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Exchange-Traded Funds: The Unknown Investment Opportunity

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Abstract

Actively managed mutual funds are some of the most invested in investment vehicles in the modern era. However, it is a great misunderstanding of their performance relative to their passively managed exchange-traded funds. Actively managed mutual funds fail to outperform their respective benchmarks due to a variety of reasons including market efficiency, timing, and tax consequences. These findings hold true in both the long-term and short-term for equities and fixed income funds. A self-conducted survey was also conducted in order to find the knowledge and opinions of college students on ETFs and mutual funds.

Keywords

ETF, Mutual Fund, Investing, Active Management, Passive Investing

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Abstract

Actively managed mutual funds are some of the most invested in investment vehicles in the modern era. However, it is a great misunderstanding of their performance relative to their passively managed exchange-traded funds. Actively managed mutual funds fail to outperform their respective benchmarks due to a variety of reasons including market efficiency, timing, and tax consequences. These findings hold true in both the long-term and short-term for equities and fixed income funds. A self-conducted survey was also conducted in order to find the knowledge and opinions of college students on ETFs and mutual funds.

I. Introduction

It is assumed that professionals on Wall Street are the only ones that know how to “beat the market” and make significant returns on investments in the stock market. They are thought to have the insight and expertise to buy and sell the best stocks at the right price and to always make the right decisions. Unfortunately, this is far from the truth. In fact, many investment professionals on Wall Street find it difficult to match the overall market and the majority underachieve relative to the S&P 500 (Malkiel, 2003). This performance gap makes investments in an Exchange-Traded Fund (ETF), which passively tracks an index, the best way to outperform the professionals on Wall Street and maximize returns over the long term. Empirical evidence shows that ETFs following a passive indexed strategy, which give the investor their desired exposure and diversification, are the most efficient and productive way to generate the highest returns while investing in the stock market (Edelen, Evans, and Kadlec, 2013).

A self-conducted survey was distributed to a wide variety of respondents, in respect to age, gender, education, experience, and occupation. The survey intended to distinguish the differences in investing amongst the age groups and genders. Specifically, the importance of taxes, familiarity with ETFs and mutual funds, and the ideal investment styles. Through the results generated in the survey, the general knowledge and opinions of the age groups and genders can be inferred and evaluated.

II. Literature Review

There are a several reasons that professional money managers in today’s environment find it difficult to outperform the market. In the early 1990s, the information advantage of selective phone delivery broke down. Media outlets delivered financial news instantaneously, not

just to the traders in brokerage houses, but to virtually anyone with cable television. “Under the further pressure of the internet and the personal computer, which made emailed information accessible to nontechnical people, institutional investment research became highly democratized, and investment managers began to struggle to outperform” (Callaghan, 2017). However, up until 2000, a company could tip off its largest investment-management holders to both good and bad news before the public knew anything about it. Because of this, The Securities and Exchange Commission (SEC) promulgated Regulation Fair Disclosure, or Reg FD, in 2000. This new regulation required all U.S. publicly traded companies to disclose any material information to all investors at the same time. Thus, eliminating the final edge that institutional investors had on individual investors (Callaghan, 2017). As soon as information is publicly available, anyone can capitalize on the potential arbitrage that exists in the stock market. The result is these price changes are factored into the stock prices in a matter of a few minutes, quickly eliminating the arbitrage opportunity in the market.

Market Efficiency

The instantaneous availability of news and information on publicly listed companies in the market pushes stock prices towards a fair market value. Even before the rapid expansion of the internet, “outperforming the consensus of hundreds of thousands of professionals at the world’s major financial institutions is next to impossible” (Malkiel, 2013, p. 107). Despite the accuracy and development that the stock prices already have priced into them, investors still attempt to find the underpriced stocks. This search results in investors actively buying and selling stocks that are sometimes underperforming and sometimes outperforming their respective benchmarks. As a whole, this process should net out and push markets towards efficiency. The

individual investors experience however can fare far from the efficient and includes many additional transaction and opportunity costs.

High Turnover

A major disadvantage of actively managed mutual funds is their higher turnover which in turn generate tax inefficiencies for the funds. The average portfolio turnover rate of an actively managed equity fund is 78 percent per year. However, for a passively indexed ETF, the turnover rate is near 3 percent per year, which produces marginal transaction costs that are somewhere between infinitesimal and zero (Bogle, 2017, p. 86-87). The high turnover rate of actively managed funds will decrease and be detrimental to the shareholder's after-tax return. Over the past 25 years, the average return on an active equity fund is 7.8 percent, and 9.0 percent for the S&P 500 index fund. "With the high portfolio turnover of actively managed funds, their taxable investors were subject to an estimated effective annual federal tax of 1.2 percentage points per year, or about 15 percent of their total pre-tax return. (State and local taxes would further balloon the figure). Result: their after-tax annual return was cut to 6.6 percent" (Bogle, 2017, p. 87-88). In addition to the difficulty of outperforming the S&P 500 by rapidly buying and selling individual securities, the returns of active funds are devastated by costs, adverse fund selections, bad timing, taxes, and inflation.

Creation of the Exchange-Traded Fund

The first U.S. exchange-traded fund was created in 1993 by Nathan Most. It was titled "Standard & Poor's Depositary Receipts" (SPDRs), and quickly dubbed the "Spider." The "Spider" was able to compete effectively with the traditional S&P 500 Index Fund while tracking

the S&P 500 by not only operating at low cost with high tax efficiency, but also allowing real time pricing and enabling investors to hold for the long term. “The Spider 500 remains the largest ETF, with assets of more than \$240 billion in early 2017” (Bogle, 2017, p. 182). In 2017, ETFs accounted for half - \$2.5 trillion of \$5 trillion – of the asset base of all indexed funds. That is an increase in market share of total asset base of all index funds from only 9 percent in 1997 and 41 percent in 2007. The growth of ETFs has allowed investors to substantially increase their portfolio diversity. There are over 2,000 ETFs available, up from 340 a decade ago, and the range of investment choices are remarkable (Bogle, 2017, p. 183-194). It has become obvious that ETFs offer the individual investor diversification opportunities that a single common stock cannot. While mutual funds are able to achieve a similar diversification, ETFs are able to save investors a significant percentage of their after-tax returns when compared to their mutual fund counterpart with the liquidity factor of trading at all times of the trading day.

Additionally, ETFs maintain unique attributes which make them even more effective than actively managed mutual funds. For instance, ETFs do not deal directly with individual investors. Rather, creation units are sold to institutional investors in exchange for a portfolio of securities that match the ETF’s investment goals. In turn, the institutional investor can sell the ETF shares to individual investors in the secondary market. If the individual investor decides to sell ETF shares, it can only be done by selling to other individuals in the open market (Blau, Paprocki, 2012, p. 26). Because ETFs are traded on the secondary market, they are much more liquid than mutual funds because investors can freely buy and sell shares at any point in the trading day; mutual funds only allow trades at the end of the trading day. The funds in an ETF are also separated from the assets of the investment company, so the investors face no risk of default (Baule, 2010, p. 62). This liquidity optimizes the purchase and sale price, which leads to

higher returns. The increased awareness of the underperformance of actively managed mutual funds have increased ETF's popularity as an investment vehicle. In the past, institutional investors were the only investors able to obtain comprehensive diversification; however, ETFs enable individual investors to obtain diversification through buying passively managed index ETFs. These ETFs allow individual investors to outperform the vast majority of mutual fund managers, while paying a fraction of the cost, and realize higher returns.

While passively managed ETFs and index mutual funds are comparable in many ways, through studies, ETFs have fared better in many ways. A study in 2018 examined how the index funds and ETFs differ from one another. In each category, the mutual funds had higher tracking errors compared to the ETFs. The tracking errors did not specify if the variation from the benchmark is positive or negative, so they measured the returns to determine if ETFs or the index funds perform better. In each category, it was found that ETFs had higher net annual returns, lower expense and higher gross annual returns (Farinella and Kubicki, 2018, p. 54). "These differences are statistically significant. The results indicate that the ETF's higher returns are driven by lower annual fees and superior investing" (Farinella and Kubicki, 2018, p. 54).

