MASTER OF SCIENCE IN
FINANCE

MASTERS FINAL WORK
PROJECT

SUSTAINABLE EQUITY: DESIGNING AN INSTITUTIONAL INVESTMENT POLICY STATEMENT

SARA DE ALMEIDA COELHO

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Abstract

In the dynamic landscape of modern finance and the global economy, the role of sustainability has emerged as a pivotal force driving investment decisions, as investors recognize the importance of aligning their financial goals with environmental, social, and governance (ESG) concerns.

This will be the focus of the Investment Policy Statement (IPS) further developed. It will serve as the investment strategy for the Allianz Best Styles Europe Equity fund, an equity fund which aims to generate long-term capital growth while simultaneously concentrating on sustainability. The main purpose of the IPS is to convert this fund, which was previously an Article 6, into an Article 8 under the Sustainable Finance Disclosure Regulation.

The Investment Policy Statement meticulously adheres to the CFA Institute's Guidelines. To provide context for the investing and financial markets environments, macroeconomic and ESG factors were described. Next, the equities were assessed using a value investing and ESG philosophy, with the portfolio optimized using Mean-Variance Theory. This resulted in an optimal portfolio, but sub-efficient because it is to the right of the efficient frontier, characterized by an expected return of 16.83% and a standard deviation equal to 6.86%. The performance of the portfolio is then measured against its benchmark, the MSCI Europe Total Return Net index, which the portfolio outperforms in the 5-year time horizon but underperforms just after 1 year.

Finally, for a quantitative examination of risk, both the Parametric and the Monte Carlo Value-at-Risk were calculated. This was followed by a risk matrix in which various risks that could affect the portfolio over the next 5 years were presented according to their probability of occurrence and potential impact on the portfolio.

JEL classification: C6; E44; G11; Q56.

Keywords: Institutional Investor; IPS; Sustainable Equity; ESG; Asset Management; CFA; Portfolio Theory; Risk Analysis.

Resumo

No cenário dinâmico das finanças modernas e na economia global, o papel da sustentabilidade emergiu como uma força fundamental que impulsiona as decisões dos investors, à medida que estes reconhecem a importância de alinhar os seus objetivos financeiros com as preocupações ambientais, sociais e de governança (ESG).

Este será o foco do presente Documento de Política de Investimento (IPS) a ser desenvolvido. Servirá como a estratégia de investimento para o fundo Best Styles Europe Equity da Allianz Global Investors, um fundo de ações que visa gerar crescimento de capital a longo prazo enquanto se concentra simultaneamente no tema da sustentabilidade. O principal objetivo do IPS é converter este fundo, que anteriormente era um Artigo 6, num Artigo 8 sob o Regulamento de Divulgação de Finanças Sustentáveis (SFDR).

O IPS adere meticulosamente às Direterizes do Instituto CFA. Para fornecer context acerca dos ambiente financeiro e dos mercados financeiros, foi caraterizada a conjuntura macroeconómica e de ESG. De seguida, as ações foram selecionadas com base numa filosofia de investimento em valor e ESG, sendo que o portfólio foi otimizado com recurso à Teoria Moderna de Portfólio. Essa análise resultou num portfolio ótimo, embora sub-eficiente uma vez que se encontra à direita da fronteira eficiente, caraterizado por um retorno esperado de 16.83% e um desvio padrão igual a 6.86%. O desempenho da carteira é então medido em relação ao seu benchmark, o índice MSCI Europe Total Return Net, que a carteira supera no horizonte de 5 anos mas tem um desempenho inferior logo após o primeiro ano.

Finalmente, para fazer uma análise quantitativa de risco, tanto o Valor em Risco Paramétrico e o de Monte Carlo foram calculados. Seguiu-se uma matriz de risco na qual vários riscos que poderiam afetar o portfolio nos próximos 5 anos foram representados de acordo com a sua probabilidade de ocurrência e o seu impacto pontencial no portfolio.

JEL classification: C6; E44; G11; Q56.

Keywords: Investidor Institucional; IPS; Ações Sustentáveis; ESG; Gestão de Ativos; CFA; Teoria de Carteira de Investimentos; Análise de Risco.

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1. Introduction

The Investment Policy Statement (IPS) is a guiding document delineating the concepts, objectives, and strategies that underpin an investment portfolio. The client is Allianz Global Investors, an institutional investor, and the goal of this IPS is to manage the Allianz Best Styles Europe Equity fund.

This document adheres to the CFA Institute guidelines. The major goals are to describe the techniques that will be used, to clarify the client's objectives, and to act as a bridge between the client and the Investment Manager. It satisfies all the requirements specified, with an explanation of every methodology behind the approaches and models employed, always supported by the latest evidence.

The primary focus is to modify the equity fund in order to proceed from Article 6 to Article 8 following the implementation of this IPS, by beginning to adopt some sustainability-related standards. This requires a comprehensive screening and study of each company stock to arrive at a final portfolio that meets all the constraints. All the risks that arise from investing in financial markets should also be considered.

2. Executive Summary

2.1. Scope and Purpose

Allianz Global Investor GmbH, an institutional investor based in Frankfurt au Main, Germany, is a subsidiary of Allianz SE, a global financial services provider, regulated by the *Commission de Surveillance du Secteur Financier* (CSSF) in Luxembourg. It employs an active management strategy across various asset classes, with a focus on sustainability to meet the growing demand for responsible investment solutions. The Investment Policy Statement pertains to the investment management strategy of Allianz Best Styles Europe Equity, a sub-fund of Allianz GI.

2.2. Governance

Effective governance is crucial for transparency and trust within a company. Allianz GI has a coherent investment structure and process, involving multiple teams. The Management Company executes the investment policy through centralized trading desks, while Risk and Compliance Committees assess execution venues and risk profiles. The Investment Management Committee proactively manages significant risks to the portfolio, including environmental and social impacts. The Best Execution Committee governs the best execution arrangements. The Audit Committee reviews the company's risk management effectiveness annually.

Moreover, the Investment Management Committee updates and maintains the IPS quarterly, assessing changes in the regulatory or market environment. The fund manager releases commentary on market outlook and performance.

2.3. Investment, Return and Risk

The Allianz Best Styles Europe Equity fund aims to achieve long-term capital growth by investing in European equity markets while adhering to sustainability requirements.

The fund is managed using the MSCI Europe Total Return Net benchmark, aiming to outperform it. The risk of the portfolio will be the minimum possible while trying to maximize the return. The investor’s risk tolerance is also assessed based on its willingness to take risk and ability to take risk, being deemed to be above average. The fund requires a minimum of 70% of assets to be invested in European companies, with a maximum of 30% in emerging markets. Liquidity management limits are set at 25% for time deposits, with up to 20% in Money Market Instruments and 10% in Money Market Funds. Derivatives can be used to hedge, arbitrage, or leverage the portfolio, but no leverage or short selling is employed.

Furthermore, to comply with the Sustainable Financial Disclosure Regulation (SFDR), the fund uses Bloomberg's ESG (environmental, social, and governance) score and MSCI ESG score, proxy measures for environmental and social categories, and Morningstar's Sustainalytics ESG Risk Rating. Companies with fossil fuel revenue or non-good governance practices, which were also assessed using Bloomberg and divided into four main areas, are excluded from the investment universe.

2.4. Risk Management

The Allianz Best Styles Europe Equity fund sets performance targets based on a benchmark, with the goal of outperforming it. An annual independent audit of the fund's financial statements and portfolio information is performed to confirm its accuracy.

Furthermore, risk data is supplied periodically, including volatility and stress testing, in addition to quarterly macroeconomic commentaries, which provide insights into opportunities and risks.

The fund manager is responsible for portfolio allocation, rebalancing, and activity documentation and ensures that the portfolio is consistent and aligned with the investing objectives. This is also the case for the sustainability aspect, as the fund management team also examines companies' sustainability policies and compliance with the evolving global and European sustainable finance regulations. The team must do continuous monitoring to ensure the companies still comply with the criteria set to select the companies, which will be specified further, as well as some changes the regulation may suffer. Companies that do not meet these conditions will be removed from the portfolio.

3. Investment Policy Statement

3.1. Scope and Purpose

3.1.1. Context and Investor

This Investment Policy Statement serves the purpose of establishing the guidelines for Allianz Best Styles Europe Equity, a sub-fund of Allianz Global Investors. It clarifies the management processes, the client's profile as well as the investment model while also considering the risks involved. This is intended to make clients more confident about their investments and promote transparency.

Allianz Global Investor GmbH, or Allianz GI, is an institutional investor, and its headquarters are in Frankfurt au Main, Germany. It is one of the two subsidiaries of Allianz SE, an international financial services provider that offers worldwide products in insurance and asset management. Allianz SE, headquartered in Munich, Germany, is one of the world's largest asset managers. Allianz GI, regulated by the CSSF, the public institution that supervises the Luxembourg financial sector, offers an active management strategy across four main classes: equities, fixed income, multi-asset, and private markets, and in both developed and emerging markets. It also has a diversified range of portfolios about different themes and sectors. In our investment strategy, we often focus on the long-term, as most clients are saving for retirement or looking to preserve wealth for future generations. That implies offering a range of expertise across and within asset classes, as well as focusing heavily on sustainability due to the growing call for sustainable solutions.

3.1.2. Structure

Allianz SE is the holding company of Allianz Group. Concerning the portfolio management process, it involves several teams and committees. For this portfolio, the Fund Manager along with the Investment Manager Committee have the responsibility of creating and updating the IPS whenever the market suffers some changes. Then, the Management Company, which also consults with investment advisors and investment managers, is the main responsible for executing the portfolio statement. The Compliance and Risk Committees are responsible for identifying, assessing, and mitigating risk associated with investments. The Best Execution Committee (BEC) aims at having the best execution arrangements and commitments to clients, comprising representatives of the Compliance Committee, Risk Committee, management teams, and authorized trading staff.

3.2. Governance

Effective governance is essential for having transparency within a company and to build trust among stakeholders. For an investment management company like Allianz GI, that is displayed, not exclusively, through a coherent investment structure and process, which translates into the involvement and collaboration of several teams.

At the first tier of the investment structure, the Management Company, which consults with investment managers, investment advisors, and trading staff, is responsible for the execution of the investment policy. This is done primarily via the centralized trading desks, and in limited cases, the portfolio manager conducts the execution, then subject to a risk assessment and control framework by the Investment Management Committee. On the second tier of organizational structure, the Risk and Compliance Committees play a crucial role. Their primary responsibility involves conducting an impartial assessment of execution venues and execution quality, while also evaluating the consideration given to the risk profile. Concurrently, the Investment Management Committee, operating at this level, takes on the responsibility of ensuring the implementation of an effective process to identify significant risks to the portfolio. It is tasked with proactively managing these risks, including those stemming from the environmental and social impacts of business operations, as well as assessing governance structures and practices. At a third tier within the governance structure, Allianz GI has instituted a Best Execution Committee. Comprising representatives from the Compliance and Risk Committees, the Investment Management team, and authorized trading staff, the BEC is designed to govern the best execution arrangements.

