Bryant University

HONORS THESIS

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The Landscape of Gender Lens Investing in the US and Performance Analysis
Honors Thesis for Sarah Monsini

ABSTRACT

This study aims to analyze the performance of environmental, social, and governance mutual funds and ETFs, particularly those composed of companies that prioritize the gender diversity pillar of ESG. This method of investing, known as gender lens investing, involves selecting securities with a high social ESG score attributable to strong gender diversity throughout all levels of the company, or in this case, companies that an ETF or mutual fund is invested in. I expect to find that gender diverse ETFs and mutual funds perform better than their benchmarks, promoting the inclusion of policies that facilitate this aspect of ESG in companies. The purpose of this thesis is to understand ESG policies and gender lens investing. It studies if companies can increase their shareholder value and investors can increase their return through investing in these types of securities. This thesis uses one primary research method, which includes examining the holding period return, average annual return, standard deviation, sharpe ratio, treynor ratio, and alpha of the returns of these gender diverse ETFs and mutual funds in comparison to their benchmarks. This allows the relationship between the gender diversity ETFs and their performance to be analyzed. The data and conclusions gathered from this study add to the body of knowledge on ESG and gender lens investing.

INTRODUCTION

With the world today shifting toward valuing sustainability, equality, and making an impact, gender lens investing has emerged as a new topic in the world of finance. Gender lens investing, as a subset of ESG investing, involves investing in securities issued by companies who prioritize gender diversity within their firm. This can range from firms who have a certain percentage of their board or all employees as women, a female CEO, anti-discrimination policies, paid maternity and paternity leave, and other criteria that the gender lens funds in this study use to ensure companies included in the fund are promoting gender diversity. Likewise, ESG investing is a broader approach to ethical finance where securities are selected based on multiple factors such as the sustainability, social impact, board composition, and the policies of the firm. These two types of investment are crucial for market participants and advisors to utilize to keep up with this change in the industry. This thesis focuses particularly on gender lens investing and compares gender diverse ETFs and mutual funds to their benchmarks to determine if superior risk-adjusted returns can be realized through this form of investment.

There are several analytical ratios that are used to come to the conclusions in this study along with a description of the gender diversity fund universe in the United States. These statistical tools include the Sharpe and Treynor ratios, alpha, average annual return, standard deviation, maximum drawdown, beta, tracking error, and information ratio. The implications of this study go far beyond the field of finance. If investors preferred ESG stocks, more companies would invest in their environmental, social, and governance practices, which would decrease inequality, carbon emissions, and business and environmental risk, while increasing the company's valuation. When considering the specific focus of this study, if gender lens investing is a potential avenue to superior risk-adjusted returns and can aid in portfolio diversification, this could be a motivator for companies to invest in establishing policies to improve the gender diversity of their firms. This topic represents the future of finance and would benefit all of society if this form of investing were widely used. As the United States and global culture shifts to value sustainability and social responsibility even more, those involved in the markets will be looking to invest in companies that represent their values, and businesses will need to respond to remain highly profitable and morally sound.

LITERATURE REVIEW

The impact of investing in Environmental, Social, and Governance companies, specifically those that prioritize gender diversity, on the return of mutual funds and ETFs is an emerging topic that needs to be researched further to determine its implications for investors. There have been several studies done on the impact of ESG investing, looking at the index, portfolio, and individual security level. This literature review aims to combine the three approaches to create a comprehensive basis of knowledge on the topic, which can then be translated to the main study in this thesis; whether ETFs and mutual funds invested in companies that prioritize gender diversity can meet or outperform their benchmark. The gender diversity aspect of the securities selected in this study represents their tie to ESG, as part of the social aspect, and narrows the focus of this study. The first portion of this literature review focuses on gathering research on ESG as a broad topic in investing, while the second portion dives deeper into gender lens investing and gender diversity within firms and securities.

This first portion of this literature review highlights the broad research that exists on the impact of ESG overall on the return of a variety of different classes of securities, from indices to individual stocks. The purpose of this literature is to create a foundation of information on ESG as a whole before the rest of this thesis and research focuses on its more specific topic; how gender diverse ETFs and mutual funds' returns compare to their benchmarks. Although this portion of the literature review is broad in contrast to the research question of this thesis, it covers a wide range of information on ESG investing that gives the background knowledge necessary to understand gender lens investing and interpret the results of this thesis. Furthermore, this information is supplemented by the gender lens research in the second portion of the literature review.

The Definition of ESG Criteria

The first theme among the literature used in this study surrounds the definition of ESG criteria. The two scholarly sources within this theme convey the history of how ESG investing came to be and the criteria that one of the well-known rating agencies uses to determine ESG scores. There are three main pillars in which the rating agency Morgan Stanley Capital International (MSCI) uses to assign companies their ESG ratings, which include

environmental, social, and governance factors (MSCI ESG Metrics Calculation Methodology, 2020). Within those three pillars, there are more specific subcategories used to evaluate companies. These include their policies regarding climate risk exposure, implementing low carbon and fossil fuel-free strategies, factoring climate change research into their risk management processes, carbon emissions, fossil fuel exposure, bribery, corruption, the gender pay gap, their total recordable injury rate, board independence, and board diversity (MSCI ESG Metrics, 2020). For the focus of this thesis, the gender pay gap, board diversity, and employee diversity are some of the significant factors in the ETFs and mutual funds analyzed. The definition of ESG criteria encompasses some of the vital background knowledge necessary to understand the statistical analysis and results of this study.

ESG investing, or "natural" investing as coined by the authors of the novel, "Investing with Your Values: Making Money and Making a Difference" originated from the Quakers in the sixteenth century. They were the first group to try to invest while keeping their values in mind (Brill et al, 2000). Although their form of investment differed from the wide variety of investment vehicles available today, the Quakers practiced social responsibility. Even though the Quakers were the first group to apply social responsibility to investing, social responsibility itself can be dated back even further before Europeans colonized the Americas, to indigenous people (Brill et al., 2000). The Iroquois had a principle of considering the effects of one's actions on seven generations to follow.

<u>Comparing Stock Market Indices</u>
This next theme involves the comparison of sustainable and conventional stock market indices to determine if ESG indices, composed of a collection of ESG stocks, can outperform other popular stock market indices. In a qualitative study, Dai (2021) conducted empirical tests using Sharpe, Omega, and Sortino ratios to ultimately determine that investing in ESG equity indices can increase risk-adjusted returns and improve portfolio diversification for the case of China. The sustainable indices that his study used in comparison to the conventional ones were the SHSE Social Responsibility Index, CCTV 50 CSR Index, SZSE Corporate Social Responsibility Index, and others. The results found that from 2014 to 2020, these sustainable indices outperformed their benchmarks, with the difference between the returns of

the traditional indices and the returns of the sustainable indices becoming even greater beginning in 2016 (Dai, 2021). My study looks at similar mutual funds and ETFs, rather than indices, focused particularly on the gender diversity aspect of ESG in relation to their benchmarks.

Sustainable stock market indices can also be used to measure their benefit in terms of hedging risk and diversification for investors. Some of these sustainable indices include the Dow Jones Sustainability US Index, Japan 40 Index, Europe Index, World Index, Emerging Markets Index, and World Developed Index (Iustina, 2020). This comparison of ESG indices to conventional ones found that ESG investing can produce a higher return for the market as a whole.

Evaluating the Performance of ESG Investing in Comparison to Conventional Investing
The next theme among the pieces of literature used in this study involves evaluating the performance of ESG investing in comparison to conventional investing when analyzing individual companies, securities, and diverse portfolios. Some studies within this theme use Alpha and Sharpe ratios as their measurement of performance, while others evaluate performance through the lens of transmission channels. Zhang et al. (2022) tackled a research question in their study focused on determining the impact on performance of different types of portfolios based on the three pillars of ESG investing: Environmental, Social, and Governance pillars. Through portfolio level analysis, including univariate portfolio analysis, bivariate portfolio analysis, stock level regressions, Fama-MacBeth regressions, and sector-specific regressions it was shown that high- and low-level ESG portfolios can earn higher abnormal returns, implying a non-linear relationship between ESG performance and portfolio excess return (Zhang et al. 2022). Therefore, this study found that there is no consistent effect when including ESG securities in a portfolio and excess return is attributed to other portfolio characteristics rather than ESG. However, this is still a positive finding for my thesis as this means that ESG selection criteria can be included in portfolio construction without direct impacts on return and is refuted by the other studies that found ESG as a means of producing excess portfolio returns.

Zhang et al. went further in their findings to explain that each ESG pillar works differently in generating abnormal returns. The environmental investing strategy shows a non-linear pattern. The social investing strategy exhibits negatively generating alpha, while the governance investing strategy exhibits positively generating alpha (2022).

A portfolio's performance can be measured by Alpha and Sharpe ratios. Alpha is a measure of a portfolio's excess return compared to a benchmark index and the Sharpe ratio is a measure of risk-adjusted return (Registe-Charles, 2022). Diversity and inclusion have financial benefits for corporations as well as the potential to generate positive alpha in portfolios. One study conducted by McKinsey & Company found that companies in the top quartile for gender diversity on executive teams were 25% more likely to have above-average profitability than companies in the bottom quartile (2022). Similarly, a study by Peterson Institute for International Economics found that companies with more diverse boards of directors had higher returns on assets and equity (Registe-Charles, 2022). Diverse and inclusive firms, when included in a portfolio, can contribute to positive alpha in several ways. For one, diverse perspectives can lead to better decision-making and problem-solving, which can drive improved financial performance (Registe-Charles, 2022). A study by MSCI found that companies with strong ESG practices, including diversity and inclusion, outperformed their peers during the COVID-19 pandemic, indicating that the utilization of diverse and inclusive companies in portfolios, as seen in gender lens investing, can aid in alpha generation as well as lowering risk (2022). These findings are essential to my study because the ratios provide a means of quantifying the difference between gender lens mutual funds and ETFs in comparison to their benchmarks, while the results support ESG and gender lens investing.

ESG investing is a growing topic in the finance industry. Advisors and investors alike are starting to realize the importance of ESG investing. "69 percent of advisors say the importance of ESG investing has increased over the past five years, and they expect this growth to continue" (Lundquist, 2017). The performance of ESG policies and investments are showing the benefits themselves as well, as companies who establish ESG practices and policies have improved financial performance within the firm (Lundquist, 2017). This improved performance at the company level then translates to an increase in the performance

of the company's issued securities because market participants invest in companies expected to do well into the future.

Another significant source in this thesis, by Gottschalk and Blankenberg (2018) also used the Sharpe ratio as the measure of performance to determine whether a portfolio of ESG stocks can outperform a portfolio of conventional ones. Their methodology consisted of developing two portfolios, each consisting of twenty firms covering the period between 2002 to 2016. One portfolio consisted of twenty sustainable stocks and the other was based on twenty conventional stocks. As a measure of control in the experiment, all the sustainable stocks in the analysis were listed in the Global Challenge Index (GCX)10 and the Natur-Aktien-Index (NAI)11 to make sure that the companies met the strict requirements concerning sustainability standards. They found that both portfolios performed similarly, and it does not benefit or harm investors to include sustainable stocks in their portfolios from a financial perspective (Blankenburg, Gottschalk, 2018). However, from an ethical perspective there are significant benefits. Gottschalk and Blankenburg's study (2018) is an important source because it offers a different finding than the majority of the other studies in this literature review. Most studies in this review found that ESG investing can aid in increasing returns and diversification, while this study and the one by Zhang et al. found no impact when ESG selection criteria was included in a portfolio. Although these results of no effect are not necessarily positive, they do not show a negative return for the ESG portfolio and provide diverse findings to this thesis while the majority of the sources found support this thesis.

