlation to the performance of the market cause fund managers and individual investors to believe that these investment options might be more attractive than bonds or cash (Greig, 2010). Investors saving for retirement often turn to these traditional assets as they get older, but may be attracted to the low correlation returns.

Koski and Pontiff (1999) examine the use of derivatives in mutual funds and how the change in risk affects fund performance. Koski and Pontiff note previous work stating that derivatives are useful tools in investment management. Derivatives allow investors to make bets on the price movement of the underlying security. If an investor believes that the stock is going to increase or decrease within a certain time period, they can use derivatives. Using derivatives can also hedge a long position by protecting against a severe change in price. In theory, derivatives should cause fund managers to have better performance compared to portfolios that use don't use them (Koski and Pontiff, 1999). Koski and Pontiff find that when fund managers use derivatives they also use nonderivative securities. Using both types of assets maintains risk levels and return performance compared to portfolios that don't use derivatives (Koski and Pontiff, 1999). Although funds that use derivatives may not be much riskier or perform better than funds that don't, they still offer diversification for investors.

Huang and Wang (2013) examine the value AMFs add for retail investors during the 2007 financial crisis. Investors during this time period experienced a large decline during this time period. AMFs aimed at offering non-correlated returns which would be valuable in retail investor portfolios due to the decrease in equity securities. Although short positions generate alpha in a market downturn, the loss from long positions is often offset (Huang and Wang, 2010). The study found that abnormal performance is attributable to industry-adjusted stock selection and that there was no evidence that AMFs added any value for investors.

Agarwal, Boyson, and Naik (2009) study the performance of hedge funds, AMFs, and traditional mutual funds. Implementing alternative strategies in mutual funds mimics the performance of hedge funds for retail investors. Having the ability to access hedge fund-like returns is beneficial to retail investors because they will otherwise not have access to these kinds of returns. Hedge funds require investors to have large amounts of capital and often require investors to have certain credibility (Kanuri and McLeod, 2014). Agarwal, Boyson, and Naik note that the performance of hedge funds is often different than AMFs and traditional mutual funds because they don't require such tight constraints that the Securities and Exchange Commission (SEC) require of the latter. Additionally, AMFs have greater flexibility than traditional mutual funds because they have the ability to utilize derivatives. The study finds that hedge funds outperform AMFs due to their loose restrictions and AMFs outperform traditional mutual funds due to their flexibility. AMFs may not outperform hedge funds, but the ability to short securities give retail investors access to returns that are superior to traditional long-only mutual funds.

Chen, Desai, and Krishnamurthy (2013) study the use of short selling in the mutual fund industry. The use of short selling is a characteristic of alternative mutual funds and is what makes them "alternative." There are many studies that focus on using long positions in mutual funds but

there are very few that study the use of short positions. Regulations kept mutual funds from engaging in the short selling until the Taxpayer Relief Act of 1997 which repealed a ruling limiting the number of gains from short positions. This coupled with retail investors seeking hedge fund-like returns pushed mutual fund companies to start using short selling. The results of the study found that mutual funds that use short selling strategies often have higher expense ratios than those that do not use short selling. This can be an indication that AETFs will have higher net returns than AMFs due to the higher expenses. Although, the study finds that mutual funds that use short selling have statistically significant abnormal returns compared to mutual funds that don't use short selling. This could be an indication that AMFs will have higher gross returns than AETFs.

The Use of Alternative Strategies in ETFs

Some ETFs utilize alternative strategies just like many mutual funds. ETFs and mutual funds have many similarities and differences (mentioned in Section 2.1). Just like mutual funds, there are ETFs that utilize alternative strategies such as long/short equity and market neutral where the fund managers use both long and short positions in the portfolio. ETFs are funds that are meant to track the performance of a certain index/strategy in a passive manner. Retail investors enjoy using ETFs as they have similar goals as mutual funds but are traded differently. When ETF companies noticed that the use of alternative strategies was increasing in popularity they began forming AETFs. Using derivative securities in traditional equity portfolios attract investors with access to low correlation returns and different risk levels that diversify portfolios.