Taking a broader perspective, the Audit Committee collaborates in providing an annual review of the company's risk management effectiveness, internal control systems, and risk management plan. This comprehensive approach ensures a thorough evaluation and proactive management of risks at multiple levels within the organization.

Moreover, the responsibility for updating and maintaining the IPS lies with the Investment Management Committee, in alignment with the directives of the Board of Directors. This process occurs quarterly, where the Investment Management Committee meets and assesses the situation given any changes in the regulatory or market environment. Should a significant event transpire, the BEC will promptly review the Execution Policy and internal desk procedures to ensure their continued effectiveness in safeguarding Allianz Global Investors' ability to provide the best execution. Then, the fund manager releases a commentary available to the clients, where the current market outlook is explained as well as a performance review, with the opportunities and risks the portfolio faces.

3.3. Investment, Return and Risk Objectives

3.3.1. Overall Investment Objective

The Allianz Best Styles Europe Equity fund has as its objective long-term capital growth by investing in European Equity Markets while following some sustainability requirements. The fund was previously Article 6 under the Sustainable Financial Disclosure Regulation and will improve to Article 8 after the implementation of the investment strategy described in this IPS. The reasoning behind this upgrade is to meet the growing environmental and social concerns of investors and to align the portfolio with the sustainability objectives of Allianz GI.

3.3.2. Return and Risk Requirements

The fund is managed in reference to a benchmark, the MSCI Europe Total Return Net, which plays a role in the fund’s performance objectives and measures. The goal is therefore to outperform the benchmark by minimizing risk while maximizing return, while also considering inflation and associated fees the client must take on, such as the subscription fee of 5%, and the yearly management and transaction fees of 1.37% and 0.26%, respectively.

3.3.3. Risk Tolerance

It is possible to derive risk tolerance by assessing both the willingness to take risk and the ability to take risk.

The willingness to take risk is derived from the facts that the fund is aimed at investors who possess basic knowledge and/or experience of financial products, who pursue the objective of capital formation or asset optimization and/or above-average participation in price changes, and do not attach any importance to capital protection.

Additionally, it is emphasized that the fund may not be suitable for investors intending to withdraw their capital within a five-year period, and such investors should be financially capable of bearing potential losses. The fund also does not have a defined time horizon.

These considerations indicate above-average willingness to take risk as well as above-average ability to take risk, which combined indicate an above-average risk tolerance.

3.3.4. Relevant Constraints

The fund imposes several restrictions regarding asset allocation, markets, derivatives, and sustainability.

It requires a minimum of 70% of the fund's assets invested in Equities from European companies, meaning that, inevitably, a maximum of 30% will be invested in companies that do not follow the previous criteria.

Furthermore, a maximum of 30% can be invested in emerging markets. Regarding liquidity management, a limit of 25% is set for time deposits, where up to 20% may be invested in Money Market Instruments and up to 10% in Money Market Funds. All Money Market Instruments and Bonds must have at the time of acquisition a rating of at least B-. It is also possible to use derivatives to hedge (offset exposure to price fluctuations), arbitrage (take advantage of price differences between two or more markets), or leverage (multiply gains or losses) the portfolio. However, with the intention to limit the risk of the portfolio, no leverage employing derivatives and no short selling will be done.

Concerning sustainability, to go from Article 6 to Article 8 of the SFDR Regulation, according to the Regulation (EU) 2019/2088, the fund needs to promote environmental and social characteristics while complying with the good governance principles. To make sure the equities comply with these requirements several screenings were utilized. To assess the overall ESG performance of the company both Bloomberg's ESG score and MSCI ESG score will be looked at and compared (to guarantee consistency). Then, similarly to Pedersen et al. (2021), proxy measures will be used for the environmental and social categories, which will be, respectively, the carbon intensity of the company and its non-involvement with the tobacco, gambling, and banned controversial weapons' industries, which are considered sin stocks. Additionally, the ESG

Risk Rating from Morningstar's Sustainalytics will give a better overview of the level of exposure to ESG risks and how well it is managing them. Lastly, companies that generate any revenue from fossil fuels or don't follow good governance practices will be excluded from the investment universe. The definition of compliance with the Good Governance Principles will be specified in section 4.3.1.

3.4 Risk Management

3.4.1. Performance measurement and reporting accountabilities

The Allianz Best Styles Europe Equity fund uses a benchmark as reference for its performance objectives and measures. This implies that the fund has a target to outperform the benchmark, even though the Fund's Manager follows an active management approach, meaning that the composition of the benchmark is neither replicated nor reproduced.

Moreover, the fund undergoes an independent audit on an annual basis. An independent auditor thoroughly examines the financial statements and portfolio information of the Allianz Group, ensuring the accuracy and completeness of the provided information. The company releases an audited annual report within four months after the conclusion of the financial year and an unaudited semi-annual report within two months after the end of the relevant period.

3.4.2. Metrics for risk measurement and evaluation

The fund manager provides risk data on a quarterly basis in addition to performance reports, considering this information a crucial indicator of successful portfolio management. This report encompasses essential metrics, including volatility, which assesses the extent of performance fluctuations in the fund over a specified period.

Moreover, stress tests are performed as well, where three scenarios are depicted: unfavorable, moderate, and favorable. These scenarios are based on the worst, average, and best performance of the fund and/or the benchmark over the last 10 years.

3.4.3. Portfolio Rebalancing

Allianz Group's rebalancing process is crafted to maintain alignment with the fund's investment objectives and risk profile. Typically occurring on a quarterly basis, this process aims to ensure the portfolio's consistency. Then, in the case of a rebalancing event, the investment team of the fund meticulously records each one of those activities, documenting the date, traded assets' amounts, and reasons for its occurrence.

Every three months, commentaries on macroeconomic factors are issued, providing insights into identified opportunities and risks. The fund manager and its team consider variables like interest rates, political stability, and inflation, which can impact investments. This entails continuous monitoring of portfolio allocation, assessment of rebalancing needs, as well as detailed documentation of rebalancing activities. To keep investors informed, the team also releases indicators such as the Sharpe ratio, to ensure stakeholders stay updated on the fund's performance dynamics.

In addition, the fund management checks the companies' eligibility concerning the sustainability requirements. Every company’s sustainability policy and practice are continuously monitored by the fund management team, as is the development of worldwide and European sustainable finance rules, particularly SFDR. This assessment can be done by evaluating information or reports released by the company or by using external resources and databases, like the ones used for security selection, specified in Section 4.3. If a company ceases to meet the requirements for any of the two previously stated reasons, it will be removed from the portfolio.

4. Investment Design

4.1. Investment Philosophy

The investment philosophy adopted in this IPS will be a combination of value investing and ESG investing. This strategy is focused on finding companies that the market has undervalued but that still possess a long-term potential for value appreciation while also aiming to have a positive impact on the environment and the communities, following good corporate governance and management practices. A value-oriented approach entails a thorough analysis of financial metrics and qualitative factors, on the belief the market tends to correct undervaluation over time. These metrics should demonstrate robust fundamentals, effective management, and a margin of safety in their stock prices.

4.1.1 Macroeconomic Outlook

Since 2022, inflation has reached record levels in many countries, especially in Europe and the United States, leading to many central banks to raise their interest rates. This increase has been caused, firstly, by the COVID-19 pandemic, which started in 2020, and then by Russia's ongoing war in Ukraine in 2022. The latest caused an energy crisis, due to the strong increase of the prices of natural gas, oil, and electricity, which have now retreated from their peaks. The levels of inflation and the interest rates in the Euro Area, the US, the UK, and Switzerland have also retreated from their peaks.

This is an important assessment to perform in the IPS. Generally, increasing interest rates cause downward pressure on stock prices, except for the financial sector, which negatively impacts the portfolio. Even though the fund will not invest in any US stocks, the fund manager still believes it is important to analyze it due to its impact on the global and European economies.

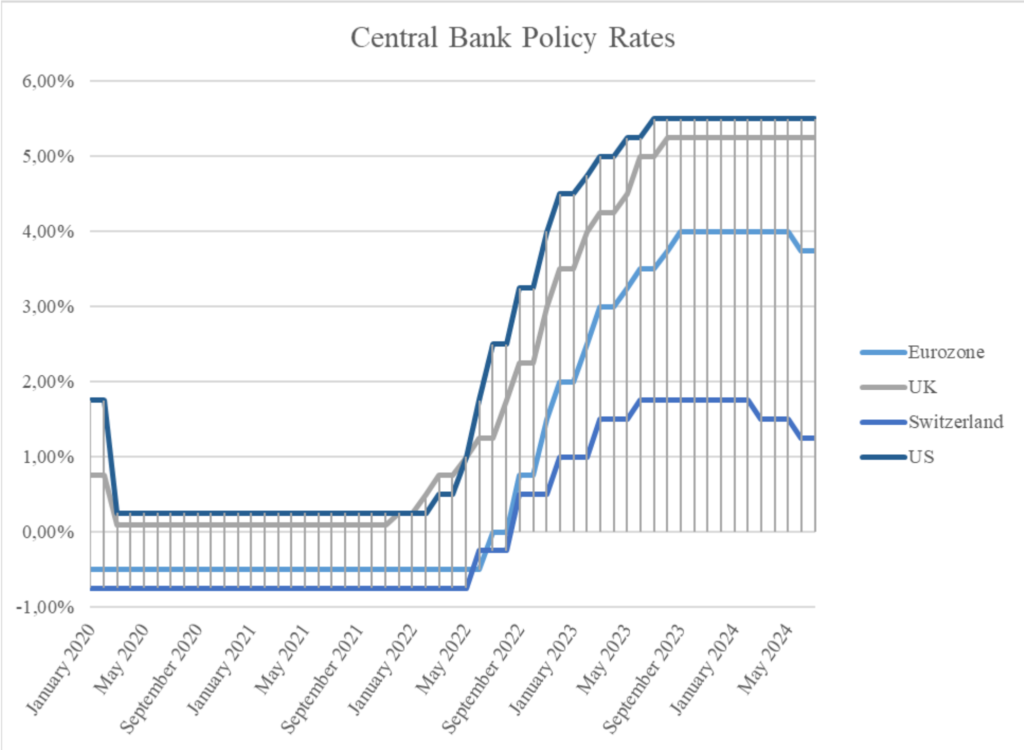
The first analyzed economy to reach its all-time high inflation, from January 2020 until October 2024, was the United States. This country reached a level of inflation of 9.10% in June 2022, having been able to gradually reduce it to 2.90%, as of July 2024, as it is possible to see in Figure 2. However, after the US Federal Reserve started to increase the interest rate in March 2022, which was previously at 0.25%, it reached its maximum and current level, in August 2024, of 5.50%, which has been the case since July 2023. This is the highest Central Bank Policy Rate out of all the four economies considered.