When considering the return of ESG investing, it can alternatively be analyzed through three transmission channels within a standard discounted cash flow model - the cash-flow channel, the idiosyncratic risk channel, and the valuation channel. These different channels show the impact of ESG investing in comparison to conventional investing. The cash-flow channel says that a strong ESG profile is created when companies increase their competitive advantage, profitability, and dividends (Giese et al., 2019). The idiosyncratic risk channel relates how well high ESG-rated companies manage their business and operational risks (Giese et al., 2019). Finally, the valuation channel views a strong ESG profile in terms of the company's ability to establish low systematic risk, low cost of capital, and a high valuation. It can be

concluded that a company's ESG information is transmitted to the company's valuation and performance, both through their systematic risk profile (lower costs of capital and higher valuations) and their idiosyncratic risk profile (higher profitability and lower exposures to tail risk) (Giese et al., 2019).

Gender Lens Investing and Women's Role in the Economy
The second portion of this literature review focuses on the specific topic of this thesis, gender lens investing, and its impact on return. Gender lens investing stems from the goal to advance women as players in the financial markets and in terms of financial independence. It originated from Womenomics, which is the study of women's role in the economy and how including women in the workforce and economy as consumers and producers can lead to economic growth (Quinlan and Vanderbrug, 2016). Women today have taken it a step further to become vital players in the United States and world economies as successful entrepreneurs, corporate executives and family breadwinners. Yet gender-based violence, the absence of women's legal rights and the persistent wage gap stubbornly remain (Quinlan and Vanderbrug, 2016). This is where the opportunity for investors in gender lens investing developed, with the purpose of investing with values to advance and support women as people and important players in the economy. Quinlan and Vanderbrug (2016) discuss their findings on how gender lens investing can be a source of excess return in a portfolio and provide perspective on nuanced geographical differences and social expectations, as well as information on patterns that expose investment risk.

Diversity and inclusion, the pillars of gender lens investing, have been shown to potentially produce not only excess return for investors, but also improved financial performance for firms, which can also be translated into better stock performance (Dixon-Fyle et al. 2020). There has been slow progress in improved diversity initiatives within corporations, as Dixon-Fyle et al. (2020) mentions in their report from McKinsey Sustainability. By following the trajectories of hundreds of companies in their dataset since 2014, they found that the overall slow growth in diversity often observed in fact masks a growing polarization among these organizations (2020). While most have made little progress, are stalled or even slipping backward, some are making impressive gains in diversity, particularly in executive teams

(Dixon-Fyle et al. 2020). Dixon-Fyle et al.'s 2019 analysis found that companies in the top quartile for gender diversity on executive teams were 25 percent more likely to have above-average profitability than companies in the fourth quartile—up from 21 percent in 2017 and 15 percent in 2014 (2020). Furthermore, their research found that the greater the representation, particular for gender diversity, the higher the likelihood of outperformance and greater the gap between diverse and not-diverse firms. Companies with more than 30 percent women executives were more likely to outperform companies where this percentage ranged from 10 to 30, for instance and even more so for firms with no female representation. A substantial differential likelihood of outperformance—48 percent—separates the most from the least gender-diverse companies (Dixon-Fyle et al.). These findings are critical for my thesis as they provide the background on how gender lens investing can produce excess return, by showing how it first improves financial and operational performance within corporations.

One of the gender lens ETFs utilized in the research portion of this thesis invests only in companies that have a female CEO. This investment strategy can lead to investment in firms with a greater portion of all senior management being executives, as noted in a 2021 report from the US-based Corporate Women Directors International (CWDI). In their survey of 2,944 companies in 55 countries, they found that on average, the 143 companies with a woman CEO had significantly more women both on their Boards of Directors and in Executive Officer positions. Companies with female CEOs, which represented only 4.8% of the companies included in this survey, showing the lack of female representation at higher levels of firms, averaged 34.1% women on their Boards of Directors and 36.4% women in their senior management team (2021). On the other hand, companies with male CEOs averaged 23.3% women on their Board of Directors and 23.8% women in their senior management team (2021). These findings held true across all continents covered, which included North American, Latin American, Africa, Asia, and Europe, and highlighted the importance of supporting women in senior management within corporations.

Although many women in the United States in today's age can take out mortgages on their own or open their own credit cards, there are countries in their world where women's ability

to be financially independent and make financial decisions on their own is still very limited (Roberts, 2016). This is where gender lens investing has emerged to support and advance women across the globe. However, Roberts (2016) shared her skepticism toward gender lens investing through her findings on its limitations and issues. There is data to support that women can be better asset managers because they do 60% more research prior to making an investment decision and make decisions with a more long-term horizon in mind (Roberts, 2016). However, Roberts (2016) argues that this perpetuates stereotypes of the differences between men and women and what constitutes 'feminine' behavior, while not all women are like this. In fact, women are very different and may not all fit this stereotype. Furthermore, an additional limitation of gender lens investing is that many funds only use gender lens criteria such as the percentage women on a firm's board or women in senior management but fail to include Women's Empowerment Principles as part of their selection process, which is an important part of gender lens investing (Roberts, 2016). Roberts highlights key issues in the field of gender lens investing, but these issues are to be expected as the field is newly emerging. Over time, additional criteria and sensitivity toward the subject should be employed by fund managers, while this form of investing is still critical for the advancement of women in the economy and as a form of ethical investing.

Gender lens investing is a means of achieving superior risk-adjusted return and alpha in a portfolio, improving financial performance of a corporation, and boosting global economic growth. BlackRock, in their 2023 study, found that greater workforce diversity can boost economic output by tapping into underutilized talents and bringing different experiences and perspectives to the table. Their research showed that companies with the most diverse workforces outperformed their country and industry group peers with the least-diverse workforces in terms of return on assets by 29% per year, on average, over the 2013-2022 period (2023). Furthermore, they also found that companies where middle management best mirrors the women's representation in the overall workforce generated 36 basis points higher risk-adjusted monthly returns compared to peers where this diversity metric is poor, over 2016-2022. The research found in this literature review, although offering some criticism, found overwhelming support for ESG and gender lens investing.

Conclusion

The contributions of the literature in this review to the field of ESG and gender lens finance include offering insight into what the future of investing may look like, evaluating gender lens investing as a means to improve return, diversification, and risk level of portfolios, and diving into how finance can be used in an ethical way to benefit society and businesses. This literature discusses the broad scope of ESG investing as a foundation of knowledge on the topic, which can be transferred to the research this study generates surrounding gender lens investing and gender diverse ETFs.

RESEARCH QUESTION

This study aims to answer the following research question: How does gender lens investing impact risk-adjusted return. To answer this question, a set of ESG mutual funds and ETFs that focus on gender diversity are gathered to analyze if that portion of the ESG criteria used by ratings agencies can be associated with higher risk-adjusted return. By using mutual funds and ETFs, rather than individual companies, the way in which the companies' ESG scores change over time is not a concern in the study because these mutual funds and ETFs used have already been evaluated and are labeled as gender diversity funds.

The goals of this thesis are to examine gender lens investing as an emerging topic and subset of ESG investing, along with the characteristics of these funds. This thesis aims to provide performance data and analysis for funds featuring the social aspect of ESG, represented as gender diversity, and risk-adjusted return. The original hypothesis for this thesis is that the gender diversity mutual funds and ETFs included in this study will outperform or match the performance of their benchmarks. It is important to analyze how the gender diversity aspect of the ETFs and mutual funds that I select can be attributed to their excess return, represented by Jensen's alpha.

Secondary and primary research are used to determine if ESG mutual funds and ETFs can outperform their benchmark and the market, when isolating the gender diversity variable. The other factors of ESG will play a role in my research, as the indices selected still must uphold certain standards for those as well, but the social portion is the one that will be of primary importance in my research. The ESG standards of the mutual funds and ETFs used in my study include exclusion criteria for companies who derive revenue from tobacco, controversial weapons, and fossil fuels to name a few. In plain terms, this means that the ETFs and mutual funds in this thesis will not invest in firms who are involved in these industries. To conduct this project, the steps followed were to do outside research from studies previously conducted as well as articles about gender lens investing, compile the ETFs and mutual funds used in my own study, conduct ratio and statistical analyses of the data, and draw conclusions. This information is beneficial to investors and corporations, as investors could potentially increase their return with the gender diversity securities in this study, while

businesses can determine if implementing gender diversity initiatives within their own company would be worthwhile in terms of creating shareholder wealth and growing the company. This study, and others related to it, may encourage firms to prioritize gender diversity policies within their company, making for a more equitable corporate culture.

This study adds to the existing body of research on ESG investing, because there have been many studies on ESG investing by industry, as a whole, or in specific countries, but not much about how gender lens investing relates to increased risk-adjusted returns. This topic in investing is relatively new, as most of the ETFs and mutual funds focused on gender diversity included, representing the gender lens universe in the United States, are less than seven years old, which is why it will contribute to a new field of study within finance and investing.

RESEARCH METHODOLOGY

To complete my honors thesis, there was one primary method of quantitative analysis that was used as part of my research methodology. This method is a statistical analysis comparing the holding period return, standard deviation, alpha, sharpe, and treynor ratios of the securities used in this study. These ratios examine the risk to return relationship of securities but vary in their method of doing so.

The sharpe ratio is one of the most widely used risk-return measures. Its formula penalizes both upside and downside volatility in the security's price, by using standard deviation as its measure of risk, and assumes normality in the distribution of returns.

$$Sharpe\ Ratio\ = (Return\ of\ portfolio\ \text{-}\ Risk\ free\ rate)\ /\ Standard\ Deviation$$

Alpha measures how well securities, ETFs and mutual funds in the case of my thesis, have performed relative to a market index. For my study, I plan to use each fund's benchmarks and the SPDR S&P 500 ETF (SPY) when applicable, as a measure of the return and risk of the overall market, to compare with the gender diverse indices I am examining.

$$Alpha\ =\ Average\ annual\ return\ of\ fund\ -\ Average\ annual\ return\ of\ benchmark$$

Finally, the Treynor ratio follows a very similar formula to the sharpe ratio, with the only difference between the two being that the treynor ratio uses beta as its measure of risk while the sharpe ratio uses standard deviation.

$$Treynor\ Ratio\ = (Return\ of\ portfolio\ \text{-}\ Risk\ free\ rate)\ /\ Beta$$

Additional ratios included in this study are the holding period return and information ratio. The holding period return examines the total return received from holding a portfolio of assets over a period of time, known as the holding period. The information ratio is a measurement of portfolio returns beyond the returns of a benchmark, compared to the volatility of those returns. A higher information ratio indicates a desired level of consistency, whereas low information ratios indicate the opposite.

Holding Period Return = (Income Generated + (Ending Value - Initial Value)) / Initial Value

Information Ratio = (Portfolio Return - Benchmark Return) / Tracking Error

Finally, tracking error and maximum drawdown show the deviance of the mutual funds and ETFs from their benchmarks and the highest drop from peak to trough in the historic monthly price returns of each fund and benchmark, respectively. These metrics serve as valuable indicators of risk from differing in the investments included in the funds from their benchmark and downside risk, both important to look at when comparing the gender lens mutual funds and ETFs to their benchmarks.

This statistical analysis using these ratios allows me to compare the returns among multiple ESG mutual funds and ETFs focused on gender diversity to their benchmarks. The ratios listed are especially helpful because they also control for risk, as they all display the securities' return in relation to its risk, eliminating that as a confounding variable.
The research methodology used in my study was strategically selected because this analysis is appropriate for my research question and the finance focus of my thesis. Throughout all the research done on this topic, the majority of the sources included in the literature review have utilized these research methods as well, proving that experts in the field also use them for similar studies that compare the returns of ESG securities to conventional ones.