Kanuri (2016) studies the value that hedged ETFs provide to retail investors. Hedged ETFs are fairly new entrants to the market and there are a lot of questions about the topic of how useful they

are to retail investors and what the benefits are. Kanuri (2016) explains the characteristics of hedged ETFs and how they benefit retail investors. Similar to AMFs, hedged ETFs are attractive to retail investors because they offer hedge fund-like returns for investors that don't meet the initial investment requirements. The nature of ETFs also offer these types of returns to retail investors at low costs and flexibility of investment. ETFs are more flexible than mutual funds because they are traded like stocks. Investors can purchase long positions, they can purchase short positions, and they can even buy them on margin.

The next section expresses the hypotheses studied in this paper.

Hypotheses

This study is interested in determining whether or not AETFs outperform AMFs to provide benefits to retail investors through their promise of delivering returns that are uncorrelated with the market. The following are the hypotheses studied:

- H₁: There is a significant difference between the performance of AETFs and AMFs between November 2009 and December 2017.
- Null Hypothesis: There is no significant difference between the performance of AETFs and AMFs between November 2009 and December 2017.

Past literature finds mixed results when determining whether mutual funds outperform ETFs. This is the first study to compare the performance of AMFs and AETFs and the premise of the hypotheses comes from the mixed results. Rompotis (2005) finds that there is no significant

difference between mutual funds and ETFs. On the other-hand Farinella and Kubicki (2018) find that ETFs have higher gross returns and lower expenses which means they outperform mutual funds on a gross return and net return basis. This study will prove whether AMFs have higher gross and net returns than AETFs. By studying this topic, retail investors will have more information to help decide between investing their capital in AMFs or AETFs. The attractiveness of these investments with a lack of study on the performance of them comparatively makes the decision difficult for individuals. This study hopes to alleviate the stress for investors.

The next section explains the data and methodology used in the study.

Data and Methodology

Data Description

The data used in this study comes from Morningstar Direct. To begin, the search uses ETFs and mutual funds from the US Fund Long-Short Equity and US Fund Market Neutral category. The Long-Short Equity category includes portfolios that have long and short positions in equities and their subsequent derivatives. Weighting between long and short positions varies based on the current economic and market conditions. At the minimum, 75% of the assets under management in the fund are in equity securities and derivatives. The Market Neutral category includes funds that attempt to mitigate systematic risk in its portfolio. When entering short positions, these funds try to give equal weighting to its subsequent long positions. A significant feature of Market Neutral funds is that they typically have low beta exposure to the market indexes. Data for ETFs in the Long-Short and Market Neutral category begins in November 2009. As such, the sample period is November 2009 – December 2017.

To avoid survivorship bias, the sample includes both alive and dead funds through the entire sample period. Using gross monthly returns and net monthly returns, the data uses 98 observations to run regressions. The data includes both gross and net returns to evaluate performance before and after expenses.

Once the criteria and sample period are set, the Morningstar data includes 50 total ETFs and 324 total mutual funds. Out of these, 33 ETFs and 231 mutual funds are observed under the US Fund Long-Short Equity category and 17 ETFs and 93 mutual funds are observed under the US Fund Market Neutral category.

Methodology

This study considers the standard Carhart (1997) unconditional four-factor alpha. The performance measure considered comes from the following four-factor model:

$$r_{it} = \alpha_i + \beta_{i,m}R_{mt} + \beta_{i,SMB}SMB_t + \beta_{i,HML}HML_t + \beta_{i,UMD}UMD_t + \varepsilon_{it}, \quad t = 1, \dots, T,$$

where r_{it} is the period- t excess return of portfolio i ; R_{mt} is the period- t excess return on a value-weighted aggregate market proxy portfolio; SMB_t , HML_t , and UMD_t are the period- t returns on factor-mimicking portfolios for size, book-to-market equity, and one-year momentum in stock returns, respectively (Fama and French, 1992; Jegadeesh and Titman, 1993); α_i is the unconditional alpha of portfolio i ; $\beta_{i,m}$, $\beta_{i,SMB}$, $\beta_{i,HML}$, and $\beta_{i,UMD}$ are the sensitivity coefficients of portfolio i ; ε_{it} and is a zero mean random variable.