The next economy to reach its maximum level of inflation was Switzerland. Switzerland was able to control its inflation and in consequence its policy rates better than the other three economies and registered its highest level in August 2022, at 3.50%, and in June 2023 at 1.75%, respectively. As it is pictured in Figure 1, this country was coming from a period of negative interest rates. The Swiss National Bank started to raise its interest rates in June 2022, following their permanence at -0.75% since January 2015. As of August 2024, it is registering inflation of 1.30%, and the interest rates are set at 1.25%.

Likewise, the Eurozone was also coming from a period of negative interest rates before starting to raise them to combat the high inflation. They were negative since June 2014 and were set at -0.50%, its lowest, since September 2019. In July 2022, the European Central Bank progressively raised them until reaching its maximum in September 2023, at 4%. This was done to fight the increase in prices, which reached its biggest value of 10.60% in October 2022. Currently, the inflation levels have dropped to 2.60%, and in June 2024, the first cut in the interest rates has lowered them to 3.75%.

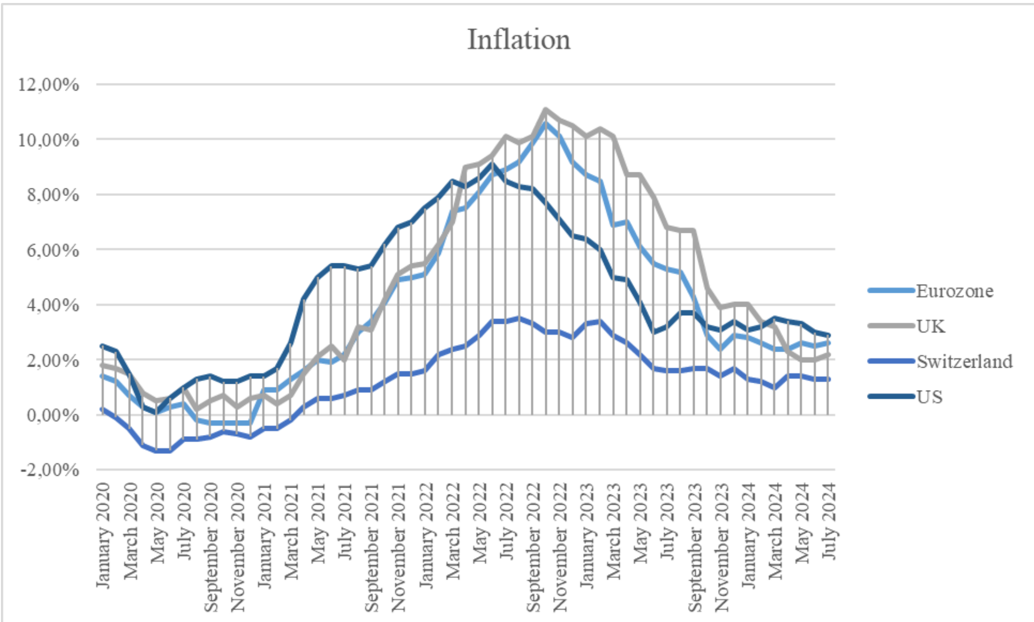
Finally, similarly to the Euro Area, the United Kingdom also attained its highest stage of inflation in October 2022, at 11.10%, the highest of all these four economies. The Bank of England started to inflate its interest rates sooner than the rest, in December 2021 and achieved its maximum of 5.25% in August 2023. A year later, in August 2024, its inflation is set at 2.20% and the interest rates at 5%, having the first cut been in this same month.

Figure 1: Evolution of Central Bank Policy Rates, from January 2020 to July 2024



Source: Trading Economics

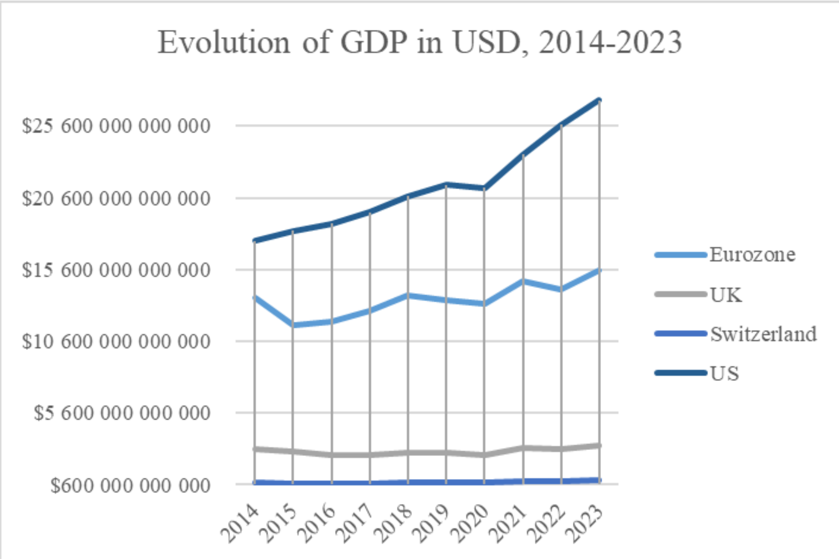
Figure 2: Evolution of inflation, from January 2020 to July 2024



Source: Trading Economics

Besides the geopolitical tensions, the Euro Area faces another problem, its lack of competitiveness in the global economy, according to the Financial Times. It has registered a slow expansion of its GDP over the last 9 years, which it is possible to witness in Figure 3, of 13.97% compared to the United States, which has grown by 55.68%. The last four years have been characterized by multiple economic setbacks, with the COVID-19 pandemic and Russia's war in Ukraine. Despite having an impact on the economies of both the Euro Area and the US, these events have inflicted more damage to the Euro Area's economy while the US has demonstrated a more robust Gross Domestic Product that has rebounded faster from these shocks. Switzerland has also registered a stronger increase of its GDP in the last 9 years than the Eurozone, having expanded by 21.80%. This European country is one of the top 10 economies by GDP per capita in the world. This is strongly related to its exporting power, which in 2021, the largest share of exported goods, of 50.40%, was attributed to chemical and pharmaceutical products. Furthermore, the United Kingdom is the sixth-largest economy in the world, behind the US, China, Japan, Germany, and India. However, from Figure 3, it is possible to see that it is the economy that has grown the littlest over the last 9 years, by 9.15%.

Figure 3: Evolution of Gross Domestic Product (GDP) in US Dollars, from 2014 to 2023



Source: Trading Economics

4.1.2. Sustainable Investing Outlook

ESG investing is a type of sustainable investing that allows investors to align their investment choices with their personal values. The acronym stands for Environment, Social, and Governance, and, therefore, companies that incorporate these values aim to positively impact the environment and the communities they operate in, as well as ensure sound management practices and corporate governance. Companies that pursue ESG goals for each of their stakeholders become well-run companies, leading them to become good stocks to own (Mike Walters, Forbes, 2024). This is in part due to their stronger resilience to financial risk during times of market-impacting crisis (Capelli et al., 2023).

According to the Financial Times (2022), investments integrating an ESG framework were the fastest-growing segment of the asset management industry. The increasing demand of individual investors for ESG investing has led to more companies disclosing their non-financial (ESG) information.

Europe is considered to be the leading region in terms of adoption of ESG practices, with the European Union and the European Commission making progress in the field of sustainable finance, with the Action Plan on Financing Sustainable Growth, in 2018, the EU Green Deal, in 2019, and the Sustainability-related disclosure in the financial services (SFDR), in 2021. These regulations aim at redirecting capital flow towards sustainable investments and promote transparency and disclosure in the financial industry. However, clear and standardized rules are imperative to reduce greenwashing and improve investor confidence (Meyers et al., 2024). Otherwise, it poses as one of the main barriers to this type of investing.

On the other hand, Capelli et al. (2023) concluded that high ESG-performing stocks have a substantial resilience to financial risk during times of market-wide crisis. They also noted that during normal times ESG investors accept lower returns to benefit from the higher resilience to financial risk in times of crisis.

4.2. Strategic Asset Allocation

As already stated, the focus of this portfolio is on equities. For that reason, that will be the asset class that will be described in more detail. However, in order to manage the risk and liquidity of the portfolio, there will be also an investment in fixed-income instruments. Considering this and the restrictions mentioned in Section 2.3.4, 17.95% will be invested in a German Bond. This is a Green Sovereign German Bond to be aligned with the philosophy of the portfolio.

Green Bonds, similarly to traditional bonds, offer a fixed return while using the proceeds to finance new and existing projects with environmental benefits that work towards a net-zero emissions economy and protect the environment. The eligibility of projects to be classified as green is defined by the Green Bond Principles. The

Principles are voluntary guidelines that emphasize the need for transparency, accuracy, and integrity of information that will be disclosed and reported. It has four main components: Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds, and Reporting. The green projects can be part of the following categories: energy, buildings, transport, water management, waste management and pollution control, nature-based assets (including land use, agriculture and, forestry), industry and energy-intensive commercial, and information technology and communications.

The German Federal Government started to issue Green Bonds in 2020. The Green German Bond chosen is a 10-year Green German Bund, issued on 25/04/2023 and with a maturity date of 15/02/2033, with a 2.554% yield and a rating of AAA, in line with the fund's requirement of being at least B-. Further information about the bond is disclosed in Table 1.

Table 1: Sovereign Green German Bond Information

Sovereign Green German Bond Information	
Issuer	Federal Republic of Germany
Rating	AAA
Maturity segment	10 years
Issuance volume	9 000 000 000 €
Issuance currency	€
Issuance Date	25/04/2023
Maturity	15/02/2033
Yield	2,554%
Coupon in %	2.30
Payable	Annually

Source: Federal Republic of Germany

The remaining 82.05% of the portfolio will be invested in equities whose selection will be specified next.

4.3. Security Selection

4.3.1 Methodology

To choose the equities several screeners were used and with recourse to the Bloomberg database, Morningstar's Sustainalytics Company ESG Risk Ratings, and MSCI's ESG Ratings & Climate Search Tool.