MUTUAL FUND AND ETF DESCRIPTIONS

The funds that I have selected to use in this study all have the primary similarity that they are funds created with the goal of supporting gender diversity within organizations. Fund managers select the companies that these funds are invested in by ensuring that their gender diversity practices, such as the diversity of their workforce and board, as well as their policies meet certain standards. These twelve mutual funds and ETFs have varying lengths of time since their inception date, with some being only several months old, which is why I utilized the return for the fund in comparison to each fund's benchmark for the length of the fund's existence, even if the benchmark had been around for longer. I also utilized weekly returns for funds that have not existed for longer than a year. To further narrow down the funds to use, I also screened for funds that were domiciled in the US. There are a couple global funds in this study, but to ensure that did not become a confounding factor in the study, I compared their returns to their global benchmarks. It is vital to this study to not only analyze the numerical results of my calculations for the risk-adjusted return of each fund, but also to understand each mutual fund and ETFs' characteristics. Overall, there are eight ETFs and four mutual funds included in this study, nine of which are large-cap funds, one mid-cap, and one small-cap. Furthermore, nine of the funds are blend funds and two are value funds. One of the ETFs included in this research is not included in these characteristic statistics because it is invested in all market capitalizations and therefore cannot be categorized as one size.

To begin, the first fund to examine is Fidelity's Women's Leadership Fund (FWOMX). This is an actively managed large blend mutual fund with an inception date in 2019. This fund has $153.53 million net assets with 29.12% of its holdings in its top sector of information technology. The top holdings include Microsoft, Amazon, and Accenture and its benchmarks are the MSCI USA Women's Leadership Index and the Russell 3000 Total Return Index. In terms of ESG, this mutual fund invests at least 80% of assets in equity securities of companies that prioritize and advance women's leadership and development. To be more succinct, this includes companies that include a woman as a member of the senior management team, are governed by a board for which women represent at least one third of all directors, or, in the portfolio manager's opinion, have adopted policies designed to attract, retain and promote women. Furthermore, this fund also applies negative ESG screening to avoid investments in

issuers that are directly engaged in, and/or derive significant revenue from civilian semi-automatic firearms, tobacco production, for-profit prisons, controversial weapons, and coal production or mining.

The next security is also from Fidelity but is their Women's Leadership ETF (FDWM). This ETF is actively managed, which is less common for ETFs, and has $3.77 million in net assets. Established in 2021, some of the fund's top holdings include Microsoft, Amazon, and Accenture. Its benchmarks include the MSCI USA Women's Leadership Index and the Russell 3000 Total Return Index. Similar to Fidelity's Women's Leadership mutual fund, this ETF has the largest portion of its holdings in the Information Technology sector as well (25.6%) and has the same gender lens investing goal of 80% investments in gender diverse companies as well as the same exclusion criteria.

Additionally, the SPDR MSCI USA Gender Diversity ETF (SHE) has $233.32 million in assets under management and was established in 2016. It is a large blend ETF with its top sector being technology at 30.84% of the portfolio. The top holdings include NVIDIA, Microsoft, and Amazon and its benchmark is the MSCI USA Gender Diversity Select Index. In order to determine which companies meet the ETFs' gender diversity standards, each potential holding is assigned an MSCI Gender Diversity Score based on two components: a Women Representation Score and a Diversity Management Score. The Women Representation Score reflects 75% of the weight of the MSCI Gender Diversity Score and evaluates each company based on the percent of women on the board of directors, percent of women in executive management positions, percent of women in senior management positions, and percent of all employees who are women. Furthermore, the Diversity Management Score represents the remaining 25% of the weight of the MSCI Gender Diversity Score and evaluates each company based on workforce diversity policies and senior management oversight of such policies, programs to help attract, retain and promote women in the workforce. The fund also applies exclusion criteria for companies involved in controversial industries such as tobacco and weapons.

Following that, the fourth fund utilized in my thesis is Nia's Impact Solutions Mutual Fund (NIAGX). Nia Impact Capital is a sustainable investment company that within all of its funds

prioritizes ESG and gender lens investing. Particularly for their Impact Solutions Fund, Nia requires that all holdings have women in leadership positions as well as address health care for women, support women-led businesses, or provide clean energy solutions for clean air and water, to name a few of the requirements. This is a mid-cap blend fund, meaning it does not contain some of the large technology companies that the previous funds did, but rather has its top holdings as Stantec Inc, International Business Machines Corp, and Vertex Pharmaceuticals. However, the fund's top sector is still technology accounting for 31% of the portfolio. The Nia Impact Solutions fund has net assets of $73.43 million and its benchmark is the MSCI All Country World Index.

Furthermore, the Impact Shares YWCA Women's Empowerment ETF, tracking the Morningstar Women's Empowerment Index, was established in 2018. Its benchmark is the Morningstar Women's Empowerment NTR Index, and its top holdings include Amazon, Apple, and Meta Platforms, making this a large cap blend fund. After excluding companies involved in the weapons, gambling, or tobacco industries, the 200 best scoring companies in terms of Morningstar's Gender Diversity scoring system are selected as the final underlying index components that this ETF matches within their fund. The gender lens investing themes that this fund utilizes when selecting holdings includes the percentage of female employees, executives, and board members, demonstrated commitment to ensure equal comparable wages for all employees, paid maternity and paternity leave, flexible work options, equal access to career training and development, diversity training, non-discriminatory policies, and a commitment to the safety, freedom from violence, and diversity of suppliers within the company.

The next fund included in my study is Impax Asset Management's Ellevate Global Women's Index Fund (PXWEX). This mutual fund is the oldest one used in my study, created in 1993, and has $821 million in assets under management. Its benchmarks include the MSCI World Index and the Impax Global Women's Leadership Index. Similar to the other funds thus far, this fund's largest sector is information technology at 21% of the fund, with its top holdings being Microsoft, Apple, Amazon, and Intuit. Impax's fund was the first broadly diversified mutual fund that invests in the highest-rated companies in the world for advancing women. In

terms of ESG, the companies that this mutual fund invests in have an average of 40% women on their board with 97% of their holdings having three or more women on the board, 42% of their holdings have a female CEO, 64% of their holdings have pay equity initiatives, and 53% of this Impax fund's holdings have diversity targets.

Glenmede's Women in Leadership US Equity Fund (GWILX), the seventh fund in my study, is a large cap value fund established in 2015. The portfolio has $21.22 million in net assets and its top holdings include Booking Holdings, Applied Materials, nVent Electric, and Trane Technologies. 25.71% of the fund's holdings are in the technology sector and its benchmark is the Russell 1000 Total Return Index. Glenmede Women in Leadership fund's investment strategy selects companies with significant female representation in leadership that meet at least one of the following criteria: a Chairwoman, a female CEO, women comprising at least 33% of the Board or 33% of senior management, respectively. Along with these four characteristics, the fund also utilizes Equileap's ESG score cards, a leading data provider for gender equality and diversity and inclusion, to select holdings that exhibit strong gender equality policies and practices.

In addition, the next fund included in my thesis is the IQ Engender Equality ETF (EQUL), which has the Solactive Equileap US Select Gender Equality Index and the Russell 1000 Total Return Index as benchmarks. This fund not only excels in the gender lens investing world, but also in terms of carbon emission reduction, and has received a Morningstar Low Carbon Designation. It is also aligned with the non-profit, Girls Who Code. It is a passively managed fund. Established in 2021, this ETF's top holdings include Meta Platforms, Organon and Co., and Doordash Inc. Unlike the securities prior to this one, this fund's largest sector is the Financials sector, comprising 21.2% of the fund's holdings. After applying exclusionary screens for companies involved in fossil fuels, gambling, alcohol, nuclear energy, and weapons, all remaining securities are ranked according to the Equileap Score, like how securities are ranked for Glenmede's fund also. A company's Equileap Score is derived by assigning a weight of 40% to how the company scores on gender balance in leadership and workforce, a weight of 30% to how the company scores on equal compensation and work life balance, a weight of 20% to how the company scores on policies promoting gender equality

and a weight of 10% to how the company scores on commitment, transparency and accountability.

The Calvert US Large-Cap Diversity, Equity, and Inclusion Index ETF (CDEI), established in 2023, is one of three newer funds in my study. It is a large cap blend fund and has $35.75 million in net assets. Its top holdings include Microsoft, Apple, and Eli Lilly & Co Common. It is also the ETF with the largest concentration of holdings in the information technology sector at 40.43%. The Russell 1000 Total Return Index and the Calvert US Large-Cap Diversity Research Index are this passively managed fund's benchmarks. The Calvert Index is composed of common stocks of large companies that operate their businesses in a manner consistent with the Calvert Principles for Responsible Investment and are selected from the universe of the 1,000 largest publicly traded U.S. companies based on market capitalization, excluding real estate investment trusts and business development companies. This ETF selects its holdings based on its Calvert benchmark. The Calvert Principles for Responsible Investment outline the general ESG pillars for this ETF, but the ones specifically relating to the gender diversity aspect the ETF include seeking a gender-balanced workforce among its board members, executives, senior and middle management, and employees, ethnically diverse board members and, where available, executives and management relative to demographics in these countries, diversity of board members on age, cultural background, and skill sets, policies and procedures that adequately support equal opportunity in hiring, equal pay and fair promotion among diversity groups, policies and programs that focus on living wages, health and safety, career development, parental leave, flexible work locations and schedules, child care availability, and inclusion of people with disabilities as well as people who self-identify as LGBTQ+.

Along with that, the next fund in my thesis is also from Calvert, and is their US Select Equity ETF (CVSE), with the Russell 100 Total Return Index as its benchmark. It is a large cap blend fund and is actively managed, with $29.10 million in net assets. Making up 32.54%, the top three holdings in this fund, being Microsoft, Apple, and NVIDIA, belong to the information technology sector. This fund is another new one, established in 2023. Like the Calvert US Large-Cap Diversity, Equity, and Inclusion ETF, this ETF uses the Calvert

Principles for Responsible Investment and exclusion criteria to select holdings that are leaders in terms of gender diversity policies and practices.

Although this next fund is closed as of January 10, 2024, the two years of historical information prior to this date are still valuable in examining the return of the V-Shares US Leadership Diversity ETF (VDNI) in comparison to its benchmark. This fund was established in 2022 and has the ISS ESG Usm Diversity Index as its benchmark. VDNI was passively managed, meaning it tracks its index, and is invested in all caps of company sizes. The fund's holdings were market-cap weighted, with individual components capped at 9.5%. To be included in the index, a company must meet the following four criteria: a US company, 35% combined minimum of women or ethnically diverse Directors on the Board, three distinct ethnically diverse individuals among Directors or Named Executive Officers (NEOs), and three distinct women among Directors or NEOs which may include one as the CEO or Board Chair.

Finally, the last fund included in my honors thesis is the Hypatia Women CEO ETF (WCEO). This ETF invests in all publicly traded American companies who have female Chief Executive Officers from small cap to mega cap, excluding all companies without female CEOs. Being a smaller and newer fund, it has $3.153 million in net assets and an inception date in January 2023. The ETF's top holdings include Jackson Financial, Nasdaq Inc, Citigroup, and Progressive Inc. WCEO is actively managed with the largest sector being Industrials, comprising 20.7% of the ETF's holdings. This ETF's benchmark is the FT Wilshire US Small Cap Index.

Overall, these twelve mutual funds and ETFs will be compared in terms of risk-adjusted return to their benchmarks using the sharpe, treynor, holding period return, tracking error, and information ratio. The goal of this study is to determine if gender lens investing, as a subset of ESG investing, can match or outperform benchmark returns.

ETHICAL CONSIDERATIONS

Considering the ethics of my honors thesis is an essential part of producing quality research and findings. With my methodology being focused on statistics and not requiring human subjects, it did not need to be reviewed by the University Institutional Review Board. However, there are still ethical standards and issues considered. For instance, one ethical consideration that pertains to my thesis is the integrity of the data, methods, and conclusions I use and find. In my process, it was incredibly important that the data I collected and my methods of evaluating it were not affected by any bias, defects, or limitations. It was also imperative that my data was checked to ensure its accuracy, as the findings of this study could help promote gender diversity in corporations. Furthermore, another ethical requirement of this study was to disclose the information that goes into the statistical procedures in my thesis and the sources this information was obtained from. Peer-reviewed documents and reputable financial databases made up the bulk of my sources and certify the authority of the data I used.

