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## Sustainable Investing Under Market Uncertainty: An Empirical Evaluation of Risk, Return, and Portfolio Performance

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### ABSTRACT

Investors are increasingly interested in investing in companies that integrate environmental, social and governance factors into their investment strategies as sustainable investing becomes more and more relevant. In volatile markets, assessing the upside and the downside of a potential investment is important for understanding the robustness of a sustainable investment approach. This study evaluates the historical risk, return, and portfolio performance of a sustainable investment portfolio under changing market conditions. A quantitative descriptive design was employed using daily market data from May 2019 to June 2024. The analysis incorporated descriptive statistics, adjusted closing price trends, daily return distribution, rolling 30-day annualized volatility, drawdown analysis, monthly return patterns, annual performance summaries, and established investment performance measures, including cumulative return, compound annual growth rate, annualized return, annualized volatility, maximum drawdown, Sharpe ratio, and Calmar ratio. The portfolio generated a cumulative return of 118.06%, a compound annual growth rate of 16.60%, and an annualized return of 18.97%. Annualized volatility was 20.67%, while the maximum drawdown reached -34.26%. The Sharpe ratio (0.8209) and Calmar ratio (0.4846) indicate favorable risk-adjusted performance. Although volatility increased substantially during the COVID-19 shock and again in 2022, the portfolio demonstrated resilience by recovering and reaching new price highs by 2024. The results suggest that in spite of periods of high market uncertainty, sustainable investing can lead to competitive long-term returns, and both return- and risk-based performance metrics are relevant when assessing sustainable portfolios.

**KEYWORDS:** Sustainable investing, ESG, portfolio performance, risk-return analysis, exchange-traded funds

## 1. Introduction

Sustainable investing is no longer just a cornerstone investment strategy, but a major financial strategy, with investors more focused on achieving positive financial results while extending their investments to the wider social and environmental criteria. Environmental, Social, and Governance (ESG) principles are increasingly making an impact on investment decision-making, with a focus on responsible capital allocation that takes both economic returns and long-term sustainability into account. By integrating environmental responsibility, social considerations, and good governance into their financial decision-making processes, ESG frameworks can help organizations create sustainable value and mitigate new risks while advancing financial sustainability (Dathe et al., 2024). The shift has been further accentuated with growing focus on sustainable business models, circular economy approaches, and energy transition strategies, which have further cemented the importance of integrating sustainability and environmental, social and governance factors into the global financial markets (Popescu et al., 2022). The growth of ESG investing has changed the nature of portfolio management, making investors consider a company beyond financial metrics. Sustainable investment strategies are seen more and more as a way to achieve competitive financial returns, while at the same time contributing to other societal and environmental goals. The emergence of ESG financial products has also created more opportunities for investors to connect their investment choices with sustainability preferences without compromising on portfolio performance (Hill, 2020). Meanwhile, developments in the measurement and reporting of ESG have also helped to increase transparency and comparability of sustainable investments and, as such, give market participants greater information to inform their investment decisions (Johnson, 2020).

One of the most common investment tools to implement sustainable investing strategies has become exchange-traded funds (ETFs) due to diversified exposure, relatively low transaction costs and high liquidity. While they have grown rapidly and had a substantial impact on financial markets, the growth of ETFs has also raised concerns about their financial cycle sensitivity and market conditions (Converse et al., 2023). In the last few years, the global economy has been marked by inflationary pressures, geopolitical tensions, monetary policy tightening, and financial uncertainty, making it more crucial than ever to gain insight into the performance of sustainable investment portfolios in the face of volatile markets (Topić-Pavković, 2024). Similarly, the economic impacts from the COVID-19 pandemic and geopolitical events have ensured that investment assessment must take into account not just return generation, but also the robustness to negative market events (Desalegn et al., 2022).