To find value stocks three ratios were used, the Price-to-Book, the Price-to-Cash-Flow, and the Enterprise Value (EV) to Earnings Before Interest and Taxes (EBIT) ratio. Pätäri and Leivo (2015) performed a literature review to assess the most effective individual and enterprise valuation ratios to the value premium of portfolios. They noted that the most used ones are P/B and P/E. However, they noticed that overall, the ratio P/CF performs better than P/E and that in non-US markets P/B outperforms P/CF. Besides that, the study also states that, although still being understudied for value investing, enterprise value-based ratios incorporate an important component that should not be overlooked, debt. According to Chan and Lui (2011), EV/EBIT gives investors a better view of profit growth as well as future sustainability, when compared with EV/EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization). Value stocks are those deemed as undervalued by investors who believe that the market has not yet fully recognized the intrinsic value of the companies. For this purpose, companies were screened to be less than or equal to the relevant sector's value of all three ratios at once. The benchmark for each metric was established by taking the weighted average of the values of all European companies in the same sector and their market capitalizations.

Regarding the sustainability requirements, firstly an exclusionary strategy was imposed for three different aspects. Companies that do not follow Good Governance practices or that generate revenue from tobacco, gambling, or banned controversial weapons industries, also considered as sin stocks, or from fossil fuels were excluded from the investment universe. Good Governance principles are divided into four main areas, Management, Employee Relations, Remuneration, and Tax compliance, and the assessment to see if companies meet this requirement was done using Bloomberg. A company is considered a sin stock if it is involved in the production, distribution, retailing, licensing, or supply of tobacco or banned controversial weapons, which are subject to the conventions signed by most UN member states, or if it owns or operates gambling facilities or provides support or services to the gambling industry. In addition, the generation of revenue from the fossil fuel industry by a company can come from exploration, mining, extraction, production, processing, storage, refining, or distribution.

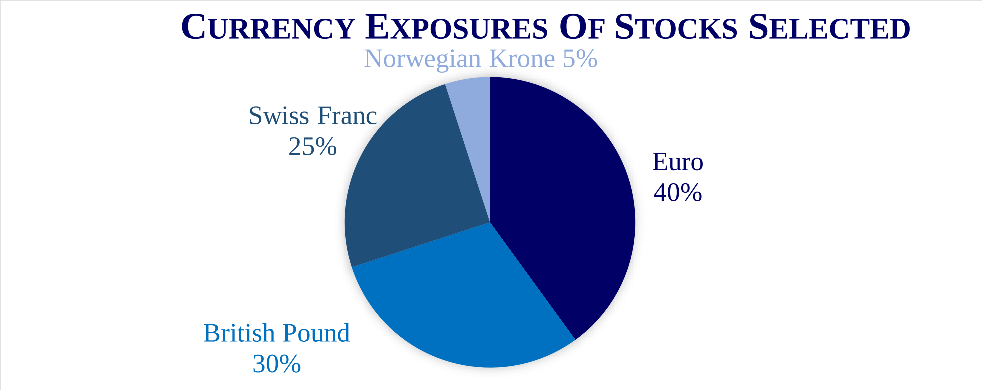
Next, the further screening of securities involved the application of a best-in-class strategy for the Bloomberg ESG Score, the MSCI ESG Score, the Sustainalytics ESG Risk Rating, and the carbon intensity of the company. The Bloomberg ESG Score takes the aggregated ESG performance of a company, which is based on Bloomberg's vision of its ESG financial materiality and varies from 0 (worst) to 10 (best). The Sustainalytics ESG Risk Rating classifies companies from negligible, low, medium, high, and severe risk based on their exposure to industry-specific material ESG risks and how well the company is managing those risks. On the other hand, the MSCI ESG rating takes into consideration E, S, and G issues specific to each GICS sector or sub-industry and given the company's exposure and management of those risks, they are considered either laggard, average, or leader relative to their industry peers. Finally, the carbon intensity is defined as the ratio of the sum of Scope 1 and 2 of greenhouse gases by thousands of tonnes and the net sales of the company in millions of euros. Scope 3 emissions are not included as it is rarely reported by companies and is noisily estimated and inconsistent across data providers.

4.3.2 Stocks

Considering these criteria, the twenty companies selected were WPP Plc, Swisscom AG, Telefonica, Burberry Group, Pearson Plc, Mercedes-Benz, JDE Peet's NV, Coca-Cola HBC AG, Sonova Holding, Novartis AG, Merck KGaA, Fresenius Medica, IMCD NV, Temenos AG, Nokia Oyj, SIG Group AG, Norsk Hydro ASA, GSK PLC, Brenntag SE, and Ashtead Group. A better description of each company can be found in Appendix 1 and the screeners used and the values of the companies are disclosed in Appendices 2 and 3.

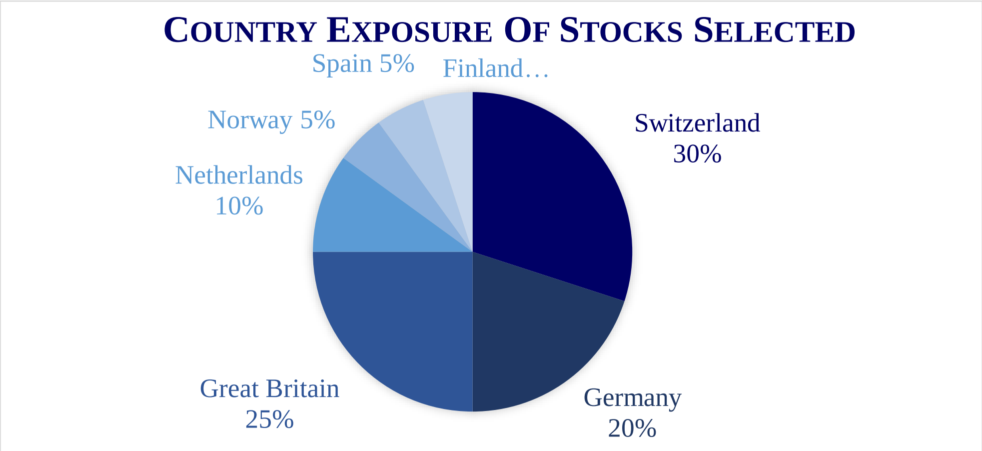
This translates into exposure to seven out of eleven sectors, following the GICS definition, excluding energy, financials, utilities, and real estate, four different currencies (Figure 4), and seven different countries (Figure 5).

Figure 4: Currency Exposure of Stocks Selected



Source: Author

Figure 5: Country Exposure of Stock Selected



Source: Author

4.4. Portfolio Composition

4.4.1. Modern Portfolio Theory (MPT)

The optimal portfolio was found using Modern Portfolio Theory optimized with Microsoft Excel. Modern Portfolio Theory (MPT) was first introduced by Harry Markowitz in 1952 and is used for selecting investments with the intent to maximize return for a certain level of risk. Markowitz claimed that by diversifying the investment, investors could get the best returns for their individual risk tolerance. MPT defends that the asset's risk and return should not be considered alone. Instead, the investor should consider how they affect the overall portfolio's risk and return.

4.4.2. Portfolio Methodology

Following the MPT, the investment manager started by primarily inputting the data required. The monthly returns were calculated based on the monthly prices retrieved from the last 10 years, between 30th June 2014 and 30th June 2024. Consequently, the standard deviation of each stock as well as the Variance-Covariance Matrix were computed, both on an annual basis. Moving on from the historical data, the expected return of each asset is supported by Bloomberg's forecast of each stock's price for the following 12 months, as of July 2024. Lastly, the risk-free rate of return will be based on the yield of the 10-year Sovereign German Green Bond mentioned in section 3.2.

Next, the equally weighted portfolio was generated, where it was possible to see the effect of diversification, as this portfolio instantly had a lower volatility than the single stock with the lowest volatility. Subsequently, the optimal portfolio was computed. The main goal imposed was to maximize the Sharpe Ratio while keeping the sum of the weights invested in each stock at 1. The Sharpe Ratio (Equation 1), developed by William F. Sharpe in 1966, assesses risk-adjusted performance, by dividing the portfolio's excess return as a measure of its volatility. In this case, the numerator is composed of the difference between the portfolio's expected return and the risk-free rate mentioned previously, and the denominator is the portfolio's standard deviation.

$$Max\left(\frac{\bar{R}_P - R_{rf}}{\sigma_P}\right) \tag{1}$$

$$s.t.: \sum x_i = 1$$

$$0{,}01 \leq x_i \leq 0{,}15$$

$$0{,}01 \leq x_{rf} \leq 0{,}2$$

Following these restrictions, the Solver tool in Microsoft Excel came to the optimal portfolio shown in Table 2 below. This portfolio has an expected return of 16.83% and a standard deviation of 6.86%, leading to a Sharpe Ratio of 2.08.

Table 2: Optimal Portfolio Stock Weights

Companies	Portfolio Weights
WPP	1.00%
Swisscom	1.00%
Telefonica	1.00%
Burberry	1.00%
Pearson	4.53%
Mercedes-Benz	5.76%
JDE Peet's	15.00%
Coca-Cola	1.00%
Sonova	1.00%
Novartis	1.00%
Merck	7.39%
Fresenius	1.00%
IMCD	1.00%
Temenos	1.00%
Nokia	1.00%
SIG Group	7.86%
Norsk Hydro	1.00%
GSK	15.00%
Brenntag	13.51%
Ashtead Group	1.00%
Green German Bond	17.95%

Source: Author

Table 3: Optimal Portfolio Statistics

Portfolio Statistics	
$\bar{R}_P$	16.83%
σ_P	6.86%
Sharpe Ratio	2.08
Risk-free Rate	2.554%

Source: Author

4.4.3. Efficient Frontier and Capital Allocation Line Methodology

Succeeding, the Efficient Frontier and the Capital Allocation Line, which can be seen in Figure 6, were computed and presented in the space (standard deviation, expected return). The Efficient Frontier represents the set of optimal portfolios that offer the highest expected return for a certain level of risk or the lowest risk for a level of expected return. It is delimited by the hyperbola defined by Equation (2):

$$\sigma_P^2 = \frac{A\bar{R}_P^2 - 2B\bar{R}_P + C}{AC - B^2} \quad (2)$$

$$A = 1'V^{-1}1 \tag{3}$$

$$B = 1'V^{-1}\bar{R} \tag{4}$$

$$C = \bar{R}V^{-1}\bar{R} \tag{5}$$

Next, the Minimum Variance (MV) portfolio and the Tangent portfolio were added to the graph. The Minimum Variance portfolio, characterized in Equation (6), minimizes risk whereas the Tangent portfolio, which formula is expressed in Equation (7), maximizes the Sharpe Ratio and represents the point where the Efficient Frontier and the Capital Allocation Line cross, with a standard deviation of 8,84% and an expected return of 23,70%. The Capital Allocation Line, defined by Equation (8), denotes possible combinations of the risk-free asset, the Green German Bond, and the risky assets, the 20 equities chosen. In the following equations, X represents the weights of the stocks of the portfolio.