Before monthly returns are analyzed using the Carhart (1997) four-factor model, AETFs and AMFs are placed into portfolios to form a time series of returns throughout the time period. Portfolios are separated into subcategories evaluate average monthly returns for all funds, market neutral funds, and long/short funds. After taking the average monthly return for each portfolio on a gross and net basis, the risk-free rate is subtracted from the portfolio to examine raw returns of each. In addition to portfolios of AETFs and AMFs in each subcategory, portfolios are created to form a time series to compare the performance of AETF and AMF monthly returns. These portfolios consist of returns including the risk-free rate.

The next section presents the empirical results of the study explained above.

Empirical Results

This section presents the main empirical results regarding the relation between AMFs and AETFs using the regression explained in Section 4.2. The sample period in this study is from November 2009 – December 2017 as AETFs entered the market in November 2009. Given the short time period of AETFs, the study uses monthly returns in the analysis on a net return and gross return basis. Section 5.1 presents the summary statistics of the data used in the study and the subsequent results. Section 5.2 explains the portfolio-level fund performance using equally-weighted portfolio gross returns. Section 5.3 explains the portfolio-level fund performance using equally-weighted portfolio net returns.

Summary Statistics

Table 1. Summary Statistics on Fund Characteristics

	ETF			Mutual Fund		
	Fund-type		All funds	Fund-type		All funds
	M-N	L/S		M-N	L/S	
Number of Funds	17	33	50	93	231	324
Average Monthly Gross Return	0.07%	0.39%	0.23%	0.37%	0.50%	0.46%
Average Monthly Net Return	-0.04%	0.35%	0.20%	0.21%	0.34%	0.30%
Observations	98	98	98	98	98	98

Table 1 describes the summary statistics for the funds in the study. Each statistic is broken down by ETF and mutual fund then split by fund type (market neutral, long/short, and the aggregate). As stated in Section 4.1, there are 50 AETFs and 324 AMFs. Within these funds, there are 17 AETFs and 93 AMFs in the market neutral category and 33 AETFs and 231 AMFs in the long/short category. AETFs and AMFs are still new investment products to the market. The difference in AETFs and AMFs in the market is very similar to the difference between total ETFs and total mutual funds. Both fund types are growing in total and in each category as more investors are interested. Average monthly returns over the course of the sample period are the raw return on a gross and net basis. The study observes 98 monthly returns during the sample period due to the lack of monthly return data for AETFs before November 2009.

Market neutral funds have a smaller average monthly return than long/short funds due to their investment strategy. Market neutral AETFs have an average monthly gross return of 0.07% and an average monthly net return of -0.04%. Market neutral AMFs have an average monthly gross return of 0.37% and an average monthly net return of 0.21%. Market neutral AMFs clearly have larger average monthly returns but have a larger spread between gross and net returns. The spread

between market neutral AETFs average gross and net return is 11 basis points. The spread between market neutral AMFs average gross and net return is 16 basis points. The premise that mutual funds have higher expenses than ETFs is held true in market neutral AMFs.

Long/short equity AETFs have an average monthly gross return of 0.39% and an average monthly net return of 0.35%. Long/short equity AMFs have an average monthly net return of 0.50% and an average monthly net return of 0.34%. Once again the spread between gross and net returns is larger in mutual funds. The spread between long/short equity AETFs average gross and net return is 4 basis points and the spread between long/short equity AMFs average gross and net return is 16 basis points.