In a recent interview, Byron Wien stated: "The vast majority of ETFs offer convenient, low cost and tax efficient ways to get exposure to broad asset classes, regions, indices, and sectors when compared to their mutual fund equivalents." (B. Wien, personal communication, February 7, 2018) Wien is a vice chairman at the largest alternative investment firm in the world, The Blackstone Group. He has also been named the most widely read analyst on Wall Street, one of the sixteen most influential people on Wall Street, and was ranked the number one strategist in 2000. ETFs obviously offer many advantages for the average individual investor that can be obtained at a lower cost than realized with an actively managed mutual fund.

Despite the rapid expansion of ETFs, they still are relatively unknown to the common investor. We conduct a survey that reveals that while people believe they are considering taxes and costs in their portfolio construction, they still are not considering a potentially critical component that could be added into their portfolio.

The results in the market validate that the vast majority of the active managers consistently underperform their benchmark, and as the time horizon increases, active managers' performance declines at an even greater rate. Even the managers whose results are in the top quartile for a specific year have trouble consistently outperforming their benchmark. The managers in the top quartile are rarely in the top quartile the following year. In fact, managers in the top quartile usually are in the bottom quartile following their stellar year (Murphy, 2013). Another key value to ETFs is the low costs associated with them.

III. Data

In 2010, total expenses paid to equity mutual fund managers amounted to an incredible \$24.143 trillion (Malkiel, 2013, p. 99). If all investors were to put their money into a passively managed ETF, they would have saved billions annually compared to their mutual fund equivalents. However, without any adequate competition, the high fees will not “drive investors away” (Fisch, 2010, p. 1974). ETFs provide investors with higher performance and competition that can challenge the mutual fund managers and outperform the managers expense structures – while also charging much lower fees and expenses to investors. Unlike mutual funds, ETFs do not charge front-end or back-end loads, or 12b-1 fees. Instead, the investor only pays the spread and brokerage costs. These costs are often significantly less than the fees associated with purchasing a mutual fund (Grande, Grande, and Grande, 2009, p. 37). The Vanguard 500 Index

Fund (VOO), the top ETF indexed to the S&P 500, has an expense ratio of just 0.04 percent, far lower than the 1.12 percent average of all mutual funds (Dickson, 2012, 31).

As evidenced by the inefficiencies in their fee and tax structures, actively managed mutual fund managers have lost sight of “the goal of tax efficient investing” which “is not necessarily to minimize taxes but to maximize the after-tax total return of a portfolio” (Kinniry, 2010, p. 28). Despite the evidence being at odds with economic intuition, it has been shown that there is a negative relation between funds’ before-fee performance and the fees they charge to investors (Gil-Bazo and Ruiz-Verdu, 2009, p. 2178-2179). Because of the passive, buy and hold strategies, and low turnover, ETFs tend to give off little capital gains, if any (Dickson, 2012, p. 31). Through having little capital gains, ETFs are able to return a larger amount to the investors that they would have lost in taxes. Passive investment, for the S&P 500 alone, would have saved investors 22.5 billion dollars annually (Ganti and Lazzara, 2017). There have been studies that find that the more expensive funds do not offer higher returns. Rather, the low-cost funds are often the ones generating the highest after-tax returns. Investors “need to make portfolios more cost and tax efficient. ETFs are the perfect solution” (Mutual funds: Spiders, Vipers, and Tax Savings, 2002, p. 39).

Expense Ratio

The expense ratio is one of the few reliable predictors of mutual fund return performance, and the increasing market share of exchange-traded funds suggests that investors use this information when making investment decisions. However, the expense ratio only covers the visible, or reported, costs of mutual funds. Funds incur a host of invisible costs, most notably transaction costs associated with changes to the portfolio (Edelen, Evans, and Kadlec, 2013, p.

33). Roger Edelen, Richard Evans, and Gregory Kadlec conducted a study in 2013 on these “invisible costs” and the effect they have on a portfolio. They found that funds’ annual trading costs are usually much higher than their expense ratio and negatively affect their performance. They concluded that there is “a strong negative relation between aggregate trading cost and fund return performance” (Edelen, Evans, and Kadlec, 2013, p. 33). In a 2010 study, Vanguard Investment Counseling and Research found the expense ratio to be an accurate predictor of fund performance. On average, funds with higher expense ratios underperformed those with lower expense ratios. Preliminary results of a new Vanguard study show that investors are embracing low cost alternatives, such as ETFs (Kinniry, 2010, p. 32). “The top ranked funds have fees that are about the size of the average fund and lower than the bottom deciles...Expenses are not higher for top performing funds, nor do expenses increase more rapidly in the future for top performing funds” (Gruber, 1996, p. 796-797). ETFs are not only a way for investors to save money on fees and taxes, but they also provide investors a higher return *before* taxes are considered when compared to their mutual fund equivalent. Thus, the fixed and variable costs simply increase the discrepancy between the returns at year-end. Below, Table 1 clearly displays how managers are consistently underperforming their benchmarks before the taxes and expenses are taken out of the returns at year-end.

Underperformance Relative to Benchmarks

Percentage of Underperforming U.S. Equity Funds					
Fund Category	Comparison Index	Mutual Funds (Net)	Mutual Funds (Gross)	Institutional Accounts (Net)	Institutional Accounts (Gross)
Large Cap	S&P 500	85	68	80	69
Mid Cap	S&P MidCap 400	96	86	92	83
Small Cap	S&P SmallCap 600	96	81	91	79

Table 1 – Percentage of underperforming U.S. equity funds for both before and after fees and taxes, 2006-2016

Source: Ganti, A. R., & Lazzara, C. J. (2017). Shooting the Messenger. *S&P Dow Jones Indices*. Retrieved February 13, 2018.

SPIVA, S&P Indices versus Active, conducted a study that took place over a 10-year time period, which ended December 31, 2016. The results from this study are shown above in Table 1. SPIVA researched the percentage of U.S. equity funds that were outperformed by their respective benchmarks over the time span. “Of the 66,465 households with accounts at a large discount broker during 1991 to 1996, those that trade most earn an annual return of 11.4 percent, while the market returns 17.9 percent” (Barber and Odean, 2000, p. 773). SPIVA has found that the funds underperformed their benchmarks before taxes and fees were even taken into consideration, shown by the “gross” columns. This held true from a study of mutual fund performance from 1945-1964 as well: “The evidence on mutual fund performance discussed...indicates not only that these 115 mutual funds were on average not able to predict security prices well enough to outperform a buy-the-market-and-hold policy, but also that there is very little evidence that any individual fund was able to...these conclusions hold even when we measure the fund returns gross of management expenses and other expenses” (Jensen, 1968, p. 415). The three market capitalization categories were outperformed at an average of 77.67 percent in the 10 years. However, when the fees and taxes are taken into consideration and calculated into the returns, the market capitalization categories were outperformed by an average of 90 percent (Ganti and Lazzara, 2017). Active managers make the claim that fees are the reason why they underperform their benchmarks, but this study questions this claim. They still underperform by a large margin, and the fees simply further the discrepancy between the returns that an indexed ETF and an active manager would have. These underperformances are uniform across all sectors and categories imaginable. In Table 2 below, the performance of growth, core,

and value funds are shown from John Bogle's book, "The Little Book of Common Sense Investing."

Percentages of Actively Managed Mutual Funds Outperformed by Comparable S&P Indexes, 2001-2016			
Fund Category	Growth	Core	Value
Large-Cap	95%	97%	79%
Mid-Cap	97%	99%	90%
Small-Cap	99%	95%	81%

Table 2 – Percentages if Actively Managed Mutual Funds Outperformed by Comparable S&P Indexes, 2001-2016

Source: Bogle, J. C. (2017). *The Little Book of Common Sense Investing: The Only Way to Guarantee Your Fair Share of Stock Market Returns*. S.I.: John Wiley.

"The average actively managed fund has negative performance to a set of indices" (Gruber, 1996, p. 783). John Bogle, the founder and former chairman of the Vanguard Group, regularly denounces actively managed mutual funds and recommends investing in an indexed and passively managed ETF. Table 2 is a study conducted by SPIVA, S&P Indices versus Active, that took place over a 15-year time period. They demonstrate that active managers have a tremendously difficult time keeping up with their respective benchmarks. In each of the categories and capitalizations, the active managers were outperformed.