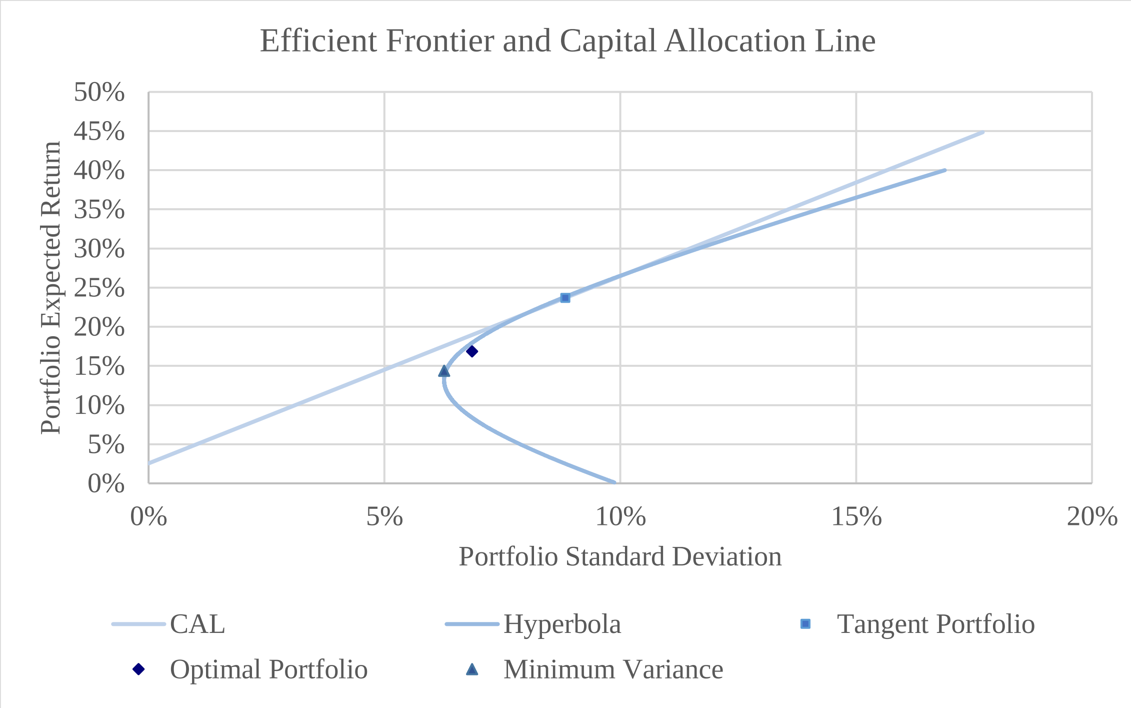
$$X_{MV} = \frac{1}{A}V^{-1}1 \tag{6}$$

$$X_T = \frac{Z}{Z'1} \tag{7}$$

$$s.t.: Z = V^{-1}[\bar{R} - R_f 1]$$

$$\bar{R}_P = R_f + \frac{\bar{R}_T - R_f}{\sigma_T}\sigma_P \tag{8}$$

Figure 6: Efficient Frontier and Capital Allocation Line



Source: Author

As it is possible to see in Figure 6, the optimal portfolio, even though close to the efficient frontier, is still considered sub-optimal, as it lies to the right of the hyperbola. This means that it does not provide as much return as the optimal portfolio for the same level of risk. This is due to the restrictions applied.

4.5. Expected Performance

The estimated performance of the portfolio constructed is described in Table 4 below.

Table 4: Optimal Portfolio Summary Statistics

Optimal Portfolio	
Expected Annual Return	16.83%
Expected Annual Standard Deviation	6.86%
Sharpe Ratio	2.08
Risky Assets (%)	82.05%
Risk Free Asset (%)	17.95%

Source: Author

The investment in this fund implies the payment of a few fees, which are summarized in Table 5. These are an entry fee of 5% over the amount invested, and while the investment is continued two additional fees should be considered: a management fee, which also covers other operating or administrative costs, of 1.37% and a transaction fee of 0.26%. Both these fees are applicable over the portfolio's value.

Table 5: Portfolio Costs

Portfolio Costs	
Entry Fee	5%
Exit Fee	0%
Management Fee and other costs	1.37%
Transaction Fee	0.26%

Source: Allianz GI

Furthermore, the suggested holding time for this product is five years. Inflation is an additional cost to consider. Because the portfolio consists of three major currencies, the inflation rate considered for the next five years will be the weighted average of the European Central Bank, the Swiss National Bank, and the Bank of England. The European Central Bank expects that prices will rise by 2.2% in 2025 and 1.9% in 2026. The Swiss National Bank predicts inflation of 1.1% in 2025 and 1% in 2026. Finally, UK inflation is estimated to be approximately 2.2% in 2025 and 2.1% in 2026. For the years 2027-2029, the inflation rate is anticipated to remain unchanged in comparison to 2026.

Relatively to the expected performance of the portfolio, it is assumed an investment of 10,000€. As depicted in Table 6 shown below, the expected return after 1 year is 2.42% and 69.37% after 5 years, which is an 11.11% annualized return.

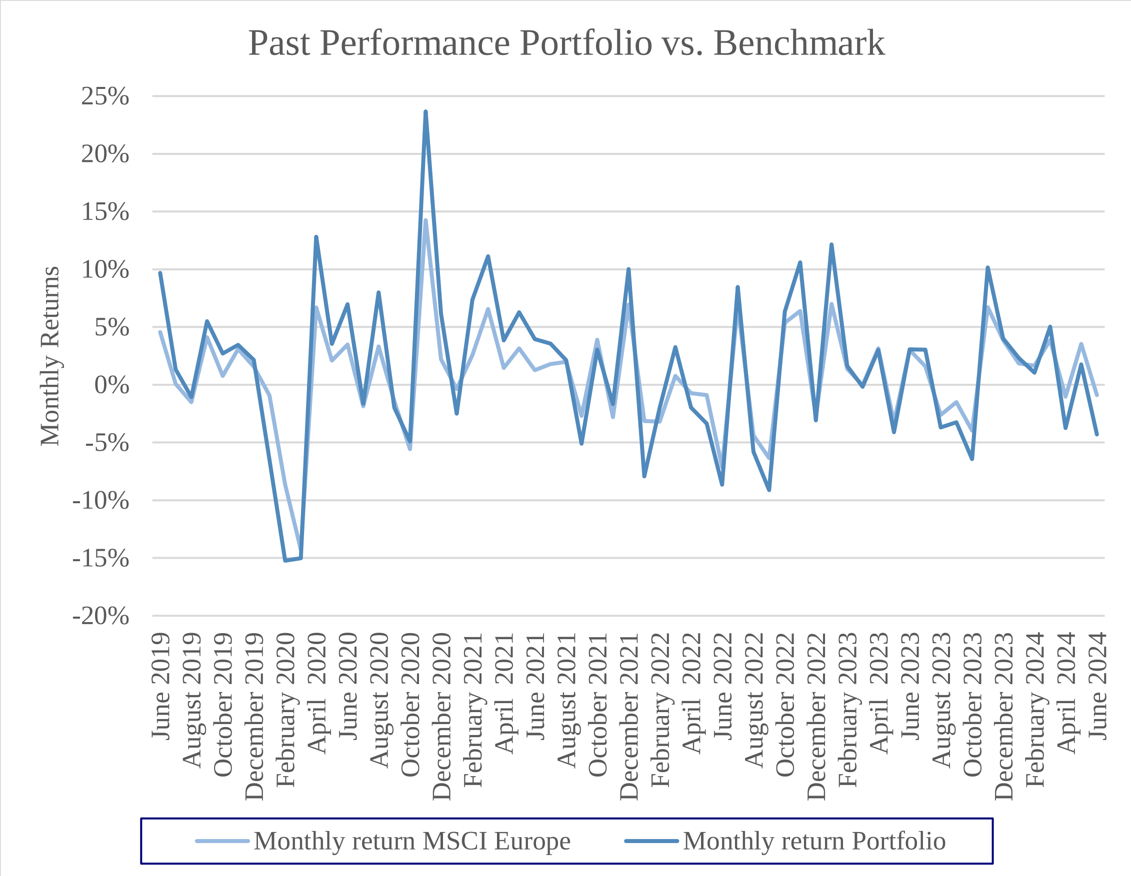
Table 6: Expected Performance of the Portfolio

Amount: 10,000 €	Initial Value	Entry cost	Investment Value after Entry Cost	Management Fee	Transaction Fee	Total Costs	Nominal Return	Net Nominal Return	Inflation Forecast	Net Real Return	Final Value	% Profit (YoY)	% Profit (after 5 years)
Year 1 (2025)	10 000	500	9 500	130	25	655	1 599	944	1,98%	926	10 426	2.42%	
Year 2 (2026)	10 426			143	27	170	1 755	1 585	1,78%	1 557	11 983	13.18 %	
Year 3 (2027)	11 983			164	31	195	2 017	1 821	1,78%	1 789	13 772	13.18 %	
Year 4 (2028)	13 772			189	36	224	2 318	2 093	1,78%	2 057	15 829	13.18 %	
Year 5 (2029)	15 829			217	41	258	2 664	2 406	1,78%	2 364	18 192	13.18 %	69.37 %

Source: Author

As mentioned before, this portfolio is managed in comparison with a benchmark, the MSCI Europe Total Return (Net) Index. In the past 5 years, the benchmark and the portfolio have had similar performances, as it is shown in Figure 7. It is characterized as a period of high volatility, with a steep drop in 2020, due to the market reaction to the COVID-19 pandemic, and a sharp rise after, reflecting the market's recovery. Moreover, the portfolio had moments where it outperformed the benchmark, for instance, at the end of 2020 when the portfolio's returns spiked much higher than the benchmark. Other times, the portfolio underperformed the benchmark, such as in some periods in 2022 and 2023, where the portfolio's returns fell below those of MSCI Europe.

Figure 7: Past Performance Portfolio vs. Benchmark



Source: Author

Subsequently, the estimation of the future performance of the benchmark was based on the average of the annual returns of the last 5 years. This results in an expected return of 9.22% after 1 year and a 55.40% return after 5 years. Comparing these results with Table 6, it is safe to assume that the portfolio underperforms the benchmark after 1 year by 6.80% but outperforms it after the recommended 5 years by 13.97%.

4.6. Risk Analysis

The last section of this IPS is a risk analysis. This is important because investing in financial markets involves risk and investors should understand what those risks are and how they are effectively considered and managed. Firstly, a Value-at-Risk (VaR) analysis is performed. VaR is used as an estimation of the risk of the portfolio and represents the extent of possible financial losses over a specific period with a certain degree of confidence. It will be computed using the Parametric and the Monte Carlo methods. Then, some specific risks derived from the macroeconomic and regulatory environments will be taken into account and measured in terms of their probability of occurrence and impact on the portfolio.