In the aggregate portfolio, AETFs have an average monthly gross return of 0.23% and an average monthly net return of 0.20%. AMFs have an average monthly gross return of 0.46% and an average monthly net return of 0.30%. The spread between AETFs average gross and net return is 3 basis points. The spread between AMFs average gross and net return is 16 basis points. It is evident that mutual funds have higher average monthly returns on both a gross and net basis but have a larger spread between gross and net returns.

The following sections explain the findings from the study using the Carhart (1997) alpha model to explain the difference between the performance of AMFs and AETFs.

Performance Analysis of Fund Portfolios with Gross Returns

This section explains the results from the Carhart (1997) alpha model with average gross monthly portfolio returns. Portfolios include all funds with equal weighting each month during the sample period (November 2009 – December 2017). Table 2 displays the results of the alpha model

showing the results of the alpha, beta for each factor of the Carhart factors (MKT, SMB, HML, and UMD), and the adjusted r-squared. The results split by fund then by each category thereafter. AETFs are the first cluster of results on the left side, AMFs are the second cluster of result in the middle, and the difference between AETFs and AMFs are the third cluster on the right. This section also discusses the statistical significance of the difference between the average monthly returns of AETFs, AMFs, and the difference between AETFs and AMFs and zero found in Table 3.

Table 2. Performance Analysis of Equally-weighted Fund Portfolios (Gross Returns)

Panel A. Carhart Model Estimates (Gross Returns)									
	ETF			Mutual Fund			ETF - Mutual Fund		
	M-N	L/S	All	M-N	L/S	All	M-N	L/S	All
α (%)	-0.07 (-1.22)	-0.23 (-1.04)	-0.09 (-1.18)	-0.05 (-1.07)	0.06* (1.87)	0.03 (0.94)	-0.02 (-0.23)	-0.21 (-0.72)	-0.11 (-1.33)
β_{MKT}	0.10*** (5.57)	0.44*** (6.97)	0.24*** (10.89)	0.34*** (27.82)	0.36*** (39.60)	0.35*** (39.78)	-0.24*** (-11.76)	0.01 (0.09)	-0.11*** (-4.64)
β_{SMB}	0.01 (0.27)	0.01 (0.10)	0.01 (0.34)	0.02 (1.21)	0.02 (1.55)	0.02 (1.58)	-0.02 (-0.50)	0.07 (0.56)	-0.01 (-0.29)
β_{HML}	0.06** (1.99)	0.05 (0.44)	0.03 (0.92)	-0.04** (-2.10)	-0.01 (-0.59)	-0.02 (-1.27)	0.10*** (2.91)	-0.26** (-1.99)	0.05 (1.35)
β_{UMD}	0.04** (2.11)	0.11 (1.48)	0.04 (1.49)	-0.02 (-1.21)	0.00 (-0.12)	-0.01 (-0.56)	0.06** (2.49)	-0.05 (-0.55)	0.05 (1.62)
Adj. R ²	0.30	0.36	0.59	0.91	0.95	0.95	0.64	0.02	0.21

Table 3. Portfolio Average Gross Monthly Returns

Panel A. Carhart Model Estimates (Gross Returns)									
	ETF			Mutual Fund			ETF - Mutual Fund		
	M-N	L/S	All	M-N	L/S	All	M-N	L/S	All
Intercept	0.00 (0.79)	0.00 (1.31)	0.00* (1.87)	0.00*** (2.81)	0.01*** (3.70)	0.00*** (3.48)	-0.00*** (-2.67)	-0.00 (-0.72)	-0.00*** (-2.67)

Table 2 displays the results from the Carhart (1997) alpha model with gross returns. The alpha in all types of funds and the difference between each fund is not significantly different except

for long/short equity AMFs. Long/short equity AMFs return an alpha of 0.06% with a 10% significance level. As well, long/short equity AMFs monthly gross returns in Table 4 is significantly different from zero. Furthermore, although the difference between the market neutral and all AMFs and AETFs is significantly different from zero, the alpha is not significantly different. Rompotis (2005) finds that the performance of ETFs and mutual funds has no significant difference, which is similar in this paper.