There is already a significant body of research on the financial consequences of investing in ESG. In recent years, there have been significant geographical shifts in how closely sustainable investments relate to market turbulence and how well they perform over time, with some studies indicating that they have been resilient through market uncertainty (Iannone et al., 2025). Green finance has also been recognized as a crucial factor for promoting sustainable investments, but investors are still weighing sustainability goals against financial risk and returns (Erdoğan et al., 2025). Similarly, a detailed analysis of the empirical findings suggests that the integration of ESG is, in general, either neutral or positively associated with investment returns, meaning that sustainable investing does not necessarily lead to lower investment returns (Whelan et al., 2021). This is also confirmed by evidence from a meta-analysis, which shows that sustainability-

oriented investments often meet or even exceed the performance of conventional investments in various market scenarios, but that the performance is dependent on the economic environment and investment time horizon (Atz et al., 2023).

Additionally, the literature has highlighted the significance of the construction of a sustainable investment portfolio as well as the role of risk management in sustainable investing. However, the sustainability factor has also been integrated into the modern portfolio optimization process, alongside the traditional diversification approach, as a way to help enhance investment efficiency in the long term under uncertain market conditions (Kim et al., 2024). The results also reflect the evidence that firms with more positive ESG scores tended to be more resilient than those with less positive ESG scores during severe market stress during COVID-19, further suggesting that sustainability contributes to reducing downside investment risk (Cardillo et al., 2023).

Although this is a worthy contribution, there are a number of deficiencies in the present literature. The majority of earlier research has compared sustainable investment with traditional market indices or looked at a number of ESG funds together. Few studies have tried to perform an extensive empirical analysis of the historical performance of a sustainable investment portfolio using several complementary performance measures in a single analysis. Even less research has studied the behavior of prices, the distribution of returns, the measures of rolling volatility, the measures of drawdown, and the monthly return distributions, while also measuring the annual investment performance, in order to offer a comprehensive picture of sustainable investing under shifting market conditions. Filling this gap will enable investors and portfolio managers to get a better picture of both return generation and risk from the market cycles.

In the context of this background, the present study examines investment performance and risk properties of a sustainable investment portfolio in a market environment of uncertainty. The study analyzes historical price performance and returns characteristics, evaluates the risk of a portfolio on the basis of rolling volatility and drawdown analysis, assesses the overall performance of the investment through cumulative return, compound annual growth rate, annualized return, annualized volatility, Sharpe ratio and Calmar ratio and investigates the annual and monthly return pattern to get a complete picture of sustainable investment performance in different market situations.

## **2. Methodology**

### **2.1 Research Design**

The research design used in this study was quantitative and descriptive, which was used to assess the investment performance and risk characteristics of the sustainable investment portfolio in different market conditions. Historical daily return data were analyzed for price movements, return characteristics, downside risk, and overall investment performance. It is important to note that the descriptive statistical techniques and financial performance measures were used to allow for an objective analysis of the return and risk of the portfolio, in an attempt to avoid establishing causal relationships. This type of design can be used to analyze long-term investment results and to look for trends in financial market activity.

### **2.2 Data Source**

The data for this study come from a publicly available dataset on finances published by Kulkarni

and Tawade (2024). The data set includes daily trading data of the market price and market volume for the study period, including opening, high, low and closing prices, adjusted price and volume of trading for that day. These variables are enough to assess investment returns, price volatility and downside risk of sustainable investing.

## 2.3 Data Preparation

The data set was checked for completeness and consistency before analysis. Date values were standardized as a standard datetime format, and variable names were standardized for analysis. The data was checked for missing data, duplicate dates and inconsistencies, with no corrections needed. Daily investment performance was calculated as daily returns (percentage change in the adjusted closing prices). Furthermore, price range and daily price change variables were developed to account for the amount of daily trading and the volatility of the price. The data was then pre-processed in order to be suitable for the following statistical and financial analysis.