4.6.1. Parametric and Monte Carlo VaR

The Parametric method to calculate VaR, also known as the variance-covariance method, considers the price movements of the portfolio's stocks over a specific period and uses probability theory to compute the portfolio's maximum loss. It also assumes that returns follow a normal distribution. On the other hand, the Monte Carlo simulation was used to generate 10,000 random trials, based on a random value for the Z-score variable. For this purpose, the Excel Data Table Tool was used. Table 7 represents Value-at-Risk for the different percentiles and for both methods, assuming the assets under management value of 10,000€.

Table 7: Parametric VaR versus Monte Carlo VaR

Time period: 5 years		Parametric VaR		Monte Carlo VaR	
Percentile	Z-score	Absolute	Relative	Absolute	Relative
1%	-2.326	4847.38	-51.53%	4866.93	-51.33%
5%	-1.645	5893.06	-41.07%	5894.85	-41.05%
10%	-1.282	6450.51	-35.49%	6414.95	-35.85%

Source: Author

It is shown that, for both methods, the relative values for VaR are similar. For the 5-year period at a 90% confidence level, there is a 10% chance of losing more than 6,450.51€, with the Parametric method, and 6,414.95€ of the portfolio, with the Monte Carlo method.

4.6.2. Risk Matrix Evaluation

Subsequently, there will be a description of specific risks that may affect the portfolio during the next 5 years. They will also be evaluated in terms of their impact on the portfolio (as low, medium, or high) and their likelihood of occurrence, on the same scale. This information will then be summarized in the Risk Matrix that follows.

Litigation, Reputation, and Greenwashing risks (1)

Litigation, more precisely ESG Litigation, refers to the process of taking a dispute to a court of law against a company's ESG policies, practices, and disclosures. This has become an increasingly pressing issue for businesses as a result of increased regulatory enforcement, rising investor demands, and the global climate crisis. Additionally, according to Sustainable Fitch, the rise in ESG-focused financing which demands ESG information disclosure has highlighted more opportunities to discover possible investor harm. This is particularly true in the EU, where the regulatory and reporting obligations have increased significantly. The primary dangers from this are strategic and operational, as ESG lawsuits seek structural changes.

Greenwashing, on the other hand, could also serve as a basis for a securities law lawsuit. Greenwashing occurs when corporations omit or provide misleading or deceptive information in order to conceal facts they consider harmful or to deceive investors into believing they are more sustainable than they actually are. Engaging in greenwashing in securities documentation heightens the possibility of investor litigation.

Consequently, the company's reputation may be a source of concern for investors. According to a Deloitte analysis, companies rely on maintaining their reputation to secure funding, sell their products or services, and protect their social image with consumers. This can prompt businesses to take precautions to anticipate future legal needs, or else suffer the implications of a negative reputation.

Impact on Portfolio: High - This can influence the portfolio since investors are less likely to buy stocks from companies with a terrible reputation, causing the stock price to fall.

Probability of occurrence: Medium – The fund management feels it has already excluded companies from this portfolio that operate in the sectors with the higher risk of having reputational damage. However, some unknown issues may emerge in the future.

Regulatory compliance (2)

Regulatory requirements are altering to promote a transition to a more sustainable and responsible economy, with the European Union leading the way. While these advancements constitute a significant step toward a sustainable economy, they also generate new issues regarding compliance risk management. Tight regulatory implementation schedules, a lack of ESG expertise and awareness, data challenges to demonstrate ESG performance, and constantly changing regulatory guidance and market standards continue to be significant challenges.

Impact on Portfolio: High - If a company in the portfolio stops complying with the criteria set for the portfolio, it will have to be replaced, which results in Allianz incurring costs.

Probability of occurrence: High – There is a high chance that if any company in the portfolio does not keep up with the evolving regulation, its ESG rating will lower and, as a result, it will stop complying with the portfolio criteria.

Geopolitical risk (3)

Geopolitical risk can be defined as the threat, realization, and escalation of adverse events such as wars, terrorism, and political tensions that affect international relations. This has been a growing concern since Russia invaded Ukraine in 2022 and the Middle East hostilities have resurfaced. According to MSCI, financial markets frequently respond negatively to the threat of geopolitical events as they do to their actual occurrence, because investors can act in anticipation of these occurrences. However, their medium-term impact has often been limited.

Impact on Portfolio: Low – The portfolio has a 5-year time horizon, thus the recent wars are unlikely to have a substantial impact on it.

Probability of occurrence: High – There are ongoing geopolitical difficulties occurring at the time of the release of this IPS and their end is unlikely to be predicted.

Increased Inflation and fluctuation of Interest Rates (4)

As noted earlier, the EU, the UK, and Switzerland are emerging from a period of high interest rates, with the first declines occurring in recent months. An increase in interest rates reduces the present value of stock prices while increasing the future expected returns on fixed-income assets. As a result of this event, equities become less appealing to both individual and institutional investors. As interest rates fall, the stock market regains its attractiveness.

Impact on Portfolio: High – because it is primarily made up of stocks, interest rate swings have a significant impact on the portfolio.

Probability of occurrence: Low – given the recent trend of reducing inflation and interest rates, it is doubtful that they will spike again.

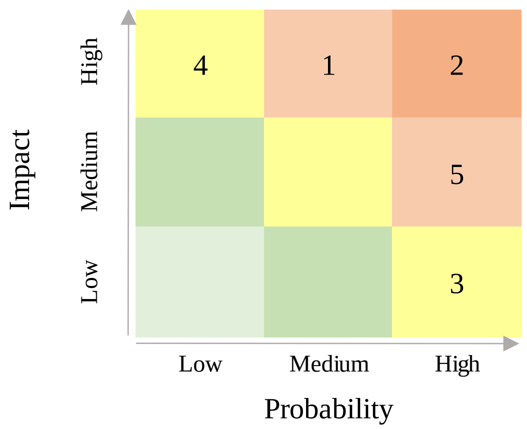
Accelerated adoption of Artificial Intelligence (5)

According to JP Morgan's Long-Term Capital Market Assumptions, the rapid adoption of artificial intelligence allows businesses to expand and boost efficiency. In contrast, a McKinsey & Company survey found that 65% of respondents use Generative AI regularly and expect it to cause major or disruptive changes in their businesses in the next years. Generative AI refers to algorithms that can generate new content, such as text, simulations, and films.

Impact on Portfolio: Medium – the expanding adoption of AI boosts real Gross Domestic Product by increasing productivity while limiting inflation, and it benefits developed market equities.

Probability of occurrence: High – the adoption of AI in the business model is already being established in many companies and it is expected to continue to grow.

Figure 8: Risk Matrix



Source: Author

5. Summary of Investment and Strategies

Allianz Best Styles Europe Equity Fund

5.1. Investment Objective

The fund aims to achieve long-term capital growth by investing in European equity markets while adhering to sustainability requirements.

5.2. Key Information

The fund, Article 8 under EU SFDR, is managed in reference to a benchmark, the MSCI Europe Total Return Net Index. The investment philosophy adopted is a combination of value investing and ESG investing.

5.3. Portfolio Structure

Sector Breakdown:

- Health Care: 25%
- Consumer Staples: 16%
- Industrials: 16%
- Consumer Discretionary: 11%
- Materials: 8.86%
- Communication Services: 3%
- Information Technology: 2%

The remaining 17.95% are invested in a 10-year Green German Sovereign Bond.

Country Breakdown:

- Germany: 45.61%
- Great Britain: 22.53%
- Netherlands: 16%
- Switzerland: 12.86%
- Spain: 1%
- Finland: 1%
- Norway: 1%

Currency Breakdown:

- Euro: 63.61%
- British Pound: 23.53%
- Swiss Franc: 11.86%
- Norwegian Krone: 1%

Holdings (by descending order):

- Green German sovereign bond: 17.95%
- GSK PLC: 15%

- JDE Peet's NV: 15%
- Brenntag SE: 13.51%
- SIG Group AG: 7.86%
- Merck KGAA: 7.39%
- Mercedes-Benz: 5.76%
- Pearson PLC: 4.53%
- WPP PLC: 1%
- Swisscom AG-REG: 1%
- Telefonica: 1%
- Burberry Group: 1%
- Coca-Cola HBC AG: 1%
- Sonova Holding: 1%
- Novartis AG-REG: 1%
- Fresenius Medical Care: 1%
- IMCD NV: 1%
- Temenos AG-REG: 1%
- Nokia OYJ: 1%
- Norsk Hydro ASA: 1%
- Ashtead Group: 1%

5.4. Performance

The Portfolio has an expected return of 16.83% and a standard deviation of 6.86%. Considering this information as well as all the costs, the expected performance of the fund is 2.42% after 1 year and after 5 years, the recommended holding period, is 69.37%, which is an 11.11% annualized return and outperforms the benchmark.

5.5. Risk Analysis

The Value-at-Risk (VaR) analysis, which is done for both the Parametric and Monte Carlo methods, shows that, for the 5-year period at a 90% confidence level, there is a 10% chance of losing more than around 6,450€, in both methods.