The factors that have a significant impact on performance are market risk, book-to-market equity, and one-year momentum in returns. Market risk is a statistically significant factor in all funds the difference between AETFs and AMFs in the long/short equity category. AETFs have a market risk beta that is less than 0.50. This shows that for every one-percentage-point that market risk increases returns increase by 50 basis points. Market neutral AETFs have a 0.10 beta, long/short equity AETFs have a 0.44 beta, and all AETFs have a 0.24 beta. The results show that the market neutral category is the least sensitive to market risk. Market neutral performance implied by the name is neutral. No matter how much market risk there is market neutral AETFs are not affected. AMFs have similar sensitivities to market risk: market neutral AMFs have a 0.34 beta, long/short equity AMFs have a 0.36 beta, and all AMFs have a 0.34 beta. Contrary to AETFs, all AMFs have similar sensitivity to market risk. The difference between AETFs and AMFs show that AMFs have stronger sensitivity to market risk in the market neutral and aggregate portfolios.

The HML factor explains the sensitivity to portfolios holding value stocks and growth stocks. The HML factor indicates the spread between return of value and growth stocks. Logically, market neutral AETFs and AMFs have a statistically significant sensitivity to this indicator that is close to zero. Market neutral AETFs have a 0.06 beta and market neutral AMFs have a -0.04 beta. The difference between market neutral AETFs and market neutral AMFs has a 0.10 beta. The

difference between long/short equity AETFs and long/short equity AMFs is statistically significant and has a beta of -0.26. Although long/short equity AETFs and AMFs do not have statistically significant sensitivity, it is important to note that the difference between the two is statistically significant.

The UMD factor explains the sensitivity to one-year momentum in stock returns. Market neutral AETFs have a statistically significant sensitivity to momentum. The beta for market neutral AETFs is 0.04. On the other hand, market neutral AMFs are not statistically sensitive to the momentum beta but the difference between AETFs and AMFs is. Once again, the beta is statistically significant but not much different from zero (the beta is 0.060).

The results of the Carhart (1997) alpha model is consistent with Rompotis (2005)'s study and inconsistent with Farinella and Kubicki (2018)'s study on a gross return basis. The next section describes the results from the Carhart (1997) alpha model on a net return basis.

Performance Analysis of Fund Portfolios with Net Returns

This section explains the results from the Carhart (1997) alpha model with average net monthly portfolio returns. Portfolios include all funds with equal weighting each month during the sample period (November 2009 – December 2017). Table 4 displays the results of the alpha model showing the results of the alpha, beta for each factor of the Carhart factors (MKT, SMB, HML, and UMD), and the adjusted r-squared.

Table 4. Performance Analysis of Equally-weighted Fund Portfolios (Net Returns)

Panel A. Carhart Model Estimates (Net Returns)									
	ETF			Mutual Fund			ETF - Mutual Fund		
	M-N	L/S	All	M-N	L/S	All	M-N	L/S	All
α (%)	-0.18*** (-3.22)	-0.18 (-1.44)	-0.15** (-2.53)	-0.21*** (-4.83)	-0.11*** (-3.37)	-0.13*** (-4.38)	0.04 (0.51)	-0.06 (-0.47)	-0.01 (-0.10)
β_{MKT}	0.10*** (6.39)	0.44*** (12.44)	0.27*** (15.80)	0.34*** (28.06)	0.36*** (40.52)	0.35*** (40.67)	-0.24*** (-12.00)	0.08** (2.19)	-0.08*** (-4.31)
β_{SMB}	0.00 (0.04)	-0.01 (-0.25)	0.00 (-0.17)	0.02 (1.26)	0.02 (1.61)	0.02 (1.65)	-0.02 (-0.75)	-0.04 (-0.61)	-0.03 (-0.91)
β_{HML}	0.06** (2.14)	0.00 (0.03)	0.01 (0.49)	-0.04** (-2.05)	-0.01 (-0.55)	-0.02 (-1.23)	0.10*** (2.99)	0.01 (0.15)	0.03 (0.99)
β_{UMD}	0.03* (1.80)	0.06 (1.38)	0.02 (1.18)	-0.02 (-1.17)	0.00 (-0.06)	-0.01 (-0.50)	0.05** (2.19)	0.06 (1.30)	0.03 (1.28)
Adj. R ²	0.35	0.64	0.75	0.91	0.95	0.95	0.65	0.02	0.20

