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**BALANCING VALUES AND VALUE: ESG (ENVIRONMENTAL,
SOCIAL AND GOVERNANCE) AND PERFORMANCE
TRADE-OFFS IN MULTI-ASSET FUNDS**

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ABSTRACT

This study explores the connection between environmental, social, and governance (ESG) classifications and the financial performance of European multi-asset funds. It utilises the Sustainable Finance Disclosure Regulation (SFDR) framework to categorise these funds effectively. Adopting a dual-leg analytical framework, the research evaluates both structural ESG integration under SFDR Articles 6, 8, and 9, as well as corresponding fund performance across risk-adjusted metrics. Data were drawn from 269 funds domiciled in the European Union, with classification and performance indicators sourced from Refinitiv and verified through regulatory disclosures. Quantitative analysis employed Modern Portfolio Theory (MPT) to assess return, volatility, Sharpe, Sortino, and Treynor ratios, while stakeholder theory informed the interpretation of ESG classification as both a regulatory and reputational signal. The findings reveal that Article 6 funds consistently delivered the highest average returns over five- and ten-year horizons, followed by Article 8 funds. Article 9 funds showed the lowest returns. In terms of risk-adjusted metrics, Article 6 and 8 funds achieved positive Sharpe ratios over longer periods, while Article 9 funds underperformed and exhibited higher volatility. Also, emissions data showed significant overlap across SFDR categories, with some Article 6 funds outperforming Article 8 and 9 funds in emissions metrics, raising concerns about classification consistency. The study concludes that higher ESG ambition (Article 9) does not guarantee superior financial performance or lower risk, suggesting a potential trade-off between sustainability goals and returns.

These results hold a significant impact on fund managers, institutional investors, and policymakers engaged in sustainable finance.

Keywords: ESG integration, Sustainable Finance Disclosure Regulation (SFDR), multi-asset funds, risk-adjusted performance, stakeholder theory, sustainable investing.

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1. INTRODUCTION

1.1 Background and Context

The global investment landscape has undergone a remarkable transformation, with environmental, social, and governance (ESG) factors becoming increasingly essential components of financial decision-making. What was once viewed as a niche or ethically motivated strategy is increasingly embedded in mainstream asset management practices. As sustainable investing gains traction, investors, regulators, and financial institutions face a growing need to assess the performance implications of integrating ESG criteria into portfolio construction.

The acceleration of sustainable finance has partly been driven by heightened societal awareness of climate change, social inequality, and corporate accountability. These developments have influenced investor expectations, prompting a shift from conventional return-maximisation models to investment strategies that reflect both financial value and social or environmental values. According to OECD (2020), institutional investors are increasingly required to respond to sustainability-related risks and opportunities to comply with evolving regulatory frameworks and meet the long-term preferences of their clients and beneficiaries.

The European Union (EU) is a key jurisdiction with regulatory frameworks for institutional investors and market participants, notably through the Sustainable Finance Disclosure Regulation (SFDR) and the EU Taxonomy, which formalise the integration of environmental, social, and governance (ESG) criteria. These frameworks enhance transparency and comparability in ESG reporting by requiring asset managers to disclose the extent to which sustainability considerations are integrated into their products. Under the SFDR, financial products are categorised according to Articles 6, 8, or 9, based on the level of ESG

integration in their investment processes. This classification system has a direct impact on fund design, investor disclosure, and marketing practices (Cochran et al., 2025).

Within this regulatory and institutional context, fund managers face a dual challenge. On the one hand, they are expected to deliver competitive financial performance. On the other hand, they are under pressure to align portfolios with ESG principles in ways that satisfy regulatory requirements and investor expectations. This creates a complex trade-off between achieving risk-adjusted returns and meeting sustainability objectives. As Berg et al. (2022) noted, the difficulty lies in balancing these demands without sacrificing either the ethical legitimacy or the economic viability of ESG investment strategies.

Although there has been an increase in ESG research, most existing empirical studies have primarily concentrated on equity mutual funds, especially in the United States. (Curtis et al., 2021). These studies often examine whether ESG-labelled products outperform or underperform their non-ESG counterparts in terms of absolute or risk-adjusted return metrics. However, far less attention has been paid to how ESG integration affects multi-asset and multi-index funds, which present unique structural and strategic complexities. These funds diversify across several indices or asset classes, making ESG implementation more challenging due to inconsistent data availability, scoring systems, and portfolio-level aggregation.