Active Management in International, Small, and Mid-Cap Securities

It is a common misconception that active managers have a better chance of outperforming the market if they are searching for the mispriced small and mid-cap securities, often referred to as the neglected firm effect (Carvell and Strebel, 1987, p. 288). "History has certainly shown that indexing mid- and small-cap stocks has been just as effective as indexing large caps" (Murphy, 2013). This claim is strongly supported by both Tables 1 and 2. Small and

mid-cap securities tend to underperform to a greater degree than large-caps in relation to their respective benchmarks. Funds that focus on small-cap securities require more analytical research and effort which is due to the lack of knowledge and statistics on the firms they wish to invest in. Therefore, they charge higher and excessive fees to investors to make up for the time and research they put in. This may explain the part of the discrepancy that exists between small and large-cap equities in addition to the performance of the funds.

Furthermore, other myths exist in the financial world supporting the use of actively managed funds. International funds and emerging markets present a situation similar to small and mid-cap stocks. Because of the lack of existing research on international and emerging equities, managers believe they can find stocks that others do not yet know about. SPIVA also conducted research on how international equity funds fared against their benchmarks over a 10-year period. The statistics included both before and after-taxes results. These results are displayed in Table 3 below.

International Equity - Percentage of Managers Underperforming Over 10 Years					
Fund Category	Comparison Index	Mutual Funds (Net of Fees)	Mutual Funds (Gross of Fees)	Institutional Accounts (Net of Fees)	Institutional Accounts (Gross of Fees)
Emerging Market Funds	S&P/FCI Composite	85.71	64.94	78.7	69.44
Global Funds	S&P Global 1200	84.26	58.33	78.63	67.52
International Funds	S&P International 700	83.89	67.45	81.48	69.44
Internationals Small-Cap Funds	S&P Developed Ex-U.S. SmallCap	62.96	48.15	65.38	50

Table 3 – International equity underperformance over the 10 years with and without taxes included
Source – Poirier, R., Soe, A. M., & Xie, H. (2016). SPIVA Institutional Scorecard: How Much do Fees Affect the Active Versus Passive Debate? *S&P Dow Jones Indices*. Retrieved February 13, 2018

Table 3 demonstrates the results of a 10-year study of international, global, and emerging market equity funds. SPIVA researched these funds and included both gross and net returns. While the funds tended to fair slightly better internationally than domestically, they still

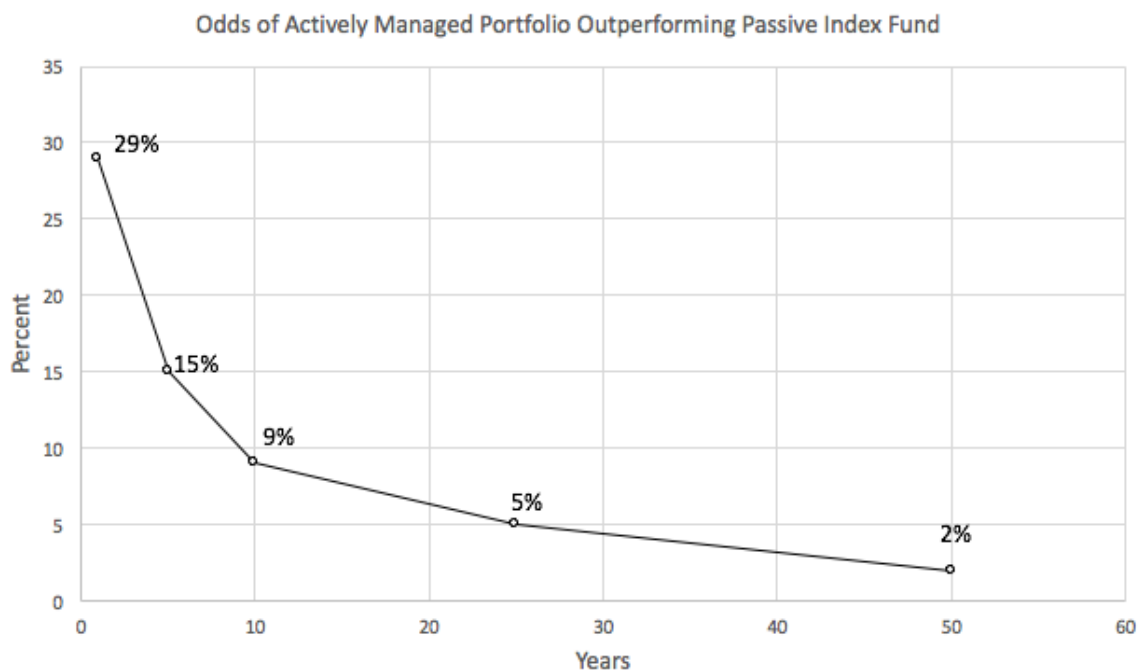
underperformed their benchmarks. Before fees are considered, the funds were outperformed at an average of 61.91 percent, and post-fees the performance gap increased to 77.63 percent (Poirier, Soe, and Xie, 2016). Fund managers were outperformed at a relatively high level internationally and at an extremely high rate domestically. Based on this empirical evidence, it seems that there are no equity markets or sectors where fund managers have been able to consistently outperform their benchmarks.

Active Management in Bear Markets

Larger market trends, such as the development of a bear markets also present an opportunity in which fund managers believe they have a legitimate chance at outperforming their benchmarks. In a bear market, the aggregate equity prices decrease, and managers claim to be able to pick individual stocks that will outperform during the market downturn. However, SPIVA shows this is not always the case. During the 2000 – 2002 bear market and the Great Recession of 2008 market, SPIVA found that actively managed funds, on average, still underperformed their benchmarks. Over the same time intervals, the S&P 500, S&P MidCap 400, and S&P SmallCap 600 outperformed 53.8 percent of actively managed large-cap funds, 76 percent of actively managed mid-cap funds, and 77.7 percent of actively managed small-cap funds, respectively (Asset Management Myths, 2010). The bear markets allowed fund managers to fair slightly better than they did in regular or bull markets. However, the majority of managers were still outperformed by their benchmarks.

Returns Over Periods of Time

Through the previously shown tables, it is safe to assume that as the time horizon increases, the odds of a fund manager outperforming their respective benchmark decreases. It is common to assume that after a year of strong performance; a manager will be able to utilize their skills and exceed their benchmarks during the following years. However, it is quite the opposite. Firms that perform well one year are just as likely to experience declining performance during subsequent years. This, in turn, leads to substantial long-term underperformance by active fund managers relative to their benchmarks. Burton Malkiel ranked the top 20 general equity funds during the decade of the 1970s. These funds almost doubled the average of active mutual funds. However, these top 20 funds earned below-average returns over the next decade (Malkiel, 2003, p. 6).



Graph 1 – Odds of actively managed portfolio outperforming passive index fund

Source – Bogle, J. C. (2017). *The Little Book of Common Sense Investing: The Only Way to Guarantee Your Fair Share of Stock Market Returns*. S.I.: John Wiley.

Graph 1 shows that the probability of an active manager outperforming a passive indexed ETF decreases drastically as time passes. Thus, suggesting how by just simply purchasing an ETF could offer a chance of outperforming 98 percent of the institutional investors on Wall Street (Bogle, 2017, p. 156).

Advertising by Active Mutual Funds

Clearly, few investors would contribute to mutual funds based on the information in the previous tables. To compensate for this, mutual funds put out massive amounts of advertisements in attempt to persuade consumers in and convince them to invest in their products. Mutual funds accomplish this by distorting the information that they provide in their advertisements. They are required to have certain information in their advertisements, however, they can pick a benchmark for comparison and select the time periods in which they performed best (Jones and Smythe, 2003, p. 22). So, a value firm that underperformed their value benchmark, could use the growth benchmark in order to create the perception that they performed better. They could also use specific time periods in which they performed abnormally well, based on uncontrollable or unrelated market forces to include in their advertisements. These misleading techniques allow mutual funds to remain in business, and how they continue to draw in trillions of dollars from investors.