## 2.4 Data Analysis

Descriptive statistics, dispersion, skewness and kurtosis were computed to describe the characteristics of the variables of this study. Long-term price behavior and market risk evolution were studied by looking at the historical evolution of adjusted closing prices and rolling 30-day annualized volatility. Investment return characteristics and downside exposure were analyzed using daily returns and downside exposure analysis, while a heatmap of monthly returns showed patterns in investment performance over time. Established financial performance measures were used to calculate cumulative return, compound annual growth rate (CAGR), annualized return, annualized volatility, maximum drawdown, Sharpe ratio and Calmar ratio to assess the overall performance of the investments. Annualized returns, annualized volatility, average daily returns and number of trading days were provided to compare performance over the different calendar years and to get a complete picture of the portfolio's historical risk-return profile.

## 3. Results

### 3.1 Descriptive Statistics

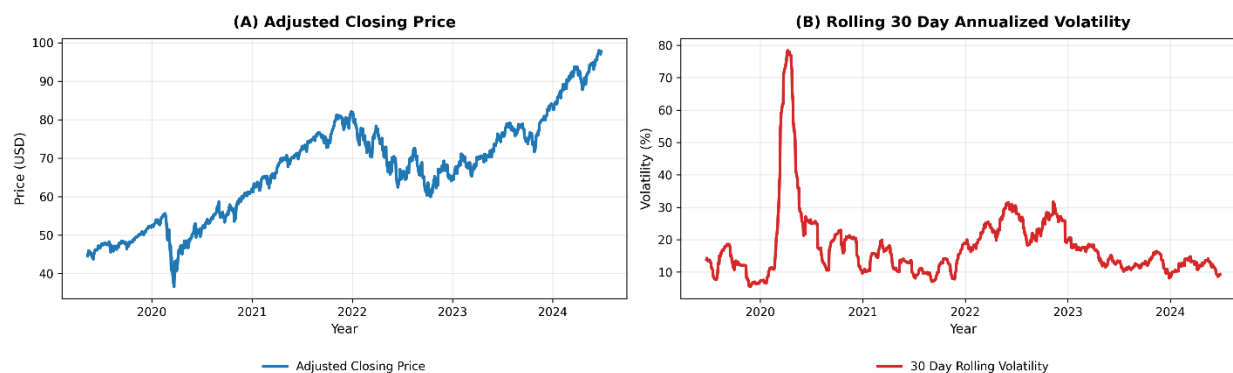
The descriptive statistics of the variables used for the study are presented in Table 1. The ETF's price remained relatively stable during the observation period, with a median of 68.1428 USD and a mean value of 66.8155 USD for the adjusted closing prices. The average daily return was 0.0007 (0.07%), indicating a positive average daily performance. Trading volume showed significant variability during the period, with an average of 101,961.09 shares and an SD of 845,770.60 shares, indicating some periods of increased trading. The distribution of trading volume in the series was highly positively skewed (29.7772) and had a high kurtosis (982.7932), meaning that there were rare but very large trading volumes. In contrast, daily returns showed a moderate degree of negative skewness (-0.3104) and leptokurtic behavior (9.8646), indicating that extreme return observations were more common than would be expected in a normal distribution. The descriptive statistics also show moderate fluctuations in daily prices, with an average price range of 0.7158 USD.

Table 1. Descriptive Statistics

| Variable               | Mean         | Median      | Standard Deviation | Minimum | Maximum         | Skewness | Kurtosis |
|------------------------|--------------|-------------|--------------------|---------|-----------------|----------|----------|
| Adjusted Closing Price | 66.8155      | 68.1428     | 13.2824            | 36.5489 | 97.9900         | 0.0437   | -0.6754  |
| Trading Volume         | 101,961.0853 | 21,350.0000 | 845,770.6037       | 0.0000  | 28,474,200.0000 | 29.7772  | 982.7932 |
| Daily Return           | 0.0007       | 0.0006      | 0.0130             | -0.0923 | 0.0968          | -0.3104  | 9.8646   |
| Price Range            | 0.7158       | 0.6000      | 0.5299             | 0.0000  | 3.8300          | 1.5534   | 3.7976   |
| Daily Price Change     | -0.0012      | 0.0100      | 0.6126             | -2.4680 | 3.1900          | -0.2260  | 2.2854   |