Risks that may affect the portfolio in 5 years:

1. Litigation, Reputation, and Greenwashing risks
2. Regulatory compliance
3. Geopolitical risk
4. Increased Inflation and fluctuation of Interest Rates
5. Accelerated adoption of Artificial Intelligence

6. Appendices

Table A1: Stocks' Description

Name of company	Sector	Country of domicile	Currency	Brief Description
WPP PLC	Communication Services	Great Britain	GBP	British Multinational communications, advertising, public relations, technology, and commerce holding company. It was the world's largest advertising company, as of 2023.
SWISSCOM AG-REG	Communication Services	Switzerland	CHF	Leading information and communications technology company in Switzerland, also operating in Italy. The Swiss Confederation owns 51% of the company.
TELEFONICA	Communication Services	Spain	EUR	One of the largest telephone operators and mobile network providers in the world. It operates in 12 countries across Europe and Latin America.
BURBERRY GROUP	Consumer Discretionary	Great Britain	GBP	Luxury fashion established in 1856. It has 418 stores spread across the world.
PEARSON PLC	Consumer Discretionary	Great Britain	GBP	Multinational corporation focused on educational courseware, assesments, and digital services, originating in 1844. It operates in North America, Europe, and Asia Pacific.
MERCEDES-BENZ GR	Consumer Discretionary	Germany	EUR	Luxury and commercial vehicle automotive brand established in 1926. It sells its vehicles and provides services to customers globally.
JDE PEET'S NV	Consumer Staples	Netherlands	EUR	Company that owns beverage brands, mostly of coffee, tea, and hot chocolate. It was formed in 2015 after a merger of two companies.
COCA-COLA HBC AG	Consumer Staples	Switzerland	GBP	World's third-largest Coca-Cola anchor bottler in terms of sales volume. Founded in 1969 in Greece, being currently headquartered in Switzerland, and listed on the London Stock Exchange.
SONOVA HOLDING A	Health Care	Switzerland	CHF	Global leader in innovative hearing care solutions. Operates in four businesses, hearing instruments, audiological care, consumer hearing, and cochlear implants. It has a consumer base in more than 100 countries.
NOVARTIS AG-REG	Health Care	Switzerland	CHF	Multinational pharmaceutical corporation. One of the largest pharmaceutical companies in the world, and the fourth largest by revenue in 2022.
MERCK KGAA	Health Care	Germany	EUR	Leading science and technology company, operates across Healthcare, Life Science, and Electronics. Founded in 1668, it is the world's oldest operating chemical and pharmaceutical company, being present in 66 countries.
FRESENIUS MEDICAL CARE	Health Care	Germany	EUR	Leading provide of products and services along the entire dialysis value chain. It serves 4,1 million patients and 150 countries. It is the market leader in the production of hemodialysis machines.
GSK PLC	Health Care	Great Britain	GBP	Multinational pharmaceutical and biotechnology company. Founded in 2000 after a merger, it is the 10th largest pharmaceutical company.
BRENNTAG SE	Industrials	Germany	EUR	Global market leader in chemical and ingredients distribution. It operates a global netwoork of 600 locations in 72 countries.
IMCD NV	Industrials	Netherlands	EUR	Distributes, markets, and sells specialty chemicals and ingredients in Europe, Middle East, Africa, North America, South America, and Asia-Pacific.
ASHTEAD GROUP	Industrials	Great Britain	GBP	International industrial equipment rental company with national networks in the UK, US, and Canada. They rent a full range of construction and industrial equipment across a wide variety of applications.
TEMENOS AG-REG	Information Technology	Switzerland	CHF	Company specialized in enterprise software for banks and financial services. It counts with 950 core banking and over 600 digital banking clients across 150 countries.
NOKIA OYJ	Information Technology	Finland	EUR	Multinational telecommunications, informational technology, and consumer electronics. It was established in 1865 and operates in four segments, Network Infrastructure, Mobile Networks, Cloud and Network Services, and Nokia Technologies.

SIG GROUP AG	Materials	Switzerland	CHF	Leading provider of innovative and versatile packaging solutions. It was founded in 1853, it provides aseptic carton packaging and solutions for beverages and liquid food products. It operates in Europe, the Middle East, Africa, the Asia Pacific, and the Americas.
NORSK HYDRO ASA	Materials	Norway	NOK	Leading aluminium and renewable energy company. It operates in 40 countries.

Source: Bloomberg and Author

Table A2: Companies' financial screeners

Ticker	Name of company	Sector	Country of domicile	Currency	Market Cap	Price to Book Ratio	Relative Sector [Atual P/B]	Price to Cash Flow Ratio	Relative Sector [Atual P/CF]	EV / EBIT Adjusted	Relative Sector [Atual EV/EBIT Adj]
WPP LN Equity	WPP Plc	Communication Services	GB	GBP	7 720 292 864	2.46	4.80	6.31	15.49	7.83	26.98
SCMN SW Equity	Swisscom Ag-Reg	Communication Services	CH	CHF	26 211 782 656	2.16	4.80	6.49	15.49	13.23	26.98
TEF SM Equity	Telefonica	Communication Services	ES	EUR	22 249 713 664	0.99	4.80	1.93	15.49	20.70	26.98
BRBY LN Equity	Burberry Group	Consumer Discretionary	GB	GBP	3 039 354 624	2.72	5.65	6.15	20.40	9.68	17.31
PSON LN Equity	Pearson Plc	Consumer Discretionary	GB	GBP	6 543 185 408	1.69	5.65	12.76	20.40	12.93	17.31
MBG GR Equity	Mercedes-Benz Gr	Consumer Discretionary	DE	EUR	67 550 683 136	0.71	5.65	4.49	20.40	2.27	17.31
JDEP NA Equity	Jde Peet's Nv	Consumer Staples	NL	EUR	9 217 601 536	0.84	4.68	10.56	15.28	11.66	16.73
CCH LN Equity	Coca-Cola Hbc Ag	Consumer Staples	CH	GBP	9 767 448 576	3.75	4.68	8.62	15.28	12.23	16.73
SOON SW Equity	Sonova Holding A	Health Care	CH	CHF	16 647 804 928	6.73	20.66	22.75	35.47	24.96	28.15
NOVN SW Equity	Novartis Ag-Reg	Health Care	CH	CHF	211 240 697 856	5.49	20.66	16.02	35.47	16.98	28.15
MRK GR Equity	Merck Kgaa	Health Care	DE	EUR	65 064 505 344	2.35	20.66	16.61	35.47	19.45	28.15
FME GR Equity	Fresenius Medical Care	Health Care	DE	EUR	10 445 518 848	0.76	20.66	4.04	35.47	10.62	28.15
GSK LN Equity	Gsk Plc	Health Care	GB	GBP	62 320 738 304	4.43	20.66	8.35	35.47	8.98	28.15
IMCD NA Equity	Imcd Nv	Industrials	NL	EUR	7 340 036 096	4.34	5.34	17.79	19.06	18.83	20.90
BNR GR Equity	Brenntag Se	Industrials	DE	EUR	9 116 492 800	2.05	5.34	6.46	19.06	10.46	20.90
AHT LN Equity	Ashtead Group	Industrials	GB	GBP	22 442 174 464	4.08	5.34	7.65	19.06	16.22	20.90
TEMN SW Equity	Temenos Ag-Reg	Information Technology	CH	CHF	4 709 468 160	7.17	13.98	15.97	50.24	26.38	57.10

NOKIA FH Equity	Nokia Oyj	Information Technology	FI	EUR	20 298 403 840	0.95	13.98	8.73	50.24	7.72	57.10
SIGN SW Equity	Sig Group Ag	Materials	CH	CHF	6 452 732 416	2.19	2.32	10.17	12.07	14.51	21.52
NHY NO Equity	Norsk Hydro Asa	Materials	NO	NOK	133 157 576 704	1.29	2.32	7.46	12.07	13.87	21.52
20					**36 076 810 611**	**2.86**	**9.63**	**9.96**	**24.87**	**13.98**	**26.35**

Source: Author

Table A3: Companies' sustainability screeners

Ticker	Name of company	Sustainalytics ESG Risk Rating	MSCI ESG Score (CCC-AAA)	ESG Score Bloomberg	Carbon Intensity (Scope 1 and 2 per sales)	Tobacco, gambling, controversial weapons	Fossil Fuel Revenue %	Good Governance
WPP LN Equity	Wpp Plc	9.5	AA	4.14	0.0045	No	0	Yes
SCMN SW Equity	Swisscom Ag-Reg	16.5	AA	5.22	0.0055	No	0	Yes
TEF SM Equity	Telefonica	15.2	BBB	5.36	0.0287	No	0	Yes
BRBY LN Equity	Burberry Group	9.1	AAA	4.76	0.0064	No	0	Yes
PSON LN Equity	Pearson Plc	6.7	AA	4.63	0.0051	No	0	Yes
MBG GR Equity	Mercedes-Benz Gr	17	A	6.03	0.0097	No	0	Yes
JDEP NA Equity	Jde Peet's Nv	18.5	BBB	4.46	0.0590	No	0	Yes
CCH LN Equity	Coca-Cola Hbc Ag	17.3	AAA	5.41	0.0556	No	0	Yes
SOON SW Equity	Sonova Holding A	14.5	AAA	6.22	0.00845	No	0	Yes
NOVN SW Equity	Novartis Ag-Reg	13.6	AA	4.96	0.0119	No	0	Yes
MRK GR Equity	Merck Kgaa	16.9	AAA	5.32	0.0867	No	0	Yes
FME GR Equity	Fresenius Medical Care	12.2	A	5.84	0.0373	No	0	Yes
GSK LN Equity	Gsk Plc	15.4	AA	6.45	0.0267	No	0	Yes
IMCD NA Equity	Imcd Nv	12.6	A	4.44	0.0028	No	0	Yes
BNR GR Equity	Brenntag Se	13.7	A	5.87	0.0148	No	0	Yes
AHT LN Equity	Ashtead Group	15.6	AA	2.74	0.0342	No	0	Yes
TEMN SW Equity	Temenos Ag-Reg	9.5	AAA	5.96	0.0048	No	0	Yes
NOKIA FH Equity	Nokia Oyj	9.2	AAA	5.69	0.0212	No	0	Yes
SIGN SW Equity	Sig Group Ag	11.3	AAA	5.18	0.0570	No	0	Yes
NHY NO Equity	Norsk Hydro Asa	16.3	AA	6.54	0.0677	No	0	Yes
20		**13.53**		**5.26**	**0.0274**		**0**	

Source: Author

7. References

Agnew, H., Klasa, A., & Mundy, S. (2022). *How ESG investing came to a reckoning*. Financial Times. Accessed on 10th March 2024. Available from: How ESG investing came to a reckoning (ft.com)

Allianz Global Investors GmbH (2024). *Allianz UK & European Investment Funds Prospectus*. Accessed on 30th June 2024. Available from: Prospectuses (allianzgi.com)

Allianz Global Investors GmbH (2024). *Global Corporate Governance Guidelines*. Accessed on 5th April 2024. Available from: Documents | Allianz Global Investors (allianzgi.com)

Allianz Global Investors GmbH. (2023). *Key information document*. Accessed on 24th May 2024. Available from: lu1019963369-kid-priips-ch-en-ch-30052023.pdf (allianzgi.com)

Allianz Global Investors GmbH. (2024). *Allianz Best Styles Europe Equity*. Accessed on 24th May 2024. Available from: Allianz Best Styles Europe Equity - AT - EUR (allianzgi.com)

Allianz SE (2023). *Structure & holdings*. Accessed on 2nd February 2024. Available from: Structure & holdings (allianz.com)

Allianz SE (2024). *At a glance*. Accessed on 5th April 2024. Available from: At a glance (allianz.com)

Arnold, M., Fleming, S., & Jones, C. (2024). *Can Europe's economy ever hope to rival the US again?* Financial Times. Accessed on 25th August 2024. Available from: Can Europe's economy ever hope to rival the US again? (ft.com)

ATrading Economics. (2024). *United States GDP*. Trading Economics. Accessed on 25th August 2024. Available from: United States GDP (tradingeconomics.com)

Bank of England. (2024). *Interest rates and Bank Rate*. Bank of England. Accessed on 25th August 2024. Available from: Interest rates and Bank Rate | Bank of England

Bilton, J., Ward, K., Issar, M., Kelly, D., Albrecht, M., Aliaga, S., … Kennedy, P. (2024). *2024 Long-Term Capital Market Assumptions*. J.P. Morgan Asset Management. Accessed on 9th October 2024. Available from: ltcma-full-report.pdf (jpmorgan.com)

British Chambers of Commerce. (2024). *BCC Economic Forecast*. Accessed on 3rd October 2024. Available from: BCC Economic Forecast - British Chambers of Commerce

Capelli, P., Ielasi, F., & Russo, A. (2023). Integrating ESG risks into value-at-risk. *Finance Research Letters*, 55. https://doi.org/10.1016/j.frl.2023.103875

CFA Institute (2010). *Elements of an Investment Policy Statement for Institutional Investors*. ISBN: 978-0-938367-32-1

Chan, R. W., & Lui, B. C. (2011). EV/EBIT Ratio: The Best of Both Worlds. *Better Investing*, 60, 27-28.