Inconsistency by Active Mutual Funds

In the rarer cases where the funds manage do outperform their benchmark, their performance eventually declines over time. “In the 15 years of collecting data for SPIVA, active managers beat the S&P 500 only three times...when success has occurred, it tended not to

persist” (Lazzara, 2013). It is hard to believe that there truly are many investors who are able to consistently outperform the market. It is assumed that there are the best managers who will always be at the top, but this is hardly ever the case. Table 4 (shown below) shows a 5-year study conducted by SPIVA that measures how many managers can consistently remain in the top quartile, or 25 percent, of fellow managers.

U.S. Equity Funds Remaining in the Top Quartile Over Five Years					
Fund Category	Top Quartile Fund Count at End of First Year	Percentage Remaining in Top Quartile			
	September, 2008	September, 2009	September, 2010	September, 2011	September, 2012
All Multi-Cap Funds	154	23.38	4.55	1.95	0.65
All Large-Cap Funds	175	18.29	8.00	1.71	0.00
All Mid-Cap Funds	94	25.53	5.32	0.00	0.00
All Small-Cap Funds	127	21.26	3.15	0.00	0.00

Table 4 – U.S. equity funds that remain in the top quartile over a 5-year period

Source – Murphy, P. (2013). Benchmarking Core U.S. Equities. *S&P Dow Jones Indices*. Retrieved February 13, 2018

Table 4 shows a surprising statistic to most. The study covers a wide range of firms and data, including research on 550 different firms in five different fund categories: multi-cap, large-cap, mid-cap, and small-cap. After just the first year, only 25 percent or less of the top quartile funds remained in the top quartile. Just three years later, three of the four categories do not have a single fund still in the top quartile, and the multi-cap fund category only had 1 of the 154, (0.65 percent) funds remaining (Murphy, 2013). After seeing this data, it is easy to imagine how difficult it is to match market performance, which is why passively indexed ETFs are an ideal way to generate greater returns than an actively trading investor.

Don Callaghan has served as the Vice President for Goldman, Sachs & Co. for 15 years before co-founding Hirtle, Callaghan & Co. Following the founding of Hirtle, Callaghan & Co., he became President of Global Strategic Investment Solutions, and has also written for Barron's magazine. In an interview with Mr. Callaghan conducted on February 22nd, 2018, he discussed the investors' belief that if they can choose the best managers each year then they would be able to outpace the market. However, looking at recent statistics, even the average of the top quartile falls short of the S&P 500 by almost a full percent after just 3 years. "Even if you are able to choose managers that make it into the first quartile of performance you will not necessarily beat the index. The cost of falling out of the first quartile is very high" (D. Callaghan personal communication, February 22, 2018). Attempting to choose the top managers each year would require finding a new one each year because the top manager will most likely not be at the top the following year. The amount of returns that an investor loses from dropping out of the top quartile are quite large as well. The investor will lose several percentages of returns each year, decreasing the total portfolio return, and is a large reason why Callaghan recommends investing in an indexed passive ETF that tracks the entire market.

Survivorship Bias

Not only do many firms fail to outperform their benchmark, especially over the long-term, but also firms tend to go out of business or dissolve. As shown below in Table 5, over 30 percent of the funds researched over a 10-year study no longer existed at the conclusion of the study (Poirier, Soe, and Xie, 2016). This leads to what researchers call the survivability bias.

"The typical survivorship bias argument starts from the observation that mutual funds often

disappear following poor performance. Thus, a study that conditions on fund survival overestimates performance” (Linnainmaa, 2013, p. 789).

Survivorship and Style Consistency of U.S. Equity Funds			
Fund Category	Number of Funds at Start	Survivorship (%)	Style Consistency (%)
All Domestic Funds	3053	67.28	100.00
All Large-Cap Funds	1397	67.36	100.00
All Mid-Cap Funds	408	65.20	100.00
All Small-Cap Funds	719	66.62	100.00
All Multi-Cap Funds	529	69.57	100.00

Table 5 – Survivorship and of U.S. equity funds over 10-year time period

Source – Poirier, R., Soe, A. M., & Xie, H. (2016). SPIVA Institutional Scorecard: How Much do Fees Affect the Active Versus Passive Debate? *S&P Dow Jones Indices*. Retrieved February 13, 2018

With over 30 percent of the funds shut down, investors have a much harder time finding the correct fund to invest in. As shown above, the style consistency remains 100 percent consistent through each period, highlight that funds did not change their investing strategies or focus (Poirier, Soe, and Xie, 2016). As Bogle states, “Stars produced in the mutual fund field rarely remain stars; all too often they become meteors” (Bogle, 2017, p. 132). Bogle’s analysis of the funds is reflected in Table 5 through the amount of funds that completely dissolve after just 10 years. This does not display the amount of underperformance that the surviving funds had, but that is clearly reflected in previous tables and charts.

Underperformance in the Fixed-Income Markets

Indexed ETFs and passive investments not only work in the equity, but also these strategies have proven to be successful in the bond and fixed income markets as well. While

equity benchmarks tend to easily outperform actively managed funds, fixed income benchmarks also outperform the fund managers, as displayed in Table 6 (shown below).

Percentage of Fixed Income Funds Outperformed by Benchmarks, Five Years through 2011		
Fund Category	Comparison Index	Percent Outperformed
Government Long	Barclays Long Government	94.0%
Government Intermediate	Barclays Intermediate Government	67.0%
Government Short	Barclays 1-3 Year Government	67.0%
Investment-Grade Long Funds	Barclays Long Government/Credit	92.0%
Investment-Grade Intermediate Funds	Barclays Intermediate Government/Credit	61.0%
Investment-Grade Short Funds	Barclays 1-3 Year Government/Credit	94.0%
High-Yield Funds	Barclays High Yield	96.0%
Mortgage-Backed Securities Funds	Barclays Mortgage-Backed Securities	75.0%
Global Income Funds	Barclays Global Aggregate	72.0%

Table 6 – Percentage of fixed income funds outperformed by benchmarks over 5-year period

Source – Malkiel, B. G. (2013). Asset Management Fees and the Growth of Finance. *Journal of Economic Perspectives*, 27(2), 97-108.

Table 6, shown above, shows how fund managers in fixed income markets are, like their counterparts in equity markets, unable to outperform their respective benchmarks. Several fund categories were outperformed by over 90 percent and the best performance by active managers, in investment-grade intermediate funds, only outperformed 61 percent of their benchmarks (Malkiel, 2013, p. 104). This 5-year study shows that as the time horizon increases, the odds any manager outperforming the index decreases.

In a study studied the returns of 46 fixed-income mutual funds over a ten-year period from the beginning of 1979 to the end of 1988. “Analyzing the total return on all funds – including those which dissolved – showed that the average fund underperformed a passive portfolio by 75 – 95 basis points annually. The average expense ratio at the end of 1983,

obtained from Wiesenberger's *Investment Companies*, for our sample funds still in existence at that time is 83 basis points" (Blake, Elton, and Gruber, 1993, p. 385).

There has been a rise in the market share of fixed income ETFs. As of September 2017, bond ETFs account for about 17 percent, or \$740 billion of total assets invested in ETFs (Lettau and Madhaven, 2018, p. 145).

Given the facts that across all categories, both equities and fixed income, fund managers are outperformed by their benchmarks, the obvious question is why anyone would pass on investing in a passively indexed exchange-traded fund.

Ease of Diversification

An ETF not only offers higher overall returns, but also gives individual investor the advantages of economies of scale and diversification. As the public continues to confront active managers and their poor performance against ETFs, the number of available ETFs in the market has increased dramatically. Because of the wide scope of investments offered via ETFs, there are "enough to create a fully diversified portfolio of stocks, bonds, real estate, and commodities using only ETFs" (Lim, 2018, p. 88). In the past, it was difficult for an individual investor to achieve a fully diversified portfolio. Typically, a portfolio would be diversified when the investor had added around 20 individual securities. This obviously required a large amount of cash and time to achieve complete diversification. However, an ETF that is passively indexed to the S&P 500 immediately provides diversification because it holds 500 of the largest publicly-held companies in the secondary U.S. market – weighted in proportion to the market capitalization. By achieving this full diversification with an ETF, investors are able to essentially eliminate all nonsystematic, or firm-specific, risk that exists in the market without sacrificing

returns. The only risk that remains is market risk, which cannot be diversified away (Booth, 2012, p. 283). The span of investments in an ETF help it achieve the passive investment goals of maximized diversification and minimized fund management expenses.