When considering the obstacles that arose during the process of completing my thesis, there are a few notable ones to be considered. The first was that this is an extremely new topic, and there was limited information about it in scholarly journals. Furthermore, there weren't a large amount of gender lens ETFs and mutual funds in the United States, and the ones that do exist have all been around for seven years or less. This limited the amount of historical information I found on each ETF and mutual fund to compare their returns over time. Similarly, there were multiple variables involved in the returns of the mutual funds and ETFs used in this study, meaning the underperformance by these funds in comparison to their benchmarks was not attributable to the gender diversity aspect of the funds.

Although there were some challenges that presented themselves throughout the process of creating my honors thesis, I developed control methods and a plan to mitigate them. I selected the research methodology that I did with the intent to study the performance of the mutual funds and ETFs over the time of their existence since inception in comparison to their benchmark for the same time frame. This helped to mitigate the issue of including funds that have not been in existence for very long. Furthermore, although gender lens investing is a new

topic in finance, this thesis will aid in the development of this area of study in the field and the twelve funds I did find in the United States were an appropriate sample size for this thesis. This number includes far more mutual funds and ETFs than some of the studies part of my literature review and should be sufficient to develop the results of my thesis. With this plan to mitigate any obstacles in place and the moral principles of my thesis considered, I conducted my study in an ethical, methodical manner to determine the relationship between gender diversity funds and their return.

RESULTS AND FINDINGS

When examining the results of the statistical analysis for the returns of the gender diversity mutual funds and ETFs included in this thesis in comparison to their benchmarks, the analysis can be broken down into two parts. The first part includes an examination of each fund's cumulative return from its inception until December 29, 2023, compared to its benchmarks, and the second involves a comparison of the metric calculations for each of the mutual funds and ETFs.

The first step in the description of my results relates to the cumulative return of each mutual fund, ETF, and their benchmarks. Cumulative return analyzes if one dollar were invested in the fund since its inception and grown at the rate of the historic monthly returns of that fund over time, how much would that dollar have grown by December 2023. This type of return allows you to compare the returns of the mutual funds and ETFs to their benchmarks over time, simulating if you had invested in the fund. Cumulative return is vital to use for this comparison because it finds the aggregate return of a fund, rather than annualized return, independent of the amount of time involved. This is important because the mutual funds and ETFs in this study have been in existence for different lengths of time and some for not much time, so this type of return mitigates that as a risk factor in my results.

Furthermore, the second part of the results for this study compare the metrics discussed above such as the holding period return and sharpe ratio for each mutual fund and ETF with their benchmarks. This enables the funds to be compared to their benchmarks on a risk-adjusted basis and across different metrics. To break down my analysis of the performance of each fund, I will discuss both parts of the results one mutual fund or ETF at a time.

The first fund included in this thesis is the Fidelity Women's Leadership Fund (FWOMX). It is compared to its benchmarks the MSCI USA Women's Leadership Index and the Russell 3000 as well as the SPY ETF for a comparison to the overall market, represented by the S&P 500. For all the mutual funds and ETFs analyzed in this portion of the thesis, a higher Sharpe ratio, Treynor ratio, holding period return, and information ratio is better. For the maximum drawdown, a higher, less negative number is better, signifying that the drop from peak to trough in the fund's historical returns is smaller, so again a number closer to zero is better. For

the tracking error, a lower tracking error is best because it signals that the fund more closely matches the investments and performance of its benchmark, lowering risk from tracking error.

For FWOMX, the analysis begins by looking at the cumulative return for the mutual fund. On a cumulative return basis, the Fidelity Women's Leadership Fund slightly underperforms but almost matches the returns of the MSCI USA Women's Leadership Index, but significantly underperforms its other two benchmarks, the SPY and Russell 3000 (Appendix A).

The second part of the analysis for FWOMX, the ratio analysis, begins with the Sharpe ratio. It is evident that the Fidelity Women's Leadership Fund had the worst risk-adjusted return of the four funds studied, with MSCI USA Women's Leadership Index having the next closest Sharpe ratio (Appendix B). This means that the ratio of return to risk for FWOMX is the lowest of the four, followed by MSCI, Russell 3000, and finally the SPY. When looking at the tracking error for each benchmark in comparison to this fund, this makes sense because the tracking error for FWOMX to the MSCI benchmark is the lowest of the three benchmarks at 4.25%. On the other hand, it is the greatest in comparison to the SPY at 30.38% (Appendix B). This means that FWOMX most closely tracks the MSCI Women's Leadership Index. For the Treynor ratio, this metric varies when comparing FWOMX to each benchmark because beta is used as the risk metric, which changes depending on which benchmark is being used. When compared to its three benchmarks, FWOMX actually has a slightly higher Treynor ratio than the MSCI index by about nine basis points but is beaten significantly by the other two benchmarks (Appendix B). In terms of holding period return and maximum drawdown, FWOMX also underperforms all its benchmarks with the lowest return and highest drop from peak to trough as shown by the maximum drawdown (Appendix B). Finally, this mutual fund's information ratio was the highest when using the Russell 3000 as its benchmark, indicating that the ratio of alpha to tracking error for FWOMX to the Russell 3000 is the best of the three comparisons between FWOMX and each benchmark. Overall, this fund did not match or outperform its benchmarks.

Next, the Fidelity Women's Leadership ETF (FDWM) shows a similar story. When looking at the cumulative return of FDWM in comparison to its three benchmarks, the MSCI USA Women's Leadership Index, the SPY, and the Russell 3000, FDWM underperforms but

almost matches the cumulative return of the MSCI index, but significantly underperforms the other two benchmarks (Appendix C). Likewise, it also underperforms its benchmarks on a ratio analysis basis. It has the worst Sharpe ratio and maximum drawdown versus all three of its benchmarks at a Sharpe ratio of -0.1257 and a drop from trough to peak in historic monthly returns of -27.11% (Appendix D). Furthermore, FDWM underperformed two of its three benchmarks from its inception to December 2023, only outperforming the Russell 3000. Similar to the Fidelity Women's Leadership Fund, FDWM most closely follows the MSCI USA Women's Leadership Index in terms of the companies and securities it is invested in with a tracking error of 9.24% (Appendix D). However, unlike the Fidelity Women's Leadership Fund, the Fidelity Women's Leadership ETF outperformed its MSCI benchmark in terms of holding period return by 34 basis points. When compared to the SPY and Russell 3000 on the other hand, FDWM's holding period return underperformed by at least 555 basis points (Appendix D). Although some of the statistical measures for the performance analysis of the Fidelity Women's Leadership ETF were positive, overall, this ETF still did not outright match or outperform the performance of any of its benchmarks across all metrics.

Additionally, the MSCI USA Gender Diversity Select Index and the SPY are the benchmarks that the performance of the next fund in this thesis, the SPDR MSCI USA Gender Diversity ETF (SHE) is compared to. Appendix E shows the cumulative return of SHE in comparison to its two benchmarks from the inception of the ETF in 2016 until December 2023. This ETFs cumulative return is slightly bleaker than the first two funds, showing substantial underperformance by SHE against both benchmarks. The second part of this performance analysis, the ratio analysis, follows this trend with the Sharpe ratio (0.2414), Treynor ratio to the MSCI Index (0.0404), Treynor Ratio to the SPY (0.0404), holding period return (53.71%), and maximum drawdown (-31.99%) for SHE, underperforming both benchmarks with lower metrics across the board (Appendix F).

The next fund in this thesis, the Nia Impact Solutions Fund (NIAGX) performed similarly to the gender lens funds analyzed prior, underperforming its one benchmark, the MSCI All Country World Index, across all statistical metrics and on a cumulative return basis. Appendix G highlights how the cumulative return of NIAGX since May 2023 underperformed the MSCI

All Country World Index over time until December 2023. In this portion of the analysis, the cumulative returns of both funds began at $1.00 USD and ended at $1.07 for NIAGX and $1.09 for the MSCI Index. Across Nia Impact Solutions Fund's holding period return, Sharpe ratio, Treynor ratio, and maximum drawdown, the fund also underperformed the MSCI All Country World Index (Appendix H). Furthermore, the fund also has a mildly high tracking error to its benchmark at 7.68%, signifying it follows its benchmark closer than some funds, but still relatively loosely.

Impact Shares Women's Empowerment ETF (WOMN) has two benchmarks, the Morningstar Women's Empowerment NTR Index and the SPY. When considering this ETF and its benchmarks' cumulative returns, the fund matched the performance of the Morningstar Women's Empowerment Index but underperformed the SPY (Appendix I). The ratio analysis for this fund also shows similar results where the holding period return, Sharpe ratio, and Treynor ratio were all lower than both benchmarks, signifying underperformance by the Impact Shares ETF. The only metric that gave a positive sign for this ETF was its maximum drawdown, which was more negative than the SPY, but closer to zero than the Morningstar Index (Appendix J). This higher maximum drawdown means that the greatest drop from the highest price return to lowest return in the sequence of months studied was less of a drop than for the Morningstar Index. Overall, though, The Impact Shares Women's Empowerment ETF underperformed both its benchmarks.

Continuing the performance analysis of the gender lens funds in the US, the next fund is the Impax Ellevate Global Women's Index Fund (PXWEX). This fund's benchmark, the MSCI World Index, outperformed the fund by a drastic amount on a cumulative return basis with the fund's ending dollar amount at $1.28 and the benchmark's at $1.92 (Appendix K). Furthermore, Impax's Global Women's Fund also underperformed the World Index in two of the four return measures discussed. This is a slightly more positive outcome than the other funds compared to their benchmark in terms of support for gender lens investing. However, overall, PXWEX still underperformed its benchmark. The Impax Ellevate Global Women's Fund's Sharpe ratio and holding period return both signal underperformance of the fund as they are lower than the metrics for the benchmark (Appendix L). The fund's Treynor ratio (0.0501) and maximum drawdown (-55.06%) depict the fund outperforming its benchmark

(Appendix L). When taking a closer look, for the Treynor ratio this is because of its low beta in comparison to the MSCI World Index. Furthermore, PXWEX also has a high tracking error of 22.37% to its benchmark (Appendix L).

Following that, the Glenmede Women in Leadership US Equity Fund (GWILX) underperformed its benchmark across all statistical metrics and on a cumulative return basis. Its benchmark is the Russell 100 Total Return Index. Appendix M depicts the Glenmede Women in Leadership Fund's cumulative return substantially underperforming the cumulative return of the Russell 1000. Further, GWILX's Sharpe, Treynor, holding period return, and maximum drawdown are 0.2201, -0.3028, 51.35%, and -36.11% respectively (Appendix N). Meanwhile, the Russell 1000's Sharpe, Treynor, holding period return, and maximum drawdown are 0.6529, 0.1054, 148.32%, and -25.46% respectively (Appendix N). Therefore, the Glenmede Women in Leadership Fund underperformed its benchmark across all performance metrics and ratios analyzed.

Additionally, the next gender lens fund in this performance analysis is the IQ Engender Equality ETF (EQUL). This ETF's return was analyzed from its inception in 2021 to December 2023. On a cumulative return basis, EQUL underperformed its benchmarks, the Solactive Equileap US Select Gender Equality Index and Russell 1000 Total Return Index (Appendix O). Overall, the ratio analysis for this ETF also depicts underperformance by the ETF in comparison to its benchmark, with all metrics except the maximum drawdown and Treynor ratio to the Russell 1000 indicating this underperformance (Appendix P). The maximum drawdown of -18.56% for the IQ Engender Equality Index beat the maximum drawdown of the Solactive Index and Russell 1000 which has results of -22.44% and -22.46% respectively (Appendix P). This means that the greatest drop in historical monthly returns was larger in the benchmarks than EQUL. The Treynor ratio is another that yields a positive result for this fund, with a Treynor ratio higher than the Russell 1000 (Appendix P). However, the overall trend of underperformance by this ETF in comparison to its benchmarks remains.