### 3.2 Price Performance and Risk Dynamics

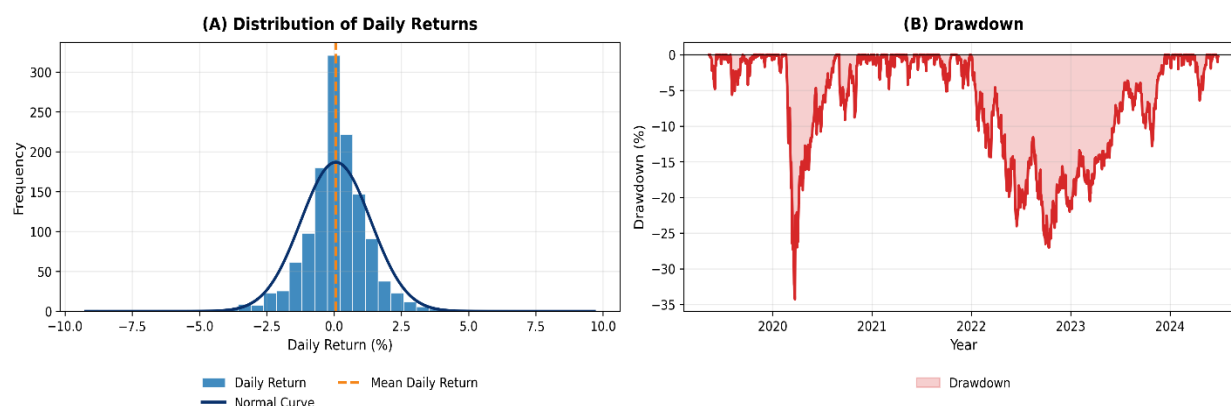
Figure 1(A) shows the adjusted closing price of the SUSL ETF from May 2019 to June 2024. Even though there were some periods of turbulence in the market, the ETF showed an overall upward trend. The market disruption due to the COVID pandemic brought a sharp drop in the first quarter of 2020. This downward trend was followed by a steady rally, with the ETF steadily climbing and hitting new price highs in 2023 and the first half of 2024. Figure 1(B) shows the annualised volatility of the ETF over the last 30 days. The volatility rose significantly in early 2020, as the financial market became more uncertain, but it began to fall as the market conditions settled down. Following this, a second wave of high volatility was seen in 2022, before settling down significantly during 2023 and 2024.



**Figure 1. Price Performance and Risk Dynamics of the SUSL ETF (A) Adjusted Closing Price (B) Rolling 30-Day Annualized Volatility**

### 3.3 Return Distribution and Downside Risk

The distribution of daily returns is displayed in Figure 2(A). The majority of observations focus on zero, suggesting the relative smallness of daily price changes during the study period. However, the distribution is evidence of some heavy tails and a consideration of the fact that sometimes very unusual price movements occur on the market. The drawdown profile of the ETF for the study period is shown in Figure 2(B). The biggest peak-to-trough loss was at the beginning of the COVID-19 pandemic, around 34. During the remainder of 2022, the ETF continued to decline but not as significantly, and showed a gradual recovery to reach new highs at the end of the observation period.