This thesis addresses the need for a more granular analysis of ESG integration in complex investment portfolio structures. It focuses specifically on Europe-domiciled multi-asset funds, examining how ESG classification, strategic repositioning, and regulatory alignment impact fund performance. In doing so, the study addresses gaps in the literature. It enhances the understanding of how financial service providers manage the dual priorities of values and value in sustainable investing.

1.2 Research Problem and Dual Focus: ESG vs. Performance

Incorporating environmental, social, and governance (ESG) factors into investment decision-making has raised significant questions for asset managers, regulators, and investors. While sustainable investing has gained widespread acceptance, its financial implications remain uncertain. Specifically, fund managers must assess whether ESG alignment enhances or constrains fund performance. This issue is particularly relevant in institutional contexts where investment mandates prioritise long-term returns, capital preservation, and regulatory compliance.

The research problem addressed in this thesis arises from the ongoing tension between achieving ESG objectives and maintaining competitive performance. As mentioned earlier, much of the academic and industry discourse has focused on mutual funds and single-asset strategies, leaving a gap in understanding how ESG integration plays out in more complex fund structures. Multi-asset and multi-index funds, which allocate capital across various assets, including equities, bonds, and other instruments, pose distinct challenges for ESG implementation. These challenges include data inconsistency, cross-asset ESG alignment, and the risk of unintentionally skewing portfolio exposures due to sectoral or regional ESG score differentials.

The importance of studying ESG performance in multi-asset funds is heightened by their growing role in retirement planning and institutional portfolios. Many pension schemes, both public and private, use multi-asset funds as default investment options due to their diversification and long-term orientation. Pension funds are among the most prominent global investors and have a unique responsibility to integrate ESG criteria into their management to mitigate long-term risks and fulfil sustainability-related obligations (Dražević et al., 2023). As most individuals are enrolled in some form of pension plan, whether through employment or private savings, the performance of these funds directly affects financial security later in

life. Hence, understanding how ESG considerations influence risk-adjusted returns in this context is a matter of both academic interest and public relevance (Himick, 2011; Nikulina, 2023).

Given the points mentioned above, this thesis addresses these concerns by adopting a dual focus. First, it investigates how ESG integration affects fund performance in terms of return and risk metrics. The study also examines how fund managers strike a balance between ESG commitments and financial performance while operating under regulatory constraints, particularly within the European Union's Sustainable Finance Disclosure Regulation (SFDR) framework. By considering both aspects, this research seeks to determine whether ESG-aligned multi-asset funds present a viable model for sustainable, long-term investment.

1.3 Research Objectives and Questions

This study explores the intersection of ESG classification and fund performance in European multi-asset funds. Using SFDR categorisation as a framework and focusing on performance metrics such as the Sortino ratio, which isolates downside volatility, the research aims to assess how sustainability orientation aligns with financial outcomes.

Research Objectives

1. To analyse how European multi-asset funds are categorised under the SFDR framework (Articles 6, 8, and 9) based on their declared sustainability goals and structural characteristics.
2. To compare the performance of Article 6, Article 8, and Article 9 funds using risk-adjusted return measures, including the Sharpe ratio and volatility.

Research Questions

1. How can multi-asset funds be classified under the SFDR framework, given their structure, disclosures, and ESG integration levels?

2. What are the key differences in performance, specifically in rate of return, volatility, and risk-adjusted metrics such as the Sortino ratio, across SFDR Article 6, 8, and 9 multi-asset funds?

The study builds on previous findings, which suggest that ESG strategies may improve downside risk protection (Guimarães & Malaquias, 2023), making metrics like the Sortino ratio especially relevant for fund evaluation.

1.4 Relevance to Sustainable Finance and Asset Management

The findings of this study have direct implications for both sustainable finance and the broader asset management industry. As institutional investors, regulators, and end clients increasingly prioritise environmental, social, and governance (ESG) considerations, there is growing demand for evidence-based approaches that connect sustainability objectives with financial performance. Multi-asset funds, which often serve as core holdings in pension plans and long-term investment strategies, play a critical role in this landscape.