The Calvert US Large-Cap Diversity, Equity, & Inclusion Index ETF (CDEI) depicts a different story than all the other gender diversity mutual funds and ETFs included in this study. CDEI beat two of its benchmarks across all metrics other than maximum drawdown,

but still underperformed one of its benchmarks. Although it did not outright outperform all three of its benchmarks, this is still a positive result to note in my study. The Calvert US Large-Cap Diversity, Equity, and Inclusion ETF's benchmarks are the Russell 1000 Total Return Index, Calvert US Large-Cap Diversity Research Index and SPY. Appendix Q displays how, on a cumulative return basis, this ETF is right among the returns of its benchmarks. Furthermore, as previously mentioned, this fund had a higher Sharpe ratio, Treynor ratio, and holding period return than the SPY and Russell 1000, with only the maximum drawdown being the worst against all three benchmarks (Appendix R). When comparing the ratios for CDEI to the Solactive Equileap Index, three of the four metrics used indicate underperformance, with CDEI having a higher Treynor ratio than the Solactive Index as well (Appendix R). Although this data does not indicate that the fund outperformed all three benchmarks, it is important to note that it did outperform two of its benchmarks, the SPY and Russell 1000.

On the opposite side, again returning to the trend among the gender lens mutual funds and ETFs in the US universe of underperformance when compared to their benchmarks, the Calvert US Select Equity ETF (CVSE) underperformed the Russell 1000 Total Return Index across the cumulative return (Appendix S), Sharpe ratio, Treynor ratio, holding period return, and maximum drawdown (Appendix T). Furthermore, this ETF also had somewhat low or moderate tracking error to the Russell 1000 at 6.32% (Appendix T).

Similarly, the V-Shares US Leadership Diversity ETF's (VDNI) performance analysis also revealed underperformance across all the performance metrics and cumulative return, when compared to its benchmarks the ISS ESG Usm Diversity Index TR and SPY. Appendix T shows VDNI and the ISS ESG Diversity Index beginning at $1.00 USD at the inception of the fund in 2022, and ending at $1.01 (VDNI), $1.03 (SPY), and $1.04 (ISS Index). On a cumulative return basis, this ETF underperformed its benchmark (Appendix U). The ratio calculations for VDNI also indicate that this fund underperformed its benchmark with a lower Sharpe ratio, Treynor ratio, holding period return, and maximum drawdown (Appendix V).

Finally, the last gender lens fund included in this study is the Hypatia Women CEO ETF (WCEO). On a cumulative return basis, this ETF underperformed its benchmark from

February 2023 to December 2023 (Appendix W). The final step in this performance analysis is to examine the risk-adjusted return of WCEO in comparison to its benchmark the FT Wilshire US Small Cap Index. The Sharpe ratio for WCEO at -0.412 is lower than its benchmark at -0.351, signifying that the Hypatia Women CEO ETF underperformed its benchmark when comparing risk to return (Appendix X). Furthermore, a similar trend can be observed where the Treynor ratio, holding period return, and maximum drawdown are all lower for WCEO, meaning that the ETF underperformed the benchmark. This fund also has a moderate tracking error to the FT Wilshire US Small Cap Index at 10.99% (Appendix X).

The dual-level performance analysis in this study revealed that the mutual funds and ETFs making up the gender lens investing universe within the United States overall underperformed their benchmark. The only fund that outperformed two of its benchmarks was the Calvert US Large-Cap Diversity, Equity, & Inclusion Index ETF, however it did not outperform all three of its benchmarks. Although disappointing, the conclusions from this performance analysis are that the gender diversity mutual funds and ETFs included in this thesis over the time frame each was studied did not outperform their benchmarks or the market. However, due to the fact that there are so many factors affecting the returns of these securities, whether that be from individual holdings in the funds, sector or industry effects, or so much more, the underperformance of these funds cannot be attributed to one factor through this research. Therefore, the gender diversity aspect of the mutual funds and ETFs included in this research may not be what caused them to underperform, meaning gender lens investing may still be an avenue to potentially higher returns, portfolio diversification, and investing with values.

CONCLUSION

The landscape of gender lens investing in the United States has been expanding in the last decade to include the funds analyzed in this thesis. Although the results of this thesis did not show that the gender diverse mutual funds and ETFs in the United States outperformed or matched the performance of their benchmark, this may not be caused by the gender diversity aspect of the funds. There are many other confounding factors that could have led to this result. Combined with the fact that many of the studies in my literature review discovered ESG and gender lens investing can produce alpha and higher risk-adjusted portfolio returns, this form of investment can be a means for investors to achieve financial performance and make an impact.

The Landscape of Gender Lens Investing in the US and Performance Analysis
Honors Thesis for Sarah Monsini

APPENDICES

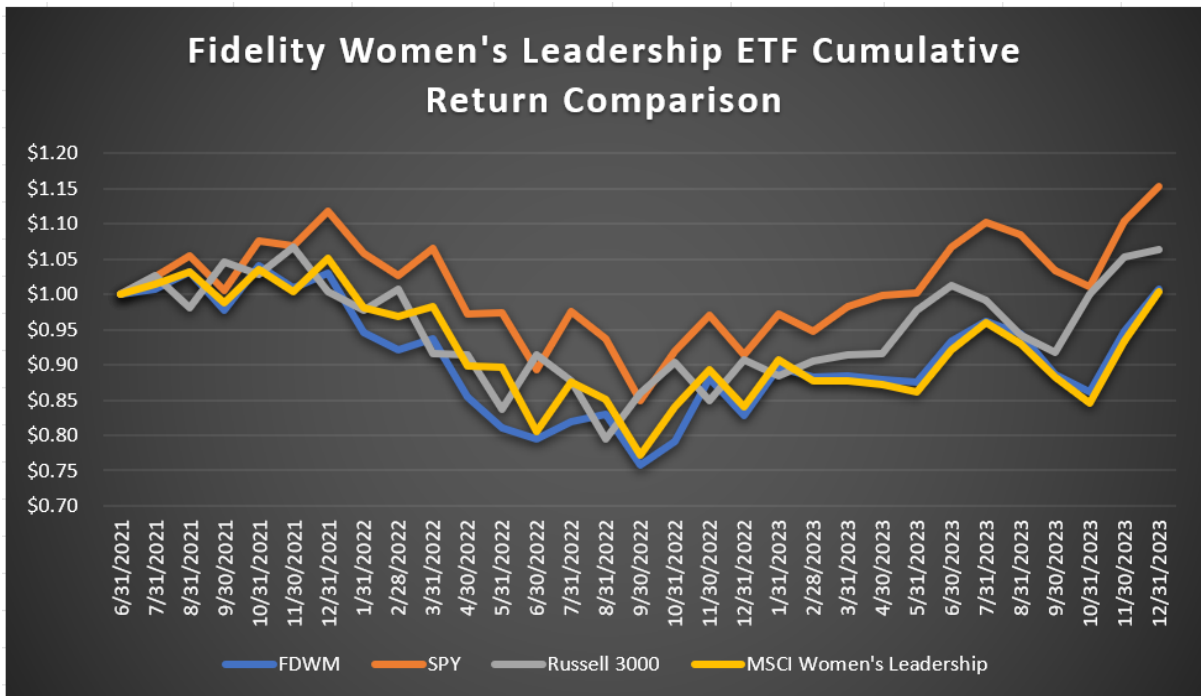Appendix A – Fidelity Women's Leadership Fund (FWOMX) Cumulative Return
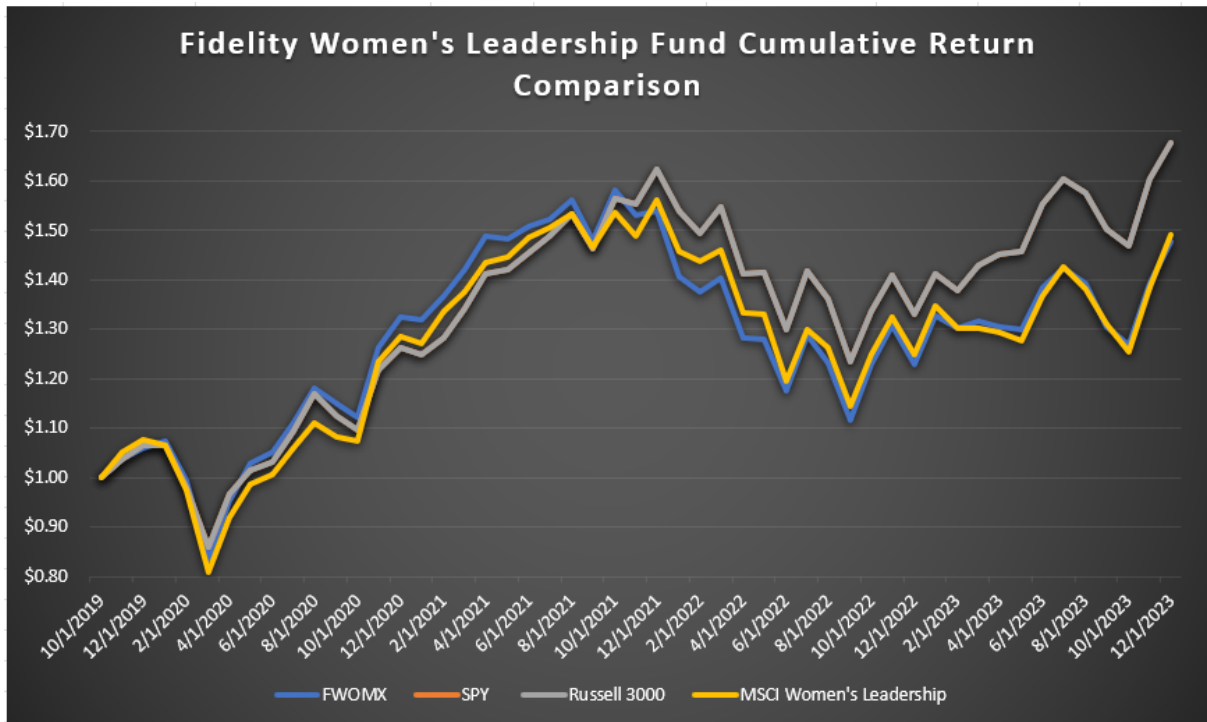

Appendix B – Fidelity Women's Leadership Fund (FWOMX) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to MSCI	Treynor Ratio to SPY	Treynor Ratio to R.3000
Fidelity Women's Leadership ETF (FDWM)	0.3807	0.0839	0.0747	-0.7488
MSCI USA Women's Leadership Index	0.3839	0.0830		
Russell 3000 Total Return Index	0.4364			0.0860
SPDR S&P 500 ETF Trust (SPY)	0.5990		0.1146	

HPR	Max Drawdown	Tracking Error to MSCI	Tracking Error to SPY	Tracking Error to R.3000	Info. Ratio to MSCI	Info. Ratio to SPY	Info Ratio to R.3000
47.7670%	-29.4045%	4.2483%	4.9588%	30.3848%	-0.0504	-0.6808	-0.0172
48.9704%	-26.6089%						
50.7207%	-25.4840%						
67.6364%	-23.9166%						

Appendix C – Fidelity Women's Leadership ETF (FDWM) Cumulative Return

Appendix D – Fidelity Women's Leadership ETF (FDWM) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to MSCI	Treynor Ratio to SPY	Treynor Ratio to	HPR
Fidelity Women's Leadership ETF (FDWM)	-0.1257	-0.0282	-0.0270	0.1100	0.7484%
MSCI USA Women's Leadership Index	-0.1238	-0.0246			0.4071%
Russell 3000 Total Return Index	-0.0082			-0.0015	6.2990%
SPDR S&P 500 ETF Trust (SPY)	0.1757		0.0325		15.3527%