Chen, J. (2024). *What Is a Capital Allocation Line (CAL) Line? How to Calculate*. Investopedia. Accessed on 20th September 2024. Available from: What Is a Capital Allocation Line (CAL) Line? How to Calculate (investopedia.com)

Chike-Obi, N., & Petroleka, M. (2022). *ESG Litigation Risk.* Sustainable Fitch. Accessed on 8th October 2024. Available from: Enter title here (sustainablefitch.com)

Deloitte Switzerland. (2024). *Climate litigation risk and the financial sector: A perspective on recent developments.* Deloitte. Accessed on 8th October 2024. Available from: Climate Litigation and the Financial Sector | Deloitte Switzerland

EUR-Lex (2019). *Regulation (EU) 2019/2088 of the European parliament and of the council of 27 November 2019 on sustainability-related disclosures in the financial services sector (Text with EEA relevance)*. Accessed on 10th July 2024. Available from: eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R2088

European Central Bank. (2024). *ECB staff macroeconomic projections for the euro area, September 2024.* Accessed on 3rd October 2024. Available from: ECB staff macroeconomic projections for the euro area, September 2024 (europa.eu)

European Central Bank. (2024). *Key ECB interest rates*. ECB Data Portal. Accessed on 25th August 2024. Available from: Key ECB interest rates | ECB Data Portal (europa.eu)

Fernando, J. (2024). *Sharpe Ratio: Definition, Formula, and Examples.* Investopedia. Accessed on 22nd September 2024. Available from: Sharpe Ratio: Definition, Formula, and Examples (investopedia.com)

Gaspar, R. (2022). *Investment Portfolio Management Formulas.* ISEG – Lisbon School of Economics and Management.

Hall, M. (2024). *How Do Interest Rates Affect the Stock Market?* Investopedia. Accessed on 10th October 2024. Available from: How Do Interest Rates Affect the Stock Market? (investopedia.com)

Investing.com. (2024). *Fed Interest Rate Decision*. Federal Reserve. Accessed on 25th August 2024. Available from: United States Federal Reserve Interest Rate Decision (investing.com)

Investopedia (2024). *What Is the Parametric Method in Value at Risk (VaR)?* Investopedia. Accessed on 29th September 2024. Available from: What Is the Parametric Method in Value at Risk (VaR)? (investopedia.com)

Investopedia. (2023). *Modern Portfolio Theory: What MPT Is and How Investors Use It.* Investopedia. Accessed on 23rd September 2024. Available from: Modern Portfolio Theory: What MPT Is and How Investors Use It (investopedia.com)

Joint Committee of the European supervisory Authorities (2024). *Consolidated questions and answers (Q&A) on the SFDR (Regulation (EU) 2019/2088) and the SFDR Delegated Regulation (Commission Delegated Regulation (EU) 2022/1288)*. Accessed on 10th July 2024. Available from: JC 2023 18 - Consolidated JC SFDR Q&As (europa.eu)

Kräussl, R., Oladiran, T., & Stefanova, D. (2023). A review on ESG investing: Investors' expectations, beliefs and perceptions. *Journal of Economic Surveys*, 38, 476–502. Doi: 10.1111/joes.12599

Markowitz, H. (1952). Portfolio Selection. *Journal of Finance*, Volume 7, No. 1, Pages 77-91. Available from: https://doi.org/10.1111/j.1540-6261.1952.tb01525.x

Meyers, S. M., Ferrero-Ferrero, I., & Munoz-Torres, M. J. (2024). Are sustainable funds doing the talk and the walk? An ESG score. *International Review of Economics and Finance*, 93, 1526-1541. https://doi.org/10.1016/j.iref.2024.04.023

Murphy, A. (2021). *Why Do Interest Rates Impact Stock Prices?* Winthrop Wealth. Accessed on 9th October 2024. Available from: Why Do Interest Rates Impact Stock Prices? - Winthrop Wealth

Napoletano, E., & Katzeff, P. (2024). *Environmental, Social And Governance: What Is ESG Investing?* Forbes Advisor. Accessed on 10th March 2024. Available from: What Is ESG Investing? – Forbes Advisor

Nogués, E. C., & Eitel, M. (2024). *Europe's economy is falling behind: a new Commissioner can help it catch up*. Euractiv Media network. Accessed on 25th August 2024. Available from: Europe's economy is falling behind: a new Commissioner can help it catch up – Euractiv

Ogier. (2024). *The rise of ESG litigation*. Ogier. Accessed on 9th October 2024. Available from: The rise of ESG litigation | Ogier

Pätäri, E., & Leivo, T. (2015). A closer look at value premium: literature review and synthesis. *Journal of Economic Surveys*, 31(1), 79-168. Doi: 10.1111/joes.12133.

Pedersen, L. H., Fitzgibbons, S., & Pomorski, L. (2021). Responsible investing: The ESG-efficient frontier. *Journal of Financial Economics*, 142(2), 572-597. https://doi.org/10.1016/j.jfineco.2020.11.001

Romei, V., & Smith, A. (2024). *Inflation and interest rates tracker: see how your country compares*. Financial Times. Accessed on 25th August 2024. Available from: Global inflation and interest rates tracker: see how your country compares (ft.com)

Ruban, O. (2024). Understanding Geopolitical Risk in Investments. MSCI. Accessed on 7th October 2024. Available from: Understanding Geopolitical Risk in Investments - MSCI

Segal, T. (2024). *Green Bond: Types, How to Buy, and FAQs*. Investopedia. Accessed on 14th September 2024. Available from: Green Bond: Types, How to Buy, and FAQs (investopedia.com)

Singla, A., Sukharevsky, A., Yee, L., Chui, M., & Hall, B. (2024). *The state of AI in early 2024: Gen AI adoption spikes and starts to generate value.* McKinsey & Company. Accessed on 10th October 2024. Available from: The state of AI in early 2024 | McKinsey

Statista. (2024). *Gross domestic product of the United Kingdom from 1948 to 2023*. Statista. Accessed on 25th August 2024. Available from: UK GDP 2023 | Statista

Swiss Federal Department of Foreign Affairs. (2024). *Swiss economy – Facts and figures*. Swiss Confederation. Accessed on 25th August 2024. Available from: Swiss economy – Facts and figures (admin.ch)

Swiss National Bank. (2024). *Current interest rates and exchange rates*. Swiss National Bank Banque Nationale Suisse. Accessed on 25th August 2024. Available from: Current interest rates and exchange rates (snb.ch)

Swiss National Bank. (2024). *SNB conditional inflation forecast*. Accessed on 3rd October 2024. Available from: SNB conditional inflation forecast | SNB data portal

The International Capital Market Association. (2021). *Green Bond Principles.* ICMA. Accessed on 15th September 2024. Available from: https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/green-bond-principles-gbp/

Trading Economics. (2024). *Euro Area GDP*. Trading Economics. Accessed on 25th August 2024. Available from: Euro Area GDP (tradingeconomics.com)

Trading Economics. (2024). *Euro Area Inflation Rate*. Trading Economics. Accessed on 25th August 2024. Available from: Euro Area Inflation Rate (tradingeconomics.com)

Trading Economics. (2024). *Switzerland GDP*. Trading Economics. Accessed on 25th August 2024. Available from: Switzerland GDP (tradingeconomics.com)

Trading Economics. (2024). *Switzerland Inflation Rate*. Trading Economics. Accessed on 25th August 2024. Available from: Switzerland Inflation Rate (tradingeconomics.com)

Trading Economics. (2024). *United Kingdom GDP*. Trading Economics. Accessed on 25th August 2024. Available from: United Kingdom GDP (tradingeconomics.com)

Trading Economics. (2024). *United Kingdom Inflation Rate*. Trading Economics. Accessed on 25th August 2024. Available from: United Kingdom Inflation Rate (tradingeconomics.com)

Trading Economics. (2024). *United States Inflation Rate*. Trading Economics. Accessed on 25th August 2024. Available from: United States Inflation Rate (tradingeconomics.com)

7. List of abbreviations

AI - Artificial Intelligence

Allianz GI – Allianz Global Investors

BEC – Best Execution Committee

CFA – Chartered Financial Analyst Organization

CHF – Swiss Franc

CSSF - *Commission de Surveillance du Secteur Financier*

EBIT – Earnings before Interest and Tax

EBITDA – Earnings Before Interest, Taxes, Depreciation, and Amortization

ESG – Environmental, Social, and Governance

EU – European Union

EUR – Euro

EV – Enterprise Value

GBP – Great British Pound

GICS - Global Industry Classification Standard

IPS – Investment Policy Statement

MPT – Modern Portfolio Theory

MV – Minimum Variance

NOK – Norwegian Krone

P/B – Price-to-Book Ratio

P/CF – Price-to-Cash-Flow Ratio

P/E – Price-to-Earnings Ratio

SFDR - Sustainable Finance Disclosure Regulation

UK – United Kingdom

UN – United Nations

US – United States of America

VaR – Value-at-Risk

8. Disclosures and Disclaimer

I disclose that AI tools were employed during the development of this thesis as follows:

- Generative AI tools were consulted for brainstorming and outlining purposes. However, all final writing, synthesis, and critical analysis are my own work. Instances where AI contributions were significant are clearly cited and acknowledged.

Nonetheless, I have ensured that the use of AI tools did not compromise the originality and integrity of my work. All sources of information, whether traditional or AI-assisted, have been appropriately cited in accordance with academic standards. The ethical use of AI in research and writing has been a guiding principle throughout the preparation of this thesis.

I understand the importance of maintaining academic integrity and take full responsibility for the content and originality of this work.

Sara Coelho, October 13, 2024