The results split by fund then by each category thereafter. AETFs are the first cluster of results on the left side, AMFs are the second cluster of result in the middle, and the difference between AETFs and AMFs are the third cluster on the right. This section also discusses the statistical significance of the difference between the average monthly returns of AETFs, AMFs, and the difference between AETFs and AMFs and zero found in Table 5.

Table 5. Portfolio Average Net Monthly Returns

Panel A. Carhart Model Estimates (Net Returns)									
	ETF			Mutual Fund			ETF - Mutual Fund		
	M-N	L/S	All	M-N	L/S	All	M-N	L/S	All
Intercept	-0.00 (-0.76)	0.00* (1.94)	0.00 (1.64)	0.00 (1.59)	0.00** (2.49)	0.00** (2.25)	-0.00** (-2.25)	0.00 (0.43)	-0.00 (-1.45)

Table 3 displays the results from the Carhart (1997) alpha model with net returns. Unlike the results from the alpha model using gross returns, AETFs (only the market neutral and aggregate portfolios) and AMFs have statistically significant alphas. The difference between AETFs and AMFs is not statistically significant. This finding shows that on a net return basis there is no

difference between the monthly performance of AETFs and AMFs. It is important to note the alphas generated by the statistically significant AETFs and AMFs. Market neutral AETFs generate an alpha of -0.18%, which is insignificantly different from zero (Table 5). All AETFs generate an alpha of -0.15%, which is insignificantly different from zero (Table 5). All of the AMF portfolios generate a negative alpha on a net return basis. The market neutral portfolio generates -0.21% of an alpha, the long/short equity portfolio generates -0.11% of an alpha, and the aggregate portfolio generates -0.13% of alpha (Table 3). Note that Table 5 shows that the difference between AETFs and AMFs is statistically different from zero while the alpha generated is not significant.

Similar to the results from gross returns, the results from net returns show a significant impact from market risk, book-to-market equity, and one-year momentum in returns. Market risk has a significant impact on net returns in AETFs, AMFS, and the difference between the two in all categories. The market neutral and aggregate portfolio have higher betas in AMFs than AETFs and the long/short equity portfolio has a higher beta in AETFs than AMFs. Refer to Table 3 for the individual betas.

The book-to-market factor is significantly different in AETFs from AMFs in the market neutral category. The beta for market neutral AETFs and AMFs is 0.06 and -0.04, respectively. Both are fairly close to zero meaning that they are not affected by this factor but do have slight sensitivity in opposite directions. This difference shows that the difference in beta between AETFs and AMFs is 0.10. This is still a small difference but shows that AETFs are more sensitive than AMFs.

The one-year momentum in stock returns is significant in market neutral AETFs and has a significant difference from market neutral AMFs. The beta for market neutral AETFs is 0.03,

which is very close to zero, and the difference between market neutral AETFs and AMFs is 0.05. This means that market neutral AETFs are more sensitive to one-year momentum.

Once again the results are complementary to Rompotis's (2005) study and contrary to Farinella and Kubicki's (2018) study. The next section concludes the paper.