Max Drawdown	Tracking Error to MSCI	Tracking Error to SPY	Tracking Error to R.3000	Info. Ratio to MSCI	Info. Ratio to SPY	Info Ratio to R.3000
-27.1121%	9.2371%	9.7378%	28.9835%	0.0147	-0.5731	-0.0750
-26.6089%						
-25.4840%						
-23.9166%						

Appendix E – SPDR MSCI USA Gender Diversity ETF (SHE) Cumulative Return
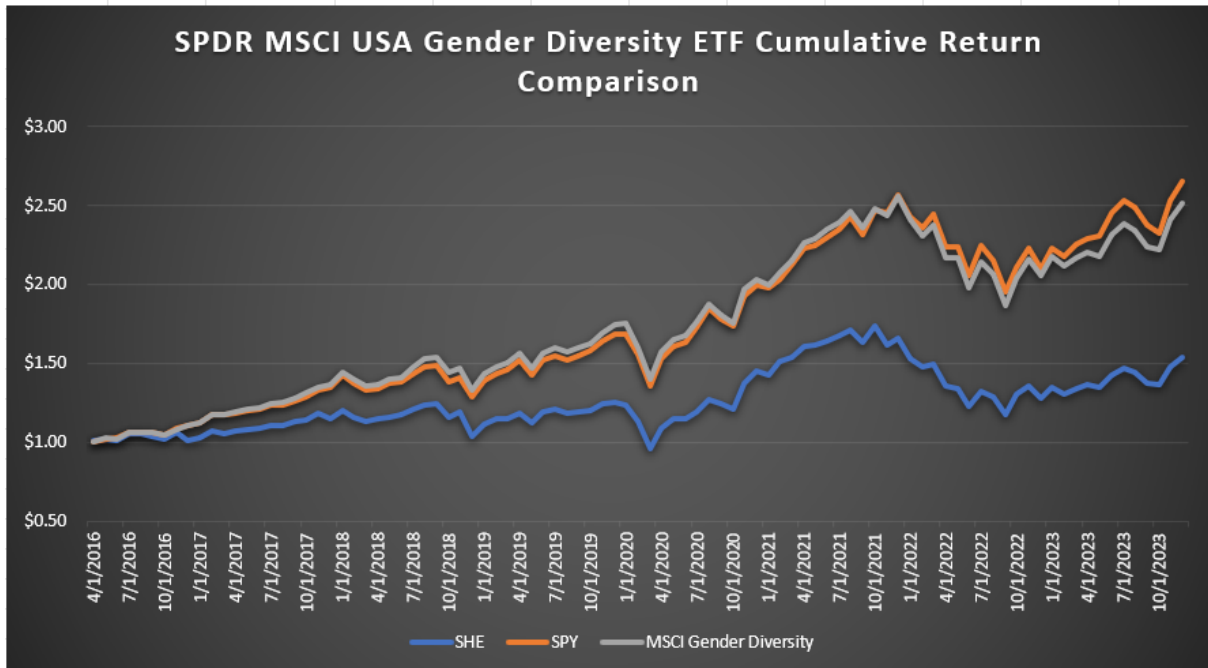
Appendix F – SPDR MSCI USA Gender Diversity ETF (SHE) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to MSCI	Treynor Ratio to SPY
SPDR MSCI USA Gender Diversity ETF (SHE)	0.2414	0.0404	0.0404
MSCI USA Gender Diversity Select Index	0.6903	0.1110	
SPDR S&P 500 ETF Trust (SPY)	0.7447		0.1185

HPR	Max Drawdown	Tracking Error to MSCI	Tracking Error to SPY	Info. Ratio to MSCI	Info. Ratio to SPY
53.7069%	-31.9940%	4.8762%	5.3289%	-1.4221	-1.44286005
151.5094%	-27.1772%				
164.8643%	-23.9166%				

Appendix G – Nia Impact Solutions Fund (NIAGX) Cumulative Return
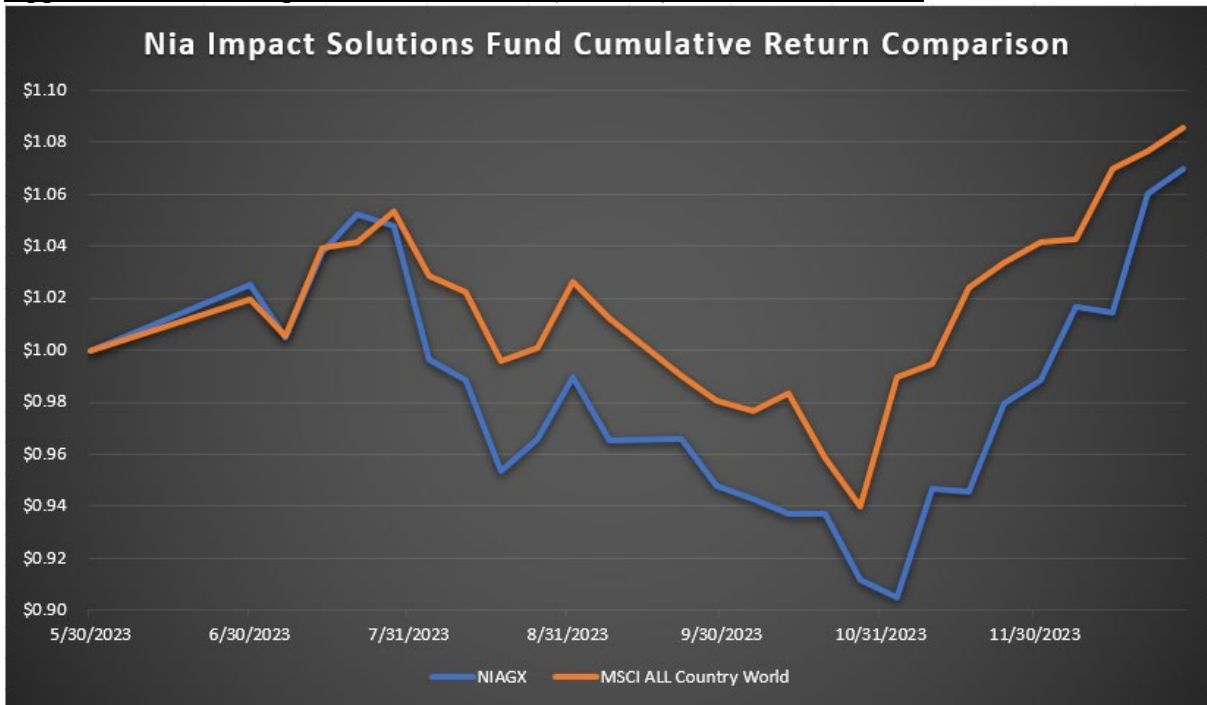
Appendix H – Nia Impact Solutions Fund (NIAGX) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to ACWI	HPR	Max Drawdown	Tracking Error to ACWI	Info. Ratio to ACWI
Nia Impact Solutions Fund (NIAGX)	-0.2921	-0.0402	6.9767%	-13.9963%	7.6802%	-0.0906
MSCI All Country World Index	-0.2533	-0.0172	8.5463%	-2.9525%		

Appendix I – Impact Shares YWCA Women's Empowerment ETF (WOMN) Cumulative Return
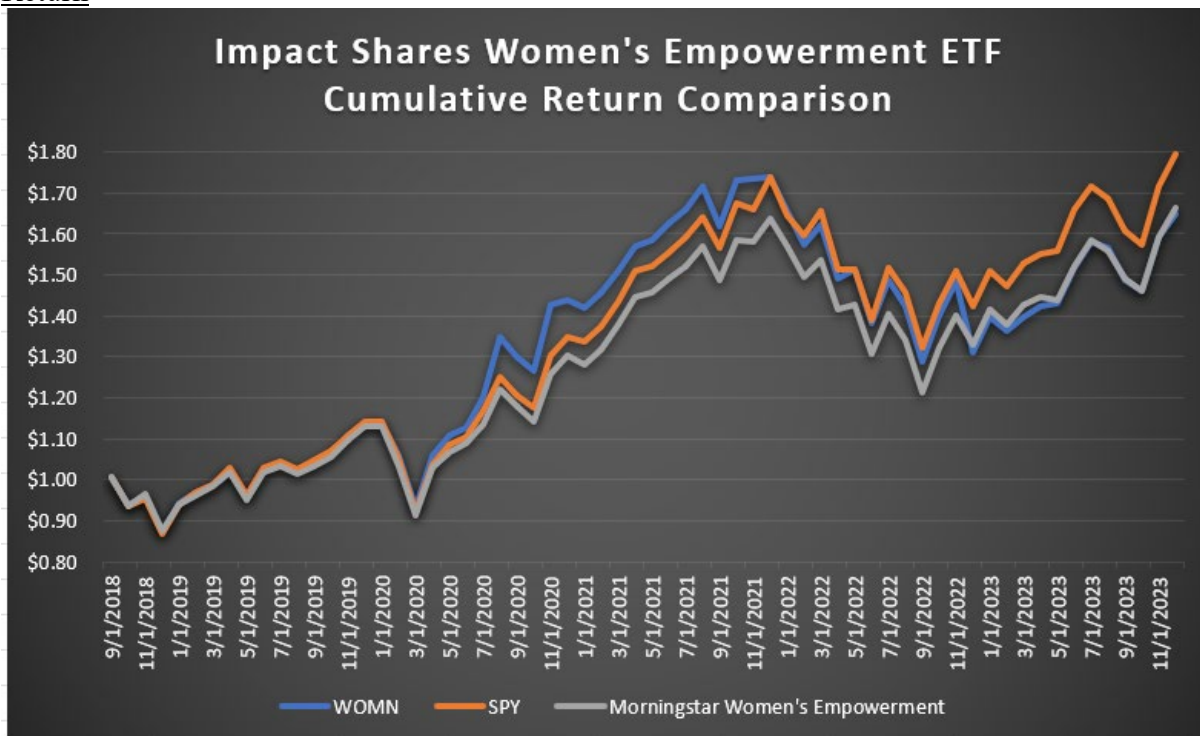
Appendix J – Impact Shares YWCA Women's Empowerment ETF (WOMN) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to Morningstar	Treynor Ratio to SPY
Impact Shares YWCA Women's Empowerment ETF (WOMN)	0.4043	0.0763	0.0775
Morningstar Women's Empowerment NTR Index	0.4437	0.0817	
SPDR S&P 500 ETF Trust (SPY)	0.5223		0.0973

HPR	Max Drawdown	Tracking Error to Morningstar	Tracking Error to SPY	Info. Ratio to Morningstar	Info. Ratio to SPY
64.8199%	-25.8871%	4.4088%	4.6912%	-0.0467	-0.3759
66.4730%	-25.9764%				
79.4357%	-23.9166%				