One of the central contributions of this research lies in its evaluation of fund performance through the lens of ESG classification under the Sustainable Finance Disclosure Regulation (SFDR). The SFDR framework imposes new disclosure obligations and product labels, but asset managers often face uncertainty when aligning fund structures with Articles 6, 8, or 9. By analysing how actual fund performance relates to SFDR classifications, this study offers insight into whether higher ESG ambition corresponds with superior, comparable, or weaker financial outcomes. This information is valuable for fund selectors and product development teams seeking to construct portfolios that satisfy both regulatory requirements and performance benchmarks.

Furthermore, using risk-adjusted metrics, such as the Sortino ratio, which focuses on downside risk, is particularly relevant for long-term investors, including pension funds. These investors are not only interested in maximising returns but also in minimising adverse performance during market downturns.

Evidence that ESG-aligned funds may offer more stable risk-return profiles could influence allocation strategies and encourage more sustainable portfolio construction. Previous research has suggested that ESG investments can enhance resilience, particularly during periods of market stress (Guimarães & Malaquias, 2023). This study aims to verify these patterns in the context of multi-asset funds.

Additionally, from a policy and regulatory perspective, this research may also support efforts to mobilise capital toward sustainable economic activities. As the European Union and other jurisdictions advance green transition policies, there is a parallel need to ensure that financial markets direct capital to ESG-compliant investments without undermining long-term performance. Empirical studies that test whether ESG classifications meaningfully align with risk-adjusted returns are essential for building trust in regulatory frameworks such as the SFDR.

1.5 Scope and Limitations

This study focuses exclusively on multi-asset funds domiciled within the European Union and affiliated jurisdictions. The sample includes funds from countries such as Italy, Ireland, Luxembourg, Germany, France, the Netherlands, and several others that operate within the regulatory framework established by the European Commission. The uniformity of regulatory context provides a consistent basis for applying the Sustainable Finance Disclosure Regulation (SFDR) classifications, Articles 6, 8, and 9, as a framework for comparing ESG practices and performance outcomes.

By limiting the geographic scope to Europe, the research benefits from the relatively advanced and harmonised regulatory environment regarding ESG disclosure. As indicated earlier, the SFDR has created a formalised structure for ESG classification, making it possible to assess whether Article 6, 8, and 9 designations correspond to differences in return, volatility, and risk-adjusted performance. The consistency of legal and institutional standards across these domiciles enhances the comparability of data and reduces the risk of confounding variables related to jurisdictional regulatory differences.

However, this geographical scope also introduces certain limitations. The findings may not be directly applicable to funds domiciled outside the EU, such as those based in North America or Asia, where ESG regulation, disclosure practices, and market expectations differ significantly. Similarly, the results should be interpreted within the context of the European financial market, which has unique policy drivers such as the EU Green Deal and a stronger emphasis on sustainable finance legislation.

Another limitation relates to the structure of the funds examined. The dataset comprises multi-asset funds, which are inherently diversified across asset classes or market indices. This complexity can obscure the attribution of ESG effects to specific asset types, especially when ESG ratings or disclosure quality vary across asset classes. Additionally, some funds may lack complete or standardised data for specific performance indicators, such as Treynor or Sortino ratios, which could affect the precision of comparative analysis.

Finally, while the study evaluates ESG classifications and performance using quantitative data, it does not assess the qualitative aspects of fund management, including engagement strategies, stewardship, and voting practices. These factors may also contribute to a fund's sustainability profile but fall outside the scope of this quantitative analysis.

2. LITERATURE REVIEW

ESG Context and Regulatory Foundation

2.1 Evolution of ESG and Sustainable Finance

The rise of climate change awareness, social justice movements, and governance scandals has propelled ESG considerations into the financial mainstream. What began as niche investment strategies has now become a key determinant of capital allocation and corporate valuation. This evolution reflects both a response to systemic risks and a strategic adaptation to changing stakeholder expectations.

Although sustainable finance was initially rooted in ethical investing and negative screening, often excluding "sin stocks" such as those involved in tobacco, gambling, or fossil fuels, over time, this has morphed into broader ESG integration strategies that aim to measure and manage environmental and social risks, as well as corporate governance quality.