Drawbacks of Exchange-Traded Funds

However, ETFs do come with some drawbacks. ETFs have the potential to deviate from the net asset value of the investment. This results in the investors possibly paying a premium for the ETF. Because ETFs are traded on the secondary market, brokerage firms are generally used to purchase them. Brokerage and commission fees are low, about 4.95 dollars per order, but now through frequent trades, fees can add up and cause damage to the total returns for the investor (Mutual funds: Spiders, Vipers, and Tax Savings, 2002, p. 39). Along with brokerage fees, investors must also account for the bid-ask spread of the prices. When an investor buys a stock, they will always pay the upper bound of the bid-ask spread. But when the investor sells a stock, they will always sell at the lower bound of the bid-ask spread. Therefore, the broker is guaranteed a small profit on each share traded in the market. Although these fees and expenses associated with ETFs generate some cost to the investor, the costs are severely outweighed by the benefits of money saved by avoiding actively managed mutual fund fees.

Scott Malpass is currently on the Board of Directors at The Vanguard Group, and is also the Chief Investment Officer and Vice President of Notre Dame University. At Notre Dame, his portfolio includes over \$12 billion in investments. In a recent interview conducted via email on February 9th, 2018, Mr. Malpass discussed his views on ETFs and what they to offer investors, “ETFs in many ways level the playing field for retail investors to be able to develop exposures in their portfolio the way institutional investors do and at institutional prices” (S. Malpass, personal

communication, February 9, 2018). Here Malpass demonstrates that institutional investors have long held greater exposure than individual investors, which is why many investors use mutual funds. This created an opportunity for ETFs to capture a large market share from mutual funds and allow investors to gain the exposure that institutional investors maintained.

International and emerging markets are a potentially critical component for an investor to achieve full diversification in their portfolio. However, it is difficult for the individual investor to find the required information to make an accurate investment decision. This information asymmetry causes many individual investors to hesitate to make any significant investment overseas. “ETFs are more flexible and have broad coverage in various markets, including the emerging markets, where many investors would not have access to research on individual companies” (S. Malpass, personal communication, February 9, 2018). Even fund managers struggle compared to the locally operated funds in emerging market investments, despite being able to invest globally. In a 2017 study, it was found that the local funds were able to outperform foreign funds by an average of 1.8 percent annually (Wagner and Margaritis, 2017, 77). While the international funds maintained vast power and wealth to analyze foreign investments, they not only underperformed their domestic benchmarks (as seen in previous graphs and tables), but also their local counterparts in foreign markets. Therefore, an ETF allows an investor to diversify internationally, and generate higher returns than an active fund would.

Economies of Scale

To help decrease administrative costs, institutional investors also utilize the advantages of economies of scale. Economies of scale are achieved when the institutional investor can leverage their large transaction volume to acquire lower costs at the unit level. However, recent studies

have shown that the funds and their managers are the only ones that benefit from the economies of scale. A 30-year study found that investors paid the same percentage of fees to the funds from 1980 to 2010 despite the fact that equity managed by mutual funds increased from 26 billion dollars to 3.5 trillion dollars. Associated expenses also increased from 170.8 million dollars in 1980 to 24.143 trillion dollars in 2010 (Malkiel, 2013, p. 98-99). The data collected can be seen in Table 7 (shown below).

Asset-Weighted Expense Ratios for Domestic Equity Funds (in basis points)			
	Including Index Funds	Excluding Index Funds and ETFs	Share of Equity Mutual Funds Actively Managed
1980			
Expense Ratios (Basis Points)	66.0	66.1	99.70%
Total Assets (Billions)	\$25.81	\$25.71	
1990			
Expense Ratios (Basis Points)	83.3	85.0	96.80%
Total Assets (Billions)	\$136.11	\$131.69	
2000			
Expense Ratios (Basis Points)	83.8	94.9	84.20%
Total Assets (Billions)	\$2,158.50	\$1,817.48	
2010			
Expense Ratios (Basis Points)	69.2	90.9	70.90%
Total Assets (Billions)	\$3,488.35	\$2,473.59	

Table 7 – Expense ratios for domestic equity funds from 1980-2010

Source – Malkiel, B. G. (2013). Asset Management Fees and the Growth of Finance. *Journal of Economic Perspectives*, 27(2), 97-108.

In Table 7, there are two correlated trends that occur. The first trend shows expense ratios increased from 1990-2000, but then dropped back down to their initial 1980 level by 2010. It would be anticipated that expense ratios should have decreased proportionally with the 13,500 percent increase in total assets over the 30-year timeframe if investors had been granted their share of economies of scale (Malkiel, 2013, p. 98). However, this is clearly not the case. The second trend is one that is a direct cause of the final dip in expense ratios between 2000 and 2010. The increased popularity and market share of index funds and ETFs provided investors low-cost and highly productive alternatives to mutual funds. It can be assumed that the mutual fund industry wanted to increase their fees in accordance with the trend from 1990 to 2000, but once ETFs and index funds started to encroach their market share, mutual funds needed to lower their expenses to compete with the ETFs (Malkiel, 2013, p. 99). This demonstrates the increased knowledge and awareness of ETFs and how they provide investors with the same advantages as institutional investors, but at a much lower cost.

Investing Based on Age and Gender

There was a study that measured performance and holding periods and compared not only the genders, but also the ages of the investors that spanned from January 1st of 2004 to June 30th of 2008. As Table 8, below, clearly indicates, the female investors were able to outperform the males by a significant margin in every age range during this 4.5-year time range.

Age	Average Annual Return	
	Female	Male
Total	23.0%	15.0%
Under 21	19.8%	6.0%
21-30	3.6%	-0.1%
31-40	13.3%	7.4%
41-50	22.4%	16.3%
51-60	19.8%	17.7%
61-70	31.2%	16.3%
Over 70	35.9%	22.7%

Table 8 – Average Annual Returns from January 2004 to June 2006 Based on Gender and Age
Source – Talpsepp, T. (2010). Does Gender and Age Affect Investor Performance and the Disposition Effect?
Research in Economics & Business: Central & Eastern Europe, 2(1), 76-93.

During this time period, the market index provided a return of 17.6 percent (Talpsepp, 2010, p. 83). Therefore, the female investors were able to outperform the market in total, while the males underperformed by 2.5 percent. As investors become older, there is also an increase in their returns. This is most likely not explained purely by experience, but other factors could include the trading intensity and extensive holding periods (Talpsepp, 2010, p. 84). While several factors could have played a role in this outperformance by the female investors, it became quite apparent that the female investors tended to be more responsible and passive.

Age	Average Holding Period	
	Female	Male
Total	91	61.7
Under 21	90.20	73.60
21-30	75.50	46.20
31-40	99.90	56.80
41-50	68.40	70.50
51-60	104.60	78.90
61-70	108.60	79.10
Over 70	94.70	107.50

Table 9 – Average Holding Period Based on Gender and Age.

Source – Talpsepp, T. (2010). Does Gender and Age Affect Investor Performance and the Disposition Effect? *Research In Economics & Business: Central & Eastern Europe*, 2(1), 76-93.

Table 9, shown above, clearly indicates two patterns. The first one is that the female investors are much more likely to holding on to their investments for a longer period of time than their male counterparts. This is clearly indicated in almost every age range presented. In total, the female investors had over a 30 percent longer holding period than the males (61.7 days vs. 91 days). “Women hold stocks clearly longer, which can be one of the factors that positively affect their trading performance, especially during periods when stocks, on average, increase in value” (Talpsepp, 2010, p. 84).

The second pattern that the table exhibits is that as the age range increases, the holding period does as well. For females, the age range begins at 90.2 days and peaks at 108.6 days in the 61-70 age range. For the male investors, they begin at 73.6 and peak at 107.5 in the over 70 age range. Thus, clearly displaying the trend of increasing holding periods as the age of the investors increase.