**Figure 2. Return Distribution and Downside Risk of the SUSL ETF(A) Distribution of Daily Returns (B) Drawdown**

### 3.4 Investment Performance

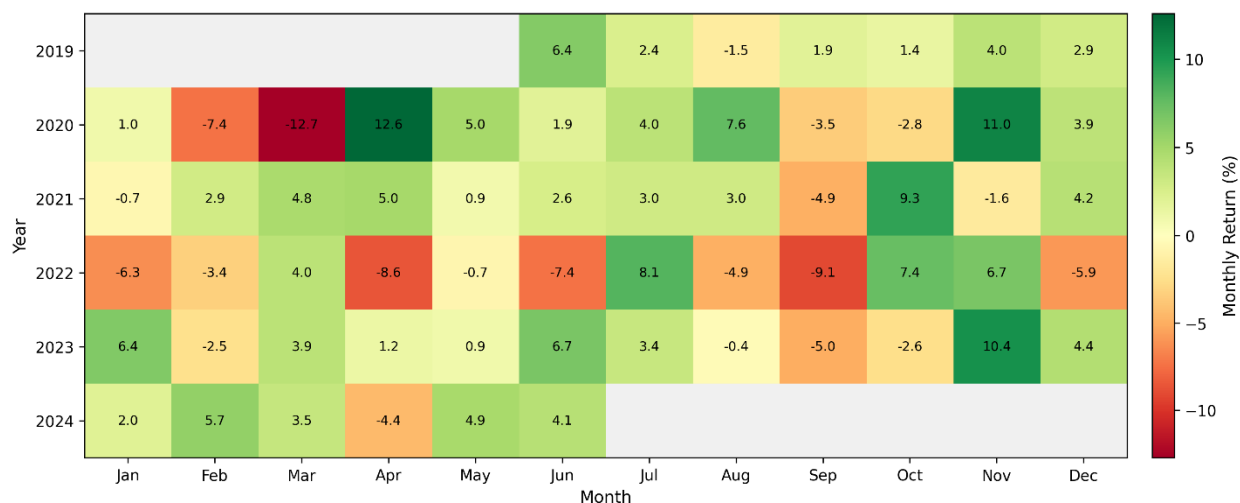
The overall performance of the SUSL ETF is summarized in Table 2. The ETF earned an average daily gain of 0.0007 with a total return of 118.06% on the study period. The compound annual growth rate (CAGR) was 16.60%, and the annualized return was 18.97%, indicating the company's sustained long-term growth. The estimated annualised volatility was 20.67%, indicating a moderate risk level for investments. The maximum drawdown of the ETF was -34.26%, but the Sharpe ratio (0.8209) shows a good risk-adjusted performance. Likewise, the Calmar ratio (0.4846) indicates that investors were adequately rewarded for the size of downside risk that was faced during the investment horizon.

**Table 2. Investment Performance Measures**

| Performance Measure         | Value   |
|-----------------------------|---------|
| Average Daily Return        | 0.0007  |
| Cumulative Return           | 1.1806  |
| Compound Annual Growth Rate | 0.1660  |
| Annualized Return           | 0.1897  |
| Annualized Volatility       | 0.2067  |
| Maximum Drawdown            | -0.3426 |
| Sharpe Ratio                | 0.8209  |
| Calmar Ratio                | 0.4846  |

### 3.5 Annual Performance

The monthly return heat map of the SUSL ETF for the period of study is given in Figure 3. Considerable variation in monthly performance is evident. This marks the biggest monthly drop in March 2020, while in April 2020, the market had one of its biggest monthly recoveries, which shows how fast the market bounced back from the selloff triggered by the pandemic. The heatmap also shows that there were more negative return months in 2022 than in other years, and more positive monthly returns in 2023.

**Figure 3. Monthly Return Heatmap of the SUSL ETF (%)**

The performance summary is presented in the annual report, Table 3. The ETF posted positive annual returns in all years except 2022, which finished at 20.22% down with the annualized volatility at a high level (24.45%). The highest annual return was in 2021 (+31.53%), while the annual volatility was relatively low (13.41%). The partial results for 2024 show continued positive performance, with an annual return of 16.45% with relatively low annualized volatility (12.03%) as observed till June 2024.