Researchers highlight that the ESG concept gained traction particularly after the 2004 UN Global Compact's "Who Cares Wins" report, which framed ESG factors as financially material issues, prompting greater investor interest (OECD, 2020).

2.1.1 Regulatory and Market Evolution

Evolving regulatory and market frameworks have profoundly shaped the development of ESG. In the EU, the Sustainable Finance Disclosure Regulation (SFDR) and the EU Taxonomy have played a crucial role in promoting ESG transparency and aligning financial flows with climate objectives (Lemke & Eberle, 2022). Similarly, emerging economies adapt regulatory norms to align with global ESG expectations (Rahat & Nguyen, 2024).

Financial actors have also begun integrating ESG into core business practices. Studies show that ESG metrics are routinely incorporated into investment decision-making and risk assessment processes (Busch et al., 2023), with an increasing demand from both institutional investors and retail clients.

2.1.2 Methodological Challenges and Standardisation

Despite progress, ESG evaluation still faces major challenges. Significant variability in ESG scoring methodologies leads to inconsistent ratings and a lack of comparability between firms (Friede et al., 2015). This inconsistency complicates investor decision-making and raises concerns about greenwashing.

Efforts to standardise ESG reporting, through frameworks like the Global Reporting Initiative (GRI), SASB, and the newly launched International Sustainability Standards Board (ISSB), aim to improve disclosure quality and harmonise data for comparability (OECD, 2020).

2.1.3 The Rise of Impact and Climate Finance

Beyond ESG, sustainable finance has expanded into impact investing, which targets measurable positive outcomes alongside financial returns. Climate finance, particularly aligned with net-zero goals, has become a dominant theme, with green bonds, carbon markets, and blended finance tools supporting the energy transition (Busch et al., 2023).

Moreover, there is a growing integration of systemic sustainability perspectives, thus, seeing financial markets as both a source of and solution to ecological and social crises (Lemke & Eberle, 2022).

2.2 The SFDR Framework and ESG Classifications (Articles 6, 8, 9)

The Sustainable Finance Disclosure Regulation (SFDR), implemented by the European Union, serves as a crucial policy tool designed to improve transparency in sustainable investing. The ESG classifications

under Articles 6, 8, and 9 are central to this regulation, categorising financial products based on their sustainability integration and investment objectives. This section reviews the current academic understanding of the SFDR framework and its classifications.

2.2.1 SFDR Overview and ESG Product Classification

The SFDR sets out mandatory Environmental, Social, and Governance (ESG) disclosure requirements for financial market participants and financial advisers. Its primary goal is to combat greenwashing and promote sustainable investment across the EU's financial system.

1. **Article 6** mandates the disclosure of how sustainability risks are incorporated into investment decisions or explains why they may not be deemed relevant. This requirement is applicable to all financial products and establishes a baseline for disclosure (Abouarab et al., 2025).
2. **Article 8** products, often referred to as “light green”, are designed to highlight environmental or social attributes, contingent upon the companies' adherence to sound governance practices. However, these products do not inherently prioritise sustainable investment as their primary goal (Becker et al., 2023). Consequently, they exhibit significant variability in their ESG characteristics, sparking ongoing discussions regarding the effectiveness of this classification.
3. **Article 9** products, commonly referred to as “dark green,” specifically target sustainable investments. These are the most stringent in terms of ESG commitments, often requiring quantitative sustainability objectives. However, evidence suggests that some funds labeled under Article 9 may not fully align with sustainability goals due to inconsistent interpretation and implementation of the regulation (Chesney & Lambillon, 2023).

2.2.2 Effectiveness and Market Impacts

Studies show that while SFDR has led to a surge in ESG-labelled products, many Article 8 funds exhibit limited improvement in actual ESG performance compared to Article 6 funds, raising questions about the effectiveness of ESG integration (Abouarab et al., 2025).

Additionally, the classification system, particularly Articles 8 and 9, has increased investor awareness but also added complexity due to inconsistent labeling, which may undermine investor trust (Becker et al., 2023).