Age	Investment Type		
	Trader	Short-Term Investor	Long-Term Investor
16-25	46.04%	31.19%	23.27%
26-35	3.77%	63.70%	32.53%
36-50	0.49%	17.96%	81.55%
51-60	0.00%	21.43%	78.57%

Table 10 – Investment Type Based on Age Range

Source – Charles, M. A., & Kasilingam, D. R. (2013). Does the Investor's age influence their Investment Behaviour? *Paradigm* (09718907), 1(17), 11-24.

As Table 10, above, clearly indicates; there is a strong correlation with an increase in age and having a long-term view on investing. While 46.04 percent of the respondents in the 16-25 age range consider themselves to be traders. This is a strong contrast to the age range of 51-60 where not a single respondent gave the same response. It can be inferred from the table that “respondents who have the age 16-25 are traders, 26-35 are short-term investors, and age over 36 is long-term investors” (Charles and Kasilingam, 2013, p. 16). “It is interesting to note that if their age increases then they gradually move from trading pattern to short-term, medium-term, and long-term investors. Due to course of their shift from trading to investment pattern, they become emotionally stable and cognitive matured. Hence, they are positively correlated with their investment type” (Charles and Kasilingam, 2013, p. 16). “The general pattern is one of increasing conservation in investment behavior, and more self-reliance in decision-making, the older the investor. As one proceeds across the age spectrum from youngest to oldest, short-term capital gains diminish in proclaimed importance, more emphasis is placed on dividend income, reliance on broker advice falls, more time and money are spent on security analysis, the portfolio becomes more diversified, and the use of high-risk investment vehicles declines” (Lease, Lewellen, and Schlarbaum, 1976, p. 56-57).

Similarly, the percentage of the portfolio that is allocated in the equity market has a strong correlation with the age of the investor. Over 65 percent of the respondents that were in the age range of 16-25 stated that they have 75 to 100 percent of their portfolio in the equity market. However, as the age ranges continue to increase, the allocation in the equity market steady decreases. In the age range of 51-60, only 2 percent of the respondents indicated that 75 to 100 percent of their portfolio is in the equity market. Thus, concluding that the respondents' ages are indirectly proportional to their equity investments. This is the case due to the fact that as an investor ages, the odds of being able to handle the volatility of the equity market becomes slim. Therefore, the older investors must switch to steady investments, such as fixed income, in order to protect their money and themselves from the market swings.

Age	Proportions of Investments in Equity Market			
	<25%	26% - 50%	50% - 75%	75% - 100%
16-25	8.91%	7.92%	17.33%	65.84%
26-35	2.05%	17.47%	56.16%	24.32%
36-50	3.88%	66.02%	16.02%	14.08%
51-60	47.62%	28.57%	21.43%	2.38%

Table 11 – Proportions of Investments in Equity Market Based on Age

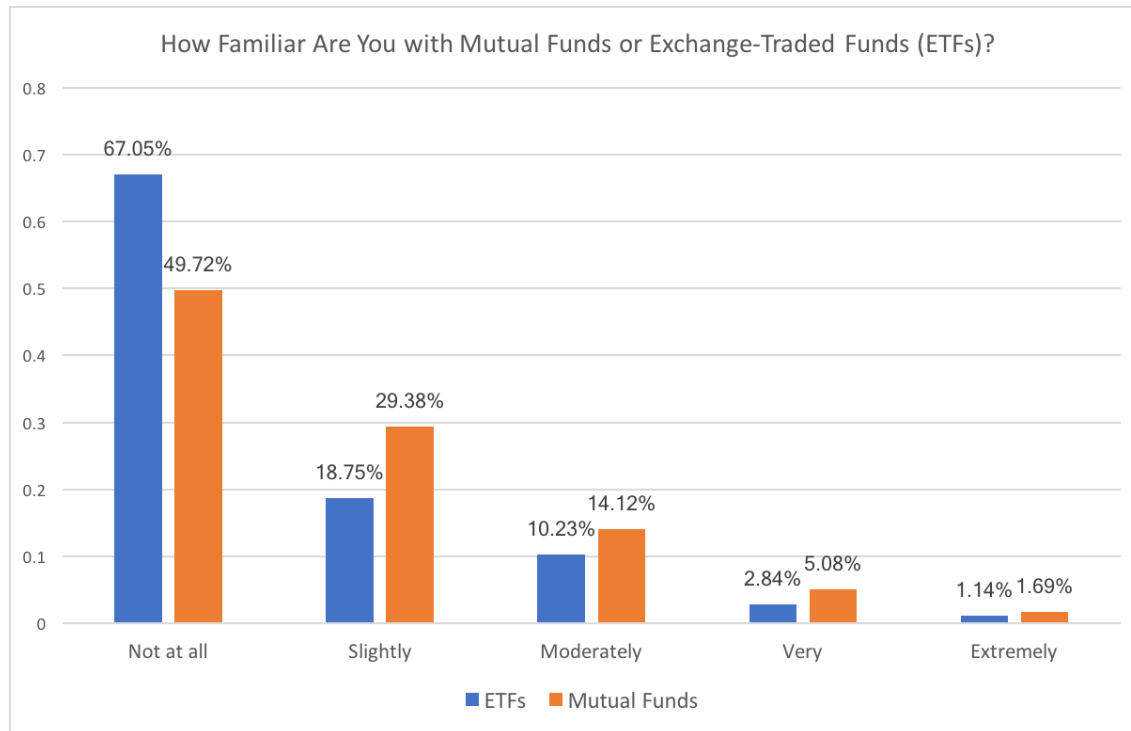
Source – Charles, M. A., & Kasilingam, D. R. (2013). Does the Investor's age influence their Investment Behaviour? *Paradigm* (09718907), 1(17), 11-24.

Based on the relative underperformance of active managers in the market year after year, it is a wonder why any investor would employ their services. One reason may be that investors assume high fees are associated with high returns, because they use price as a signal for high performance. Managers are quite persuasive and have built a perception that entices investors to believe that the fund manager will produce great returns for them. Ordinary investors also lack

the knowledge of how to select their own investments and find alternatives to active mutual fund managers. ETFs may offer several advantages, but as Byron Wien said in the interview, “Nothing can replace thoughtful stock selection for buy and hold strategies” (B. Wien, personal communication, February 7, 2018). So, while ETFs can develop a completely diversified portfolio, finding quality companies to hold for the long-term can offer above average returns.

IV. Self – Conducted Surveys

Due to the lack of knowledge of alternative investments and investment vehicles, mutual funds enjoy much more brand recognition in the general public than ETFs. In a self-conducted survey from January 2018 to August 2018, 207 college students at Wittenberg University were asked to state their familiarity levels with both mutual funds and ETFs. These results are represented in Graph 2.