**Table 3. Annual Performance Summary**

| Year           | Annual Return (%) | Annualized Volatility (%) | Average Daily Return (%) | Trading Days |
|----------------|-------------------|---------------------------|--------------------------|--------------|
| 2019           | 16.2900           | 12.0600                   | 0.1000                   | 162          |
| 2020           | 18.8900           | 32.4900                   | 0.0900                   | 253          |
| 2021           | 31.5300           | 13.4100                   | 0.1100                   | 252          |
| 2022           | -20.2200          | 24.4500                   | -0.0800                  | 251          |
| 2023           | 29.0800           | 13.8200                   | 0.1100                   | 250          |
| 2024 (Partial) | 16.4500           | 12.0300                   | 0.1300                   | 122          |

#### 4. Discussion

The results suggest that sustainable investing has been able to retain a stable long-term performance record despite the high level of market uncertainty. The adjusted closing price has seen an overall rising trend over the research period, but with considerable drops in price in early 2020, and some further volatility in 2022. The pattern indicates that the portfolio has been subjected to a market wide stress and yet has the ability to recover and create new price peaks in the future. The positive cumulative return, compound annual growth rate and return for the year suggest that exposure to sustainable investment resulted in significant capital gains during the observation period. The return distribution gives additional insights into the portfolio's behavior. The daily returns were close to zero, indicating that the daily price changes were small. However, heavy-tailedness suggests that there were significant market moves during stress periods. The results of the drawdown, as mentioned, were in line with this – the biggest movement was during the market shock in the COVID-19 period. The maximum loss was very large, but the recovery shows that the portfolio risked low returns for a brief period of time instead of a long one. The table of rolling volatility shows that the risk varied during the period. Throughout early 2020, and again in 2022, volatility spiked, indicating that sustainable investment portfolios are sensitive to greater volatility in financial markets. The reduced volatility in 2023 and 2024 reflects enhanced stability in the markets and a more conducive risk profile. This is confirmed by the annual results: 2022 was the only year in which the results were negative; 2021 and 2023 showed good recovery years. The findings highlight the potential volatility in the short-term of sustainable investing, but highlight the potential stability of doing so when measured over a full market cycle.



The outcomes are consistent with previous research that highlights the need to consider financial performance as well as the environmental risk exposure when managing a sustainable portfolio. Fang et al. (2019) maintained that sustainable portfolios should be assessed in the presence of uncertainty stemming from changes in climate, and the results of this study corroborate that, since return performance is not separable from downside risk, it is not possible to separate volatility behavior. This volatility variation across the year, followed by the volatility variation across a rolling period, also aligns with Șerban's (2025) view that sustainable portfolios need to be assessed dynamically instead of statically based on performance. The positive performance in the long-term is in line with recent research on sustainable exchange-traded funds (ETFs). The strategic importance of sustainable ETFs is increasing, as noted by Marín-Rodríguez et al. (2025), and the present results show that these types of ETFs can offer investors relevant investment exposure but are yet to be applicable in practice. The findings are also consistent with those of Ferrat et al. (2022) that responsible investment can impact the behavior of equity returns in the short and long term.

The observed performance can also be attributed to the relationship between risk, governance and investor preferences. Tseng et al. (2019) highlighted the linkages between corporate governance, economic performance, market risk and preferences of investors in sustainable investment. The positive risk-adjusted results found in this study show that there are arguments in favor of sustainability-oriented investment products as an attractive instrument for investors who want to achieve both sustainable results and provide a responsible market presence. Likewise, Gurrib et al. (2023) discovered the possibility of sustainable environmental market investments providing viable equity performance, which is in line with the positive returns and recovery noted here. The findings are also relevant to the more general sustainable finance research on climate-sensitive portfolios and green investments. Hussain et al. (2025) pointed out the need to take into consideration the risk-return profiles in sustainable investing while providing a mix of return, volatility, drawdown, Sharpe ratio and Calmar ratio evidence in the present study. The relevance of risk measures and ESG indicators in the selection of green portfolios was also demonstrated by Pekár et al. (2025); downside risk and volatility indicators were employed in this analysis. The results are also congruent with Jain et al. (2019), who found that sustainable investments can yield comparable returns against the conventional investment options.