Appendix K – Impax Ellevate Global Women's Index Fund (PXWEX) Cumulative Return
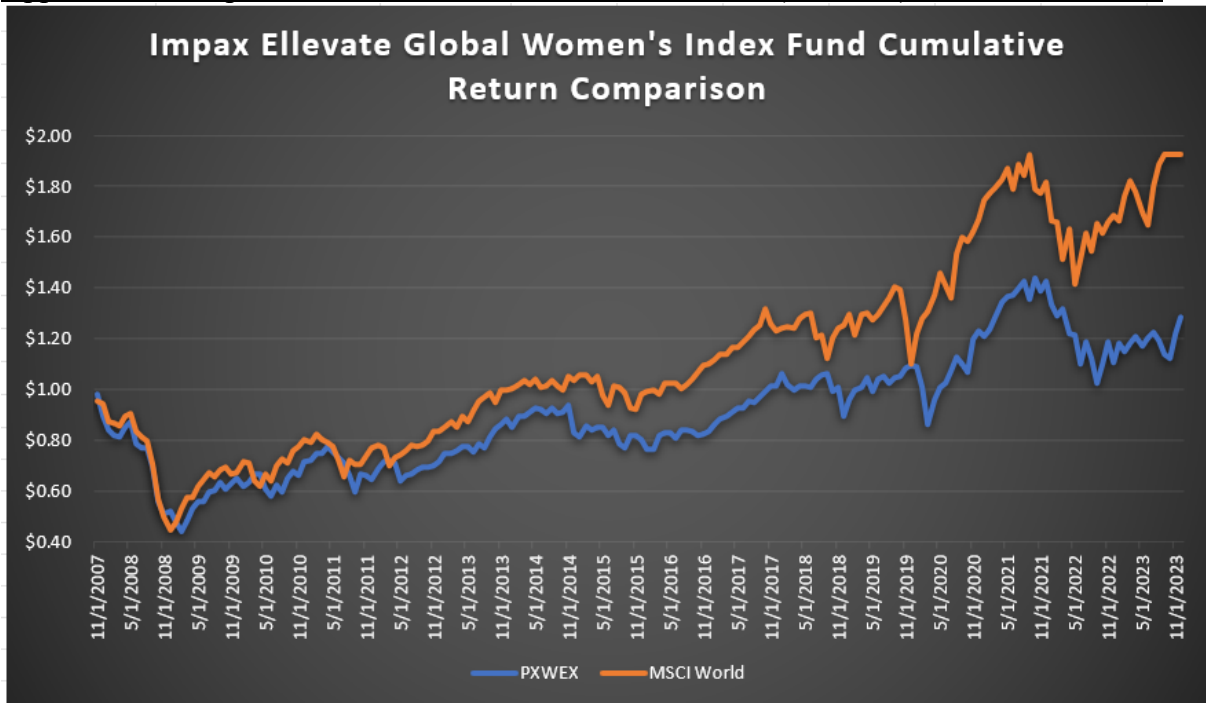

Appendix L – Impax Ellevate Global Women's Index Fund (PXWEX) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to MSCI	HPR	Max Drawdown	Tracking Error to MSCI	Info. Ratio to MSCI
Impax Ellevate Global Women's Index Fund (PXWEX)	0.0398	0.0501	28.4901%	-55.0580%	22.3695%	-0.1148
MSCI World Index	0.1920	0.0325	92.4033%	-53.3516%		

Appendix M – Glenmede Women in Leadership US Equity Fund (GWILX) Cumulative
Return
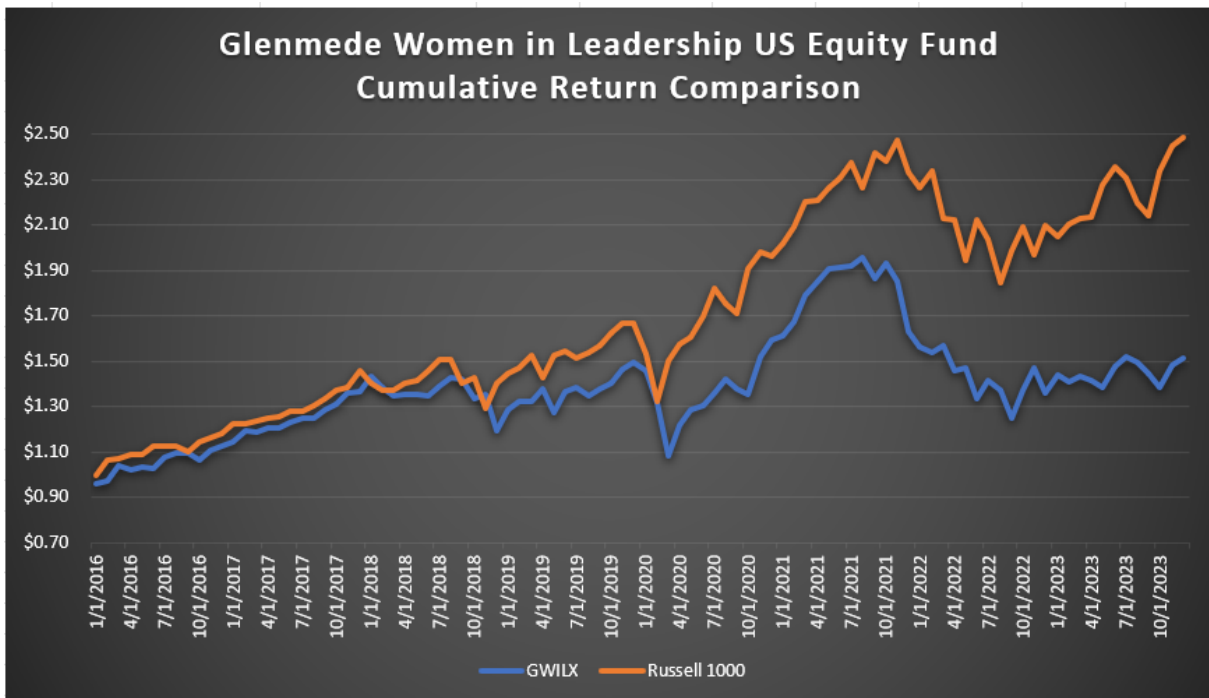
Appendix N – Glenmede Women in Leadership US Equity Fund (GWILX) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to R. 1000	HPR	Max Drawdown	Tracking Error to R.1000	Info. Ratio to R.1000
Glenmede Women in Leadership US Equity Fund (GWILX)	0.2201	-0.3028	51.3514%	-36.1125%	25.0601%	-0.2683
Russell 1000 Total Return Index	0.6529	0.1054	148.3155%	-25.4589%		

Appendix O – IQ Engender Equality ETF (EQUL) Cumulative Return
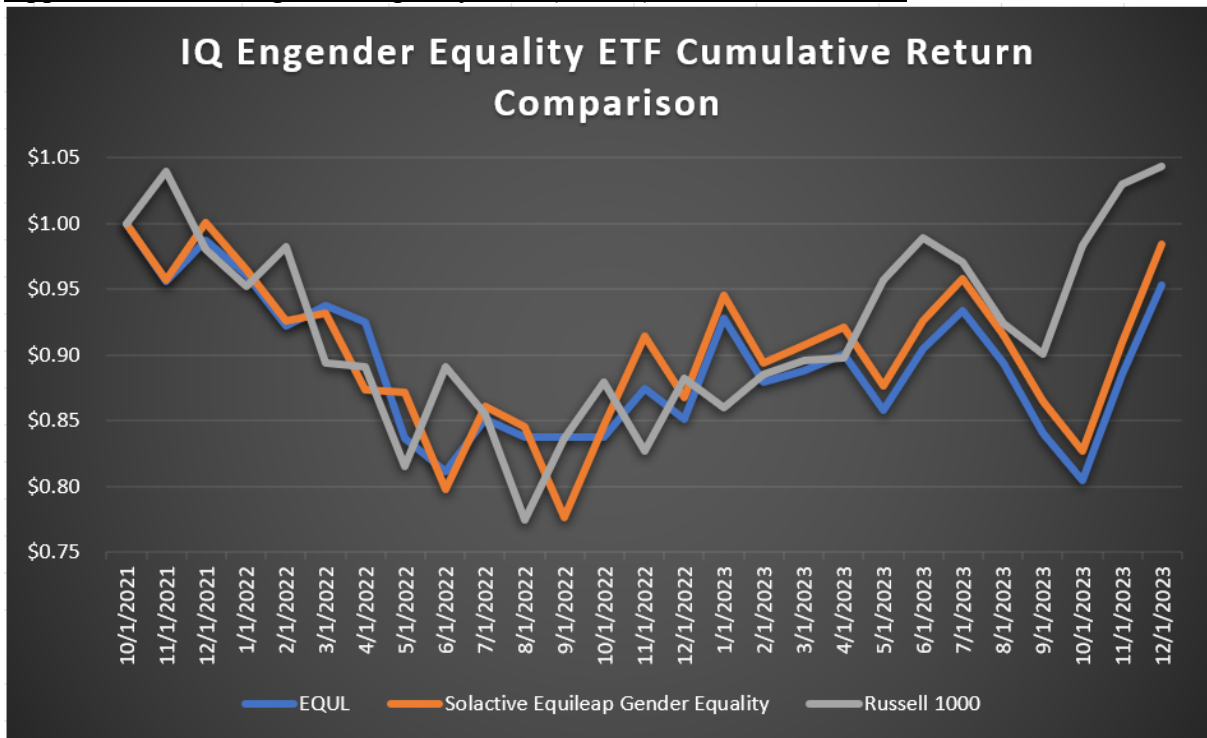
Appendix P – IQ Engender Equality ETF (EQUL) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to Solactive	Treynor Ratio to R.1000
IQ Engender Equality ETF (EQUL)	-0.3034	-0.0788	0.8112
Solactive Equileap US Select Gender Equality Index	-0.1796	-0.0375	
Russell 1000 Total Return Index	-0.0538		-0.0105

HPR	Max Drawdown	Tracking Error to Solactive	Tracking Error to R.1000	Info. Ratio to Solactive	Info. Ratio to R.1000
-4.6767%	-18.5640%	12.1799%	26.3585%	-0.1582	-0.1208
-1.5438%	-22.4371%				
4.3464%	-25.4589%				

Appendix Q – Calvert US Large-Cap Diversity, Equity, and Inclusion Index ETF (CDEI)
Cumulative Return
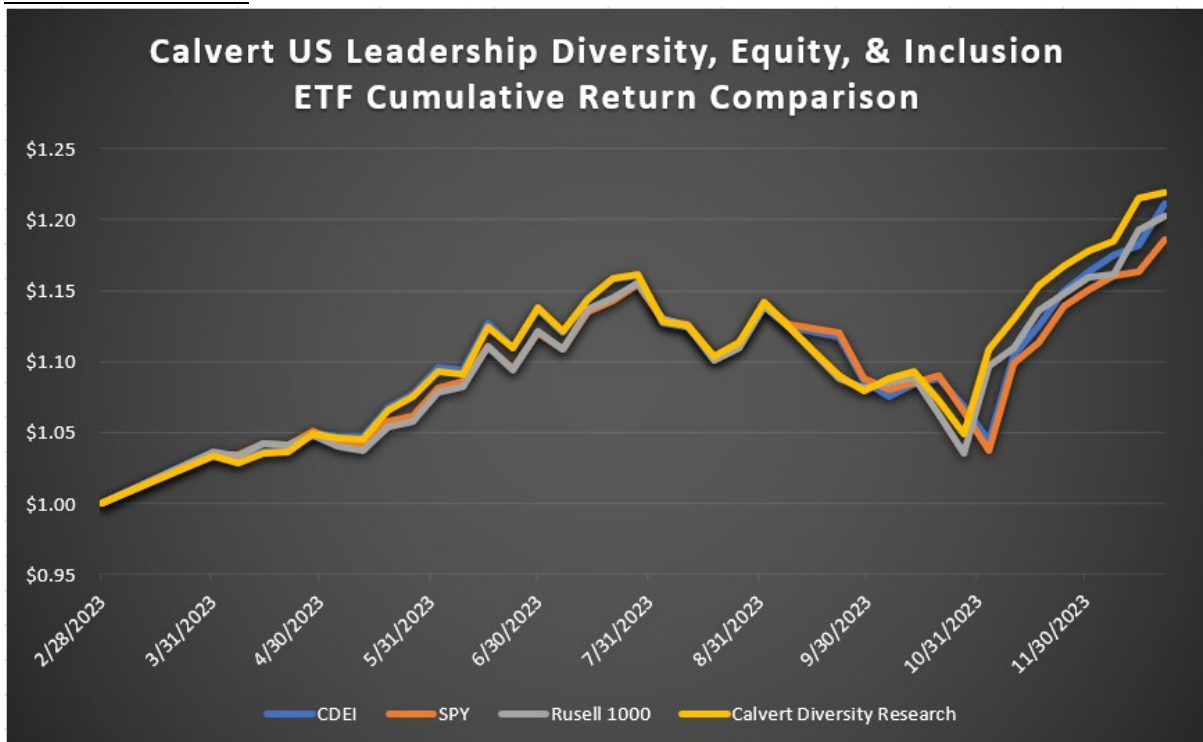
Appendix R – Calvert US Large-Cap Diversity, Equity, and Inclusion Index ETF (CDEI)
Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to Calvert	Treynor Ratio to SPY	Treynor Ratio to R.1000	HPR
Calvert US Large-Cap Diversity, Equity, and Inclusion Index ETF (CDEI)	0.1158	0.0125	0.0073	0.0143	21.0218%
Calvert US Large-Cap Diversity Research Index	0.1786	0.0113			22.4627%
SPDR S&P 500 ETF Trust (SPY)	0.0613		0.0038		19.6841%
Russell 1000 Total Return Index	0.0973			0.0063	20.6095%