Conclusion

Mutual funds and ETFs that employ alternative strategies attract retail investors with the opportunity to diversify their portfolio and utilize investments that they otherwise would not. Short selling and derivative securities offer retail investors the opportunity to hedge their risk in the market and are often not utilized on their own. Investing in mutual funds and ETFs that use alternative strategies allow investors to take advantage of professional managers that emulate the returns of hedge funds at a cheaper cost. Retail investors do not have access to hedge funds and that entices them to invest in AMFs and AETFs.

This study compares the monthly performance of AMFs and AETFs from November 2009 – December 2017 using the Carhart (1997) alpha model. Rompotis (2005) finds that mutual funds and ETFs do not have significantly different returns and Farinella and Kubicki (2018) find that ETFs outperform mutual funds on a gross and net basis. These differing results make it unclear whether or not AMFs outperform AETFs. It is known that mutual fund managers vary their expenses on a year-to-year basis based on their performance. ETFs are traded like stocks on an exchange and usually have lower expense ratios.

This study fails to reject the null hypothesis of the study with an insignificant difference in returns on a gross and net basis. The results are complementary to Rompotis (2005)'s study. Investors need to be aware that although there is no significant difference between AMFs and AETFs that there are other differences between the two. They are traded differently and can have different tax implications, which could make a big impact for any retail investor. Individuals should discuss the differences between mutual funds and ETFs with a financial professional to understand the advantages and disadvantages of the two. AMFs and AETFs are assets that can be utilized in an individual's portfolio to diversify even though there is no significant difference between the two.

References

- Agarwal, Vikas et al. "Hedge Funds for Retail Investors? An Examination of Hedged Mutual Funds." *Journal of Financial & Quantitative Analysis*, vol. 44, no. 2, 2 Apr. 2009, pp. 273-305.
- Carhart, Mark M. "On Persistence in Mutual Fund Performance." *Journal of Finance*, vol. 52, no. 1, Mar. 1997, pp. 57-82.
- Chen, Honghui et al. "A First Look at Mutual Funds That Use Short Sales." *Journal of Financial & Quantitative Analysis*, vol. 48, no. 3, June 2013, pp. 761-787.
- Fama, Eugene F. and Kenneth R. French. "The Cross-Section of Expected Stock Returns." *Journal of Finance*, vol. 47, no. 2, June 1992, pp. 427-465.
- Farinella, Joseph and Raphael Kubicki. "The Performance of Exchange Traded Funds and Mutual Funds." *Journal of Accounting & Finance*, vol. 18, no. 4, 2018, pp. 44-55.
- Greig, Bruce C. "Alternative Overlay for a Traditional Managed Equity Portfolio." 14 March 2010. Retrieved from <https://ssrn.com/abstract=1607914>.
- Huang, Jing-Zhi and Ying Wang. "Should Investors Invest in Hedge Fund-Like Mutual Funds? Evidence from the 2007 Financial Crisis." *Journal of Financial Intermediation*, vol. 22, no. 3, 2013, pp. 482-512.
- Jegadeesh, Narasimhan and Sheridan Titman (1993): "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *Journal of Finance*, vol. 48, no. 1, Mar. 1993, pp. 65-91.
- Kanuri, Srinidhi. "Hedged ETFs: Do They Add Value?" *Financial Services Review*, vol. 25, no. 2, 4 Apr. 2016. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2759106.
- Kanuri, Srinidhi, and Robert W. McLeod. "Performance of Alternative Mutual Funds: The Average Investor's Hedge Fund." *Financial Services Review*, vol. 23, no. 2, 3 June 2014.
- Koski, Jennifer L. and Jeffrey Pontiff. "How Are Derivatives Used? Evidence from the Mutual Fund Industry." *Journal of Finance*, vol. 54, no. 2, Apr. 1999, pp. 791-816.
- Rompotis, Gerasimos G. "An Empirical Comparing Investigation on Exchange Traded Funds and Index Funds Performance." 2005 Dec. 15. Retrieved from <https://ssrn.com/abstract=903110>.