The results are relevant to investors, investment portfolio managers and financial advisors. The findings indicate that investors can gain exposure to sustainable investment instruments with long-term growth potential without having to worry too much about volatility and drawdowns in the short term. With the very high cumulative performance and positive Sharpe ratio, sustainable investing could be a relevant choice for investors wanting to have a responsible presence with a competitive financial return. The results illustrate the value of a portfolio manager looking at several measures of sustainable assets and not focusing solely on return. The rolling volatility, drawdown behavior, monthly performance and annual performance give a more comprehensive picture of the performance of portfolios during varying market conditions. Financial advisors can also leverage these insights to inform their clients about the sustainability of sustainable investing, even though it is not risk-free, but can withstand a longer investment time horizon. The study also offers insights into sustainable finance practice, as it illustrates that the evaluation of ESG-oriented investment products needs to be done on both a performance and risk basis. It is

especially crucial when the market is uncertain, and investors need to see the return potential, as well as proof of resilience and downside risk.

Some of the constraints need to be recognized. The results are based on one investment portfolio, and cannot be compared to all ESG or sustainable investment products. This study is also based on historical market data that may be different from the future performance based on varying economic environments. Furthermore, the analysis does not involve testing causal relationships between sustainability characteristics and financial outcomes, and is descriptive in nature. Further studies may provide a comparison of the various sustainable and conventional portfolios in several markets to determine if similar patterns of risk/return exist in a broader market. Other data could also be included in further studies, such as macroeconomic data, ESG scores, sector exposure, and benchmark comparison to gain more insights into the impact of sustainable investment performance.

## 5. Conclusion

Sustainable investing was also found to have a positive risk/return balance over time, across different market conditions. The findings demonstrate that the investment portfolio experienced significant absolute growth over time, high positive annual growth rates and good risk-reward performance, even in the face of extreme market stress. The drawdown and rolling volatility patterns of the past were a clear sign of short-term instability during the COVID-19 shock and 2022 downturn, and did not hinder recovery and subsequent price increases. The results indicate that there is the potential for a decent return on sustainable investment products, but at the same time, they may be affected by the general market uncertainty. This reinforces the need to consider numerous performance and risk measures in assessing sustainable portfolios rather than just return-based measures. The findings of the analysis are consistent with the practical importance of sustainable investing as a long-term investment strategy for investors and portfolio managers, as long as downside risk and volatility are managed. The analysis is limited to a single sustainable investment portfolio and historical market data. Future research should involve a comparison of several sustainable investment portfolios with conventional portfolios in different markets, as well as macro-economic variables, benchmark indices, and ESG-specific variables to gain a detailed understanding of sustainable investment performance.

## References

1. Atz, U., Van Holt, T., Liu, Z. Z., & Bruno, C. C. (2023). Does sustainability generate better financial performance? review, meta-analysis, and propositions. *Journal of Sustainable Finance & Investment*, 13(1), 802-825.
2. Cardillo, G., Bendinelli, E., & Torluccio, G. (2023). COVID-19, ESG investing, and the resilience of more sustainable stocks: Evidence from European firms. *Business Strategy and the Environment*, 32(1), 602-623.
3. Converse, N., Levy-Yeyati, E., & Williams, T. (2023). How ETFs amplify the global financial cycle in emerging markets. *The Review of Financial Studies*, 36(9), 3423-3462.
4. Dathe, T., Helmold, M., Dathe, R., & Dathe, I. (2024). Implementing environmental, social and governance (ESG) principles for sustainable businesses: A practical guide in sustainability management. Springer Nature.