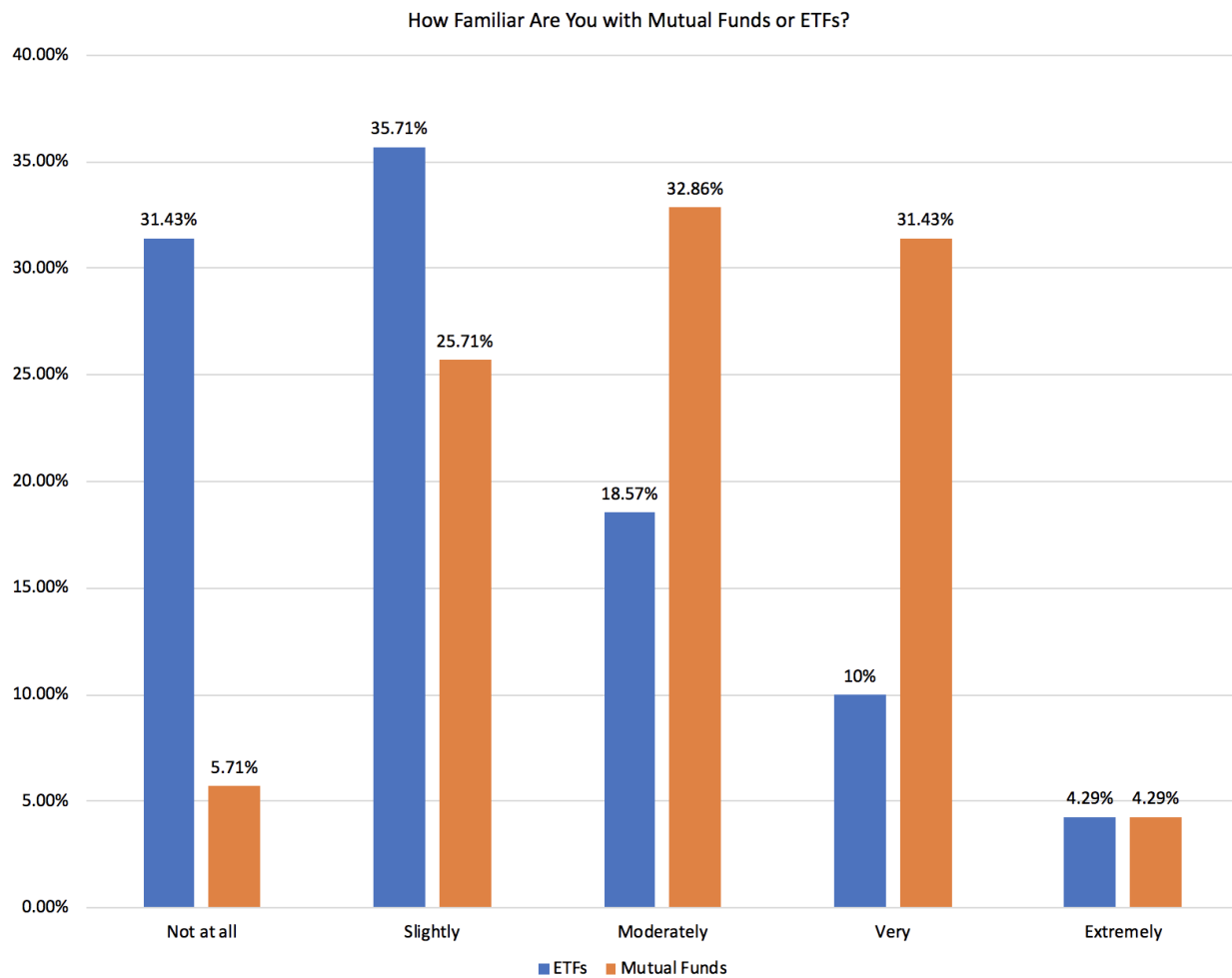
Familiarity of Mutual Funds and Exchange-Traded Funds

Graph 2 – Familiarity level of exchange-traded funds (ETFs) versus mutual funds - Wittenberg University students.

Source: Self-conducted survey in January 2018 to August 2018.

Graph 2 clearly demonstrates that students were more familiar with the functioning of mutual funds than with ETFs, with over 67 percent of students stating they are not familiar at all with ETFs, nearly 20 percent more than those unfamiliar with mutual funds. In all other categories of familiarity ranging from slightly to extremely, students showed a higher level of knowledge regarding mutual funds than ETFs. This highlights the large presence mutual funds have gained in the investment world, while ETFs remain off the radar of most prospective investors. However, there were 74 male student respondents and 133 female student respondents in the conducted survey. When given this question, the males were more aware of ETFs than the females. For the not at all familiar category in the question for ETFs and mutual funds, males

said 49.21 percent and 34.92 percent respectively. The females answered 76.99 percent not at all familiar with ETFs and 57.89 percent for the mutual funds.



Graph 3 - Familiarity level of exchange-traded funds (ETFs) versus mutual funds – Ages 46 and up.
Source: Self-conducted survey in January 2018 to August 2018.

The 70 respondents that were in the age ranges of 46 and up are more familiar with the mutual funds as opposed to the exchange-traded funds. This is largely due to the fact that mutual funds have been around since the 1920s; while ETFs only came into the market in 1993. Additionally, almost 70 percent of the respondents in the 46 and up age range use a financial advisor to help with their investments and have done so for decades. Therefore, they would be

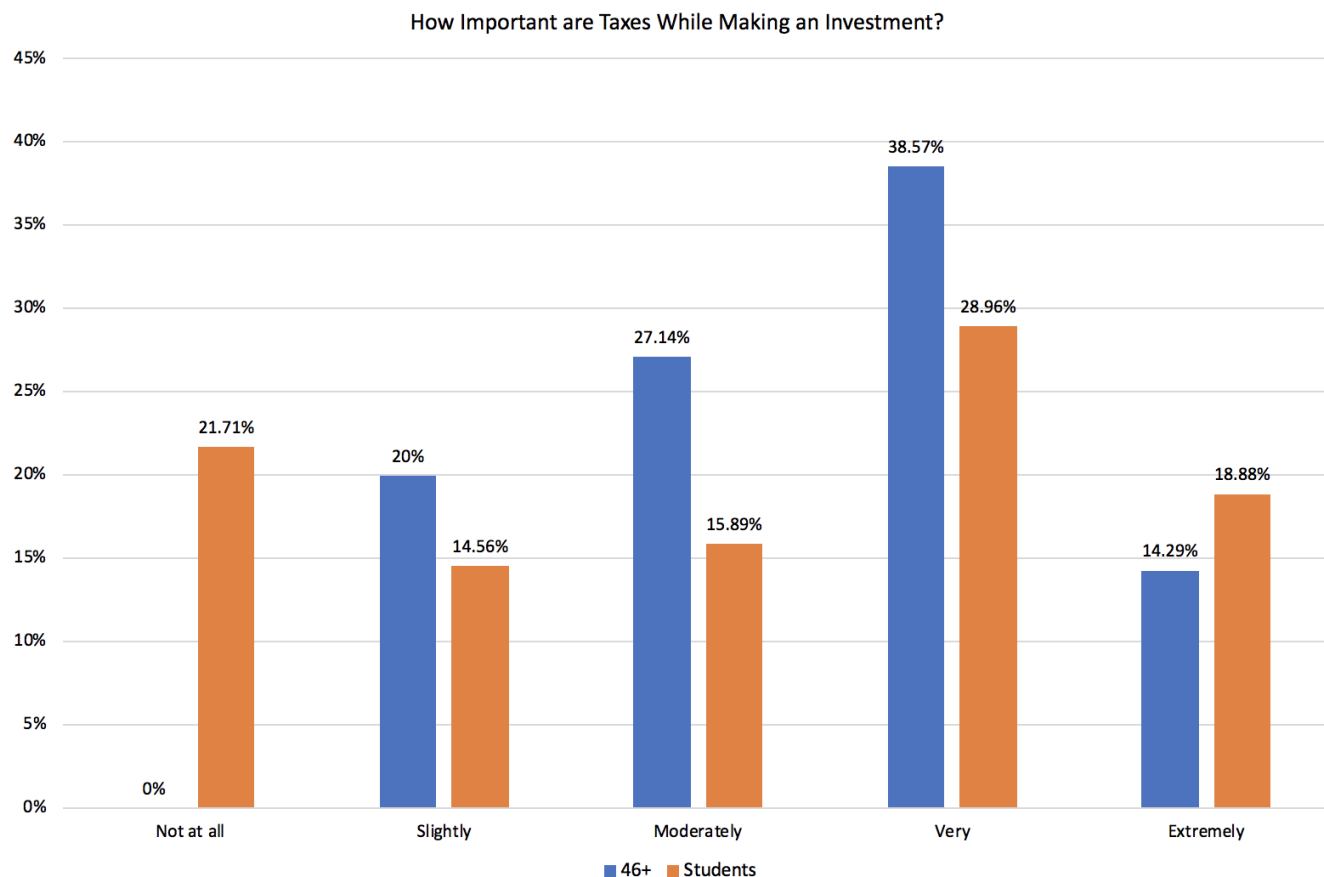
placing their investment decisions in the hands of their advisor and would be keeping up-to-date on the new market trends.

The survey also included information to gauge the knowledge and opinions of the respondents. The respondents were asked to indicate the ideal length of time to hold an investment, the importance of taxes and most efficient strategy to outperform the market.

When asked what they consider the ideal length to hold an investment, the majority stated between 2 and 5 years. However, as passively indexed ETFs have shown, the ideal term to hold an investment for is 10 years or longer. In total, only 19.61 percent of the students responded that 10 years or longer would be the ideal length. Breakdown by gender, 27.42 percent of males and 13 percent of females responded that 10 years or longer would be the ideal length. This data implies that males may be more aware of the benefits a long-term investment offers. A study from 2013 breaks down even more on how the age differences help explain the type of investor that person is.