Max Drawdown	Tracking Error to Calvert	Tracking Error to SPY	Tracking Error to R.1000	Info. Ratio to Calvert	Info. Ratio to SPY	Info Ratio to R.1000
-10.0031%	5.7235%	1.4226%	6.1902%	-0.0676	0.2545	0.0180
-2.8663%						
-2.2126%						
-2.2486%						

Appendix S – Calvert US Select Equity ETF (CVSE) Cumulative Return

Calvert US Select Equity ETF Cumulative Return Comparison
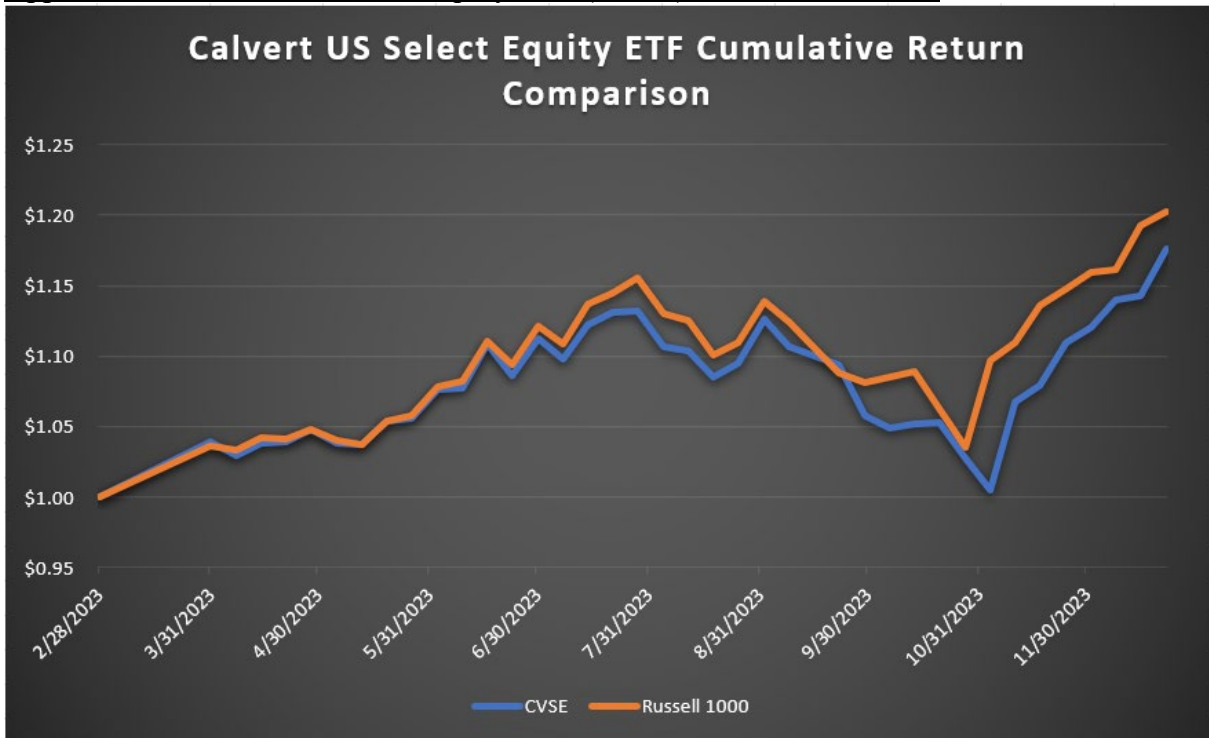
Appendix T – Calvert US Select Equity ETF (CVSE) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to R. 1000	HPR	Max Drawdown	Tracking Error to R.1000	Info. Ratio to R.1000
Calvert US Select Equity ETF (CVSE)	-0.0306	-0.0037	17.5438%	-11.2048%	6.3180%	-0.1323
Russell 1000 Total Return Index	0.0973	0.0063	20.6095%	-10.4347%		

Appendix U – V-Shares US Leadership Diversity ETF (VDNI) Cumulative Return
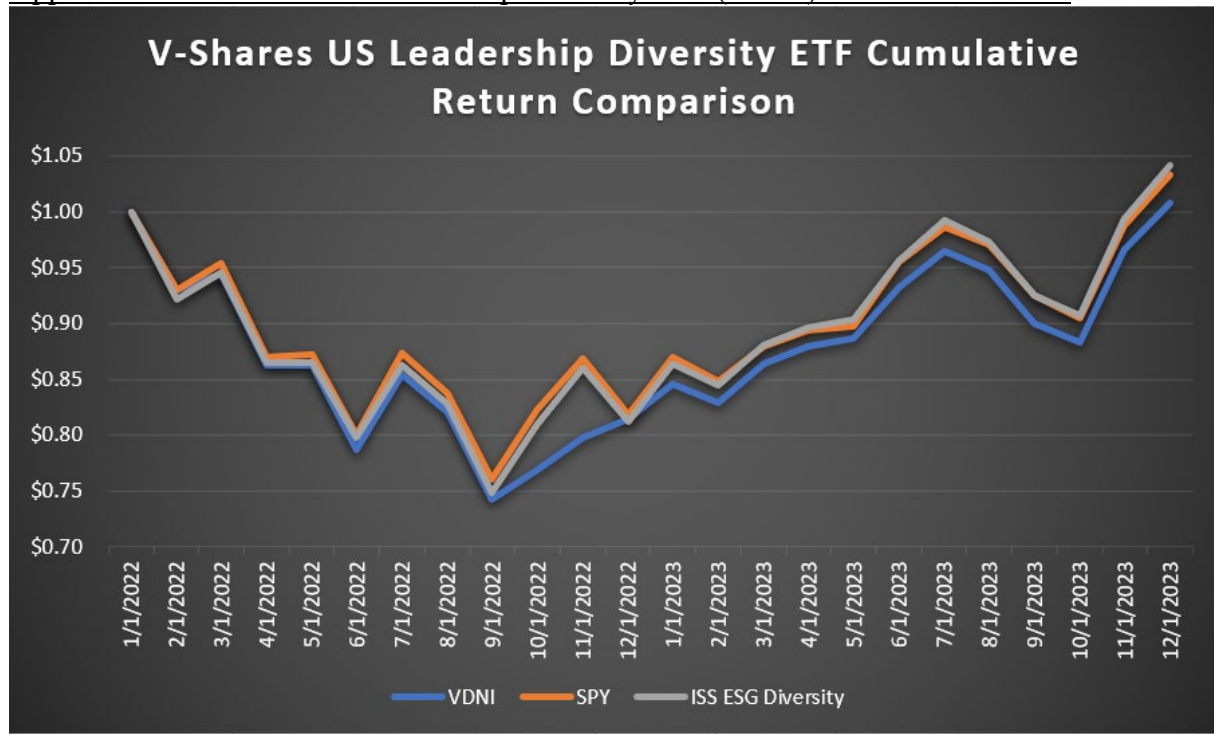
Appendix V – V-Shares US Leadership Diversity ETF (VDNI) Ratio Analysis

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to ISS	Treynor Ratio to SPY
V-Shares US Leadership Diversity ETF (VDNI)	-0.1601	-0.0336	-0.0340
ISS ESG Usm Diversity Index TR	-0.0620	-0.0122	
SPDR S&P 500 ETF Trust (SPY)	-0.0835		-0.0166

HPR	Max Drawdown	Tracking Error to ISS	Tracking Error to SPY	Info. Ratio to ISS	Info. Ratio to SPY
0.7645%	-21.7090%	6.6870%	6.8030%	-0.2507	-0.1817
4.1576%	-21.2183%				
3.2615%	-20.2223%				

Appendix W – Hypatia Women CEO ETF (WCEO)
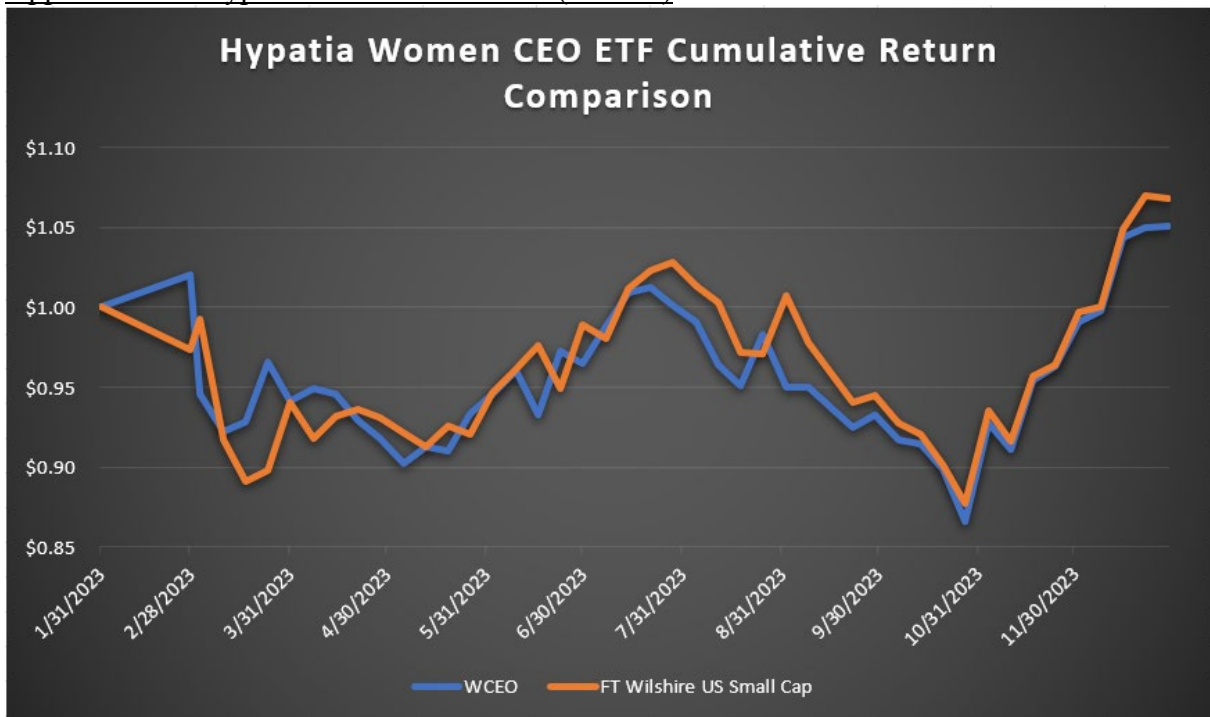
Appendix X – Hypatia Women CEO ETF (WCEO)

Fund/Benchmark	Sharpe Ratio	Treynor Ratio to FT Wilshire	HPR	Max Drawdown	Tracking Error to FT Wilshire	Info. Ratio to FT Wilshire
Hypatia Women CEO ETF (WCEO)	-0.412	-0.125	5.078%	-15.141%	10.99%	-0.041
FT Wilshire US Small Cap Index	-0.351	-0.034029415	6.812%	-14.722%		

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