5. Desalegn, G., Tangl, A., & Fekete-Farkas, M. (2022). From short-term risk to long-term strategic challenges: Reviewing the consequences of geopolitics and COVID-19 on economic performance. *Sustainability*, 14(21), 14455.
6. Erdoğan, A., Dayi, F., Özbek, A., Ganji, F., & Benek, A. (2025). The role of green finance in investing in environmentally friendly technologies: Risks and returns. *Sustainability*, 17(21), 9652.
7. Fang, M., Tan, K. S., & Wirjanto, T. S. (2019). Sustainable portfolio management under climate change. *Journal of Sustainable Finance & Investment*, 9(1), 45-67.
8. Ferrat, Y., Daty, F., & Burlacu, R. (2022). Short-and long-term effects of responsible investment growth on equity returns. *The Journal of Risk Finance*, 23(1), 1-13.
9. Gurrib, I., Kamalov, F., Starkova, O., Makki, A., Mirchandani, A., & Gupta, N. (2023). Performance of equity investments in sustainable environmental markets. *Sustainability*, 15(9), 7453.
10. Hill, J. (2020). *Environmental, Social, and Governance (ESG) investing: A balanced analysis of the theory and practice of a sustainable portfolio*. Academic Press.
11. Hussain, M., Jaweed, M., Murtaza, M., & Ali, M. (2025). Green bonds and sustainable investment strategies: Evaluating risk-return profiles, market growth, and the role of climate-conscious portfolios in sustainable finance. *Advance Journal of Econometrics and Finance*, 3(2), 39-53.
12. Iannone, B., Dutillo, P., & Gattone, S. A. (2025). Evaluating the resilience of ESG investments in European markets during turmoil periods. *Corporate Social Responsibility and Environmental Management*, 32(4), 5006-5020.
13. Jain, M., Sharma, G. D., & Srivastava, M. (2019). Can sustainable investment yield better financial returns: A comparative study of ESG indices and MSCI indices. *Risks*, 7(1), 15.
14. Johnson, C. (2020). The measurement of environmental, social and governance (ESG) and sustainable investment: Developing a sustainable new world for financial services. *Journal of securities operations & custody*, 12(4), 336-356.
15. Kim, M., Jeong, Y. J., & Jeong, J. (2024). Two empirical studies of portfolio optimization using cryptocurrency allocation ratios. *IEEE Access*, 12, 63827-63838.
16. Kulkarni, N., & Tawade, J. (2024). Dataset: iShares ESG MSCI USA Leaders ETF (SUSL) Stock Performance [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.12564631>
17. Marín-Rodríguez, N. J., González-Ruiz, J. D., & Botero, S. (2025). Towards new strategies for investing: insights on sustainable exchange-traded funds (ETFs). *World*, 6(1), 8.
18. Pekár, J., Brezina, I., & Reiff, M. (2025). Green investments: Portfolio selection based on risk measure and ESG indicators. Impact of environmental indicators on portfolio selection. *Green Finance*, 7(2), 223.
19. Popescu, C., Hysa, E., Kruja, A., & Mansi, E. (2022). Social innovation, circularity and energy transition for environmental, social and governance (ESG) practices—a comprehensive review. *Energies*, 15(23), 9028.
20. Şerban, F. (2025). Sustainable Portfolio Rebalancing Under Uncertainty: A Multi-Objective Framework with Interval Analysis and Behavioral Strategies. *Sustainability*, 17(13), 5886.

21. Topić-Pavković, B. (2024). Challenges to global monetary and financial stability. *Collection of papers new economy*, 2(1), 31-45.
22. Tseng, M. L., Tan, P. A., Jeng, S. Y., Lin, C. W. R., Negash, Y. T., & Darsono, S. N. A. C. (2019). Sustainable investment: Interrelated among corporate governance, economic performance and market risks using investor preference approach. *Sustainability*, 11(7), 2108.
23. Whelan, T., Atz, U., Van Holt, T., & Clark, C. (2021). ESG and financial performance. *Uncovering the Relationship by Aggregating Evidence from*, 1(1), 2015-2020.