Importance of Taxes

The responses to the importance of taxes on investment returns were surprising. In total, 21.71 percent of the student respondents said that taxes are not at all important when making investment decisions. When delineated by gender, 58.73 percent of male students said that taxes were not at all important, while only 0.89 percent of female students offered the same response. It may be inferred that the male population does not consider taxes while making their investment decisions as compared to their female counterparts. It is important to understand how taxes impact year-end returns on investments since this could be quite detrimental to a portfolio.



Graph 4 – How important taxes are while making an investment – ages 46 and up.
Source – Self-conducted survey in January 2018 to August 2018.

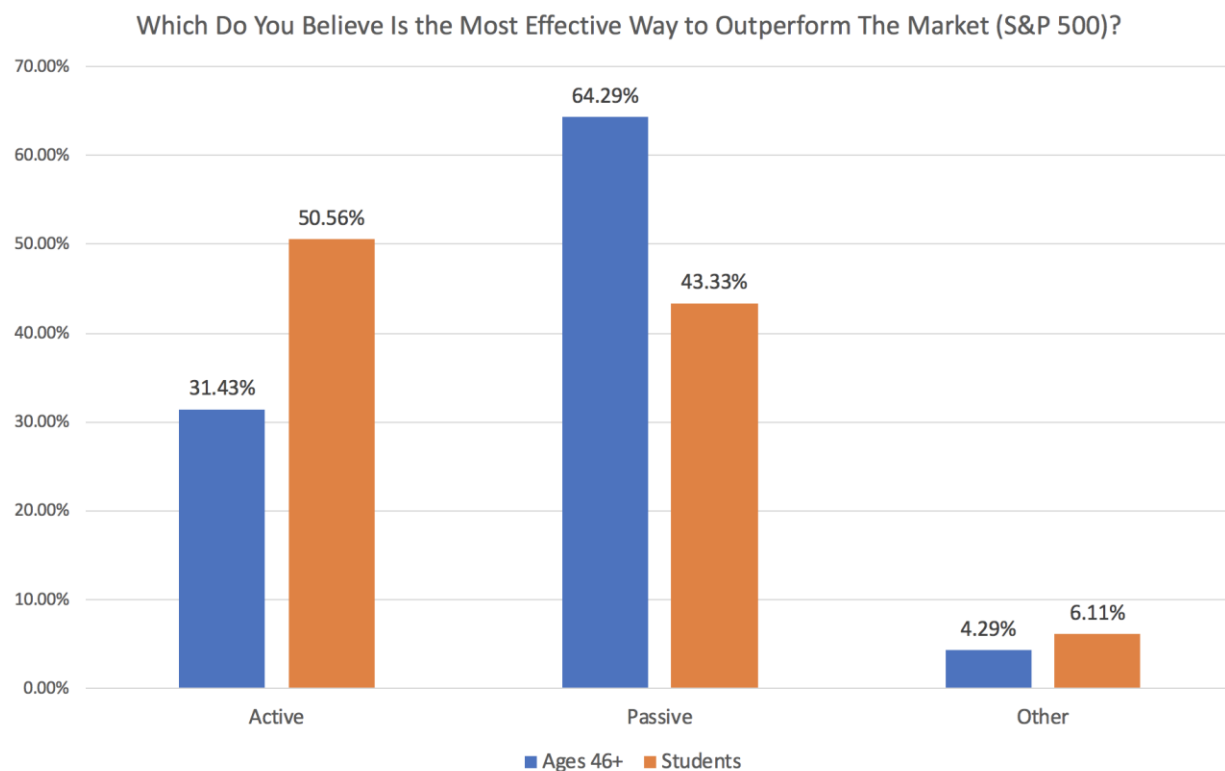
Graph 4 above paints a much different picture for the ages 46 and up than what the student respondents showed. While 21.71 percent of the students said taxes were not at all important in making an investment decision, not a single person in the 46 and up age range gave that same response. The older age range clearly places a strong emphasis on making tax-efficient investments with 52.86 percent stating that it is either very or extremely important to consider the tax implications. The older ages would have a better understanding of the tax consequences than the students due to the fact that they have more experience with investing and are able to understand how the compounding can affect their portfolios.

In a study from 2017, a series of questions were asked to Millennials, Gen Xers, and Baby Boomers. Through these questions, they were able to discover the goals and needs for having wealth and money. For example, about 35 percent of the Baby Boomers said they want to invest at the lowest cost possible. This turned out to be about 10 percent more than both the Millennials and Gen Xers. In the same study, almost 20 percent of the Millennials said that they would choose riskier investments to build as much wealth as possible. However, about 8 percent of the Baby Boomers gave the same response (Desjardins, 2018). Most of the older aged respondents tended to be more conservative with their wealth and were focused on passing it on to the next generation. However, the younger aged respondents wanted to build their wealth as much as they could so that they could have money for their own future.

The risks that millennials have taken and plan on taking are completely different than how the older generations approached their wealth. “In developed countries, 54 percent of the millennials started or plan to start their own business, while 27 percent are already self-employed” (Kobler, Hauber, and Ernst, 2016, p. 3). This confidence was apparent in the self-conducted surveys when it showed that the vast majority of ages 46 and up were invested in fixed income, while very few college students were invested outside of equity. Despite the older generations having much more experience with investing, the younger generations tended to be much more confident. In a 2017 study, when asked where the best investment opportunities lie in the next 12 months, 52 percent of ages 36 and up said they do not know. While only 7 percent of ages 18 to 35 claimed the same response (Legg Mason, 2017, p. 2).

Investment Styles

Historically, passive investment strategies have been much more effective than active investments strategies. A famous case of this contrast in strategy is Warren Buffett, otherwise known as the Oracle of Omaha, who regularly preaches long holding periods, and states that his favorite holding period for an investment is forever. This implies that Mr. Buffett never actively buys nor sells stocks, and his preferred strategy to outperform the market mirrors the passive investment strategy provided by ETFs. To get a sense for what a student believes the most efficient strategy to experience higher returns than provided by the market, students were asked to select from active, passive, or other strategies. The responses to the most effective investment strategy are displayed in Graph 5 below.



Graph 5 – The most effective strategy to outperform the S&P 500.
Source: Self-conducted survey in January 2018 to August 2018.

Graph 5 shows that students were split between active or passive investment strategies, with active strategy responses slightly edging out recommendations of passive investment strategies. However, because almost 90 percent of the student respondents had less than 5 years of experience, it may be the case that they do not yet know the benefits of passive investing. It may be the case that later in their careers, respondents will learn more about the hidden costs associated with active investment strategies. However, the older age group clearly understood the importance of passive investing when it comes to compounding and the costs associated with active management. 65.29 percent of the respondents in that age range stated that passive investing is the most efficient way to outperform the market. The costs, combined with the continued underperformance of actively managed mutual funds relative to their benchmarks, may convince students that the most efficient strategy is passive investment via an indexed exchange-traded fund.

V. Conclusion

It is important to note that securities are quite complicated and stock prices move every second of the trading day. Initially, it may seem as though professionals on Wall Street are the only ones with the degrees, certifications and industry know how to invest and generate hefty returns. But many ordinary investors may be surprised by how poorly investment professionals fair against their respective benchmarks. As technology advances, trade regulations increase. It has become ever more difficult for fund managers to even match, much less beat, their benchmark. But as the graphs and tables clearly demonstrate, active managers consistently underperformed against their benchmark, and their performance declined to an even greater extent as the time horizon increased. When the managers do happen to outperform their

benchmark one year, it is highly unlikely that the managers will be able to maintain this outperformance. Despite this poor performance, active managers charge excessively high fees that drive their year-end returns down even farther. Because of this performance gap, ETFs offer the individual investor an intriguing alternative to actively managed funds. ETFs continue to provide investors with above average returns – and take market share from active managers. Overall, ETFs provide a superior product; they allow normal investors to passively invest in the market, outperform fund managers, and achieve full diversification, all while paying a fraction of the price of what an active manager may charge.

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