Furthermore, preliminary evidence suggests that the SFDR may be influencing fund managers' strategies to comply with regulatory requirements. Still, a significant need remains for more explicit guidance and harmonisation to ensure comparability and impact (Abouarab et al., 2025).

2.3 ESG in Multi-Index and Multi-Asset Funds

ESG considerations have shifted from a niche concern to a mainstream focus in asset management; however, integrating them into multi-asset and multi-index funds presents unique challenges and opportunities.

While single-asset ESG approaches are well-documented, multi-asset and multi-index funds complicate ESG integration due to the breadth of holdings, varying ESG scoring systems, and often conflicting asset-level mandates. These funds require a holistic approach that balances risk, return, and sustainability across a diverse range of instruments. This section examines how asset managers are navigating this evolving terrain.

2.3.1 ESG Integration Approaches in Multi-Asset and Multi-Index Portfolios

Recent research indicates that ESG integration in multi-asset strategies frequently relies on a combination of bottom-up ESG screening and top-down asset allocation frameworks. For example, one study finds that dynamic ESG scoring combined with systematic reallocation enables funds to align with sustainability objectives while maintaining diversification benefits (Avramov et al., 2022). However, applying consistent ESG metrics across equities, bonds, commodities, and alternatives remains a persistent barrier.

Another approach involves ESG tilt strategies within index-based exposures, which enable gradual weight adjustments based on ESG scores. Such methods are increasingly used in passive multi-asset funds to balance ESG preferences and market replication goals (Matallín-Sáez et al., 2019). However, these strategies are constrained by the methodologies of index providers, which may obscure sectoral or regional ESG nuances.

2.3.2 Performance Implications

Empirical findings suggest that ESG integration does not necessarily detract from risk-adjusted returns in multi-asset contexts. Some studies even indicate that ESG-aligned funds may outperform traditional portfolios in the long term due to superior downside protection and exposure to more resilient business models (Avramov et al., 2022). For instance, portfolios with high ESG exposure demonstrated better Sharpe ratios and lower drawdowns during market stress periods, such as the COVID-19 sell-off.

However, performance outcomes are not uniform. Some funds that aggressively screen based on ESG may introduce unintended sector biases, reducing diversification and potentially increasing tracking error relative to broad indices (Matallín-Sáez et al., 2019).

2.3.3 Systemic and Implementation Challenges

ESG implementation in diversified funds faces structural and data limitations. One key concern is the inconsistency of ESG scores across data providers, which can lead to divergent investment outcomes even with similar policy frameworks (Avramov et al., 2022). These discrepancies complicate model calibration and benchmarking, particularly when combining public and private asset exposures.

Another challenge involves the lack of granular ESG data for certain asset classes, particularly sovereign bonds and alternatives. Multi-asset funds that include these instruments often rely on proxy measures or qualitative ESG assessments, which weakens comparability and increases reliance on discretionary judgment (Avramov et al., 2022).

2.4 Strategic ESG Repositioning: Reclassification, Ambition, and Greenwashing

Sustainable investing is now a mainstream concern for both investors and fund providers. As ESG has moved from a voluntary marketing label to a regulated framework, financial institutions have responded by repositioning products and redefining fund strategies. These changes are often described as ESG reclassification or repositioning. While these shifts can indicate stronger sustainability commitments, they also raise questions about whether they reflect real change or are designed to take advantage of regulatory uncertainty and investor expectations.

2.4.1 ESG Reclassification and Strategic Labelling

A major form of ESG repositioning involves reclassifying traditional investment funds into ESG-compliant categories. This is often seen in response to regulations such as the EU Sustainable

Finance Disclosure Regulation (SFDR), which created Article 6, 8, and 9 fund classifications. Evidence suggests that many fund managers labelled products under Article 8 or 9 without significantly modifying their portfolios. For example, a study found that approximately 35% of funds adopting ESG labels retained nearly identical asset compositions, raising doubts about whether reclassification truly reflects ESG integration (Avramov et al., 2022).

This behaviour has been interpreted as a strategy to attract ESG-motivated capital as ESG-labelled funds generally experience greater inflows than their non-ESG peers, even without clear performance advantages or enhanced ESG scores (Hartzmark & Sussman, 2019).

2.4.2 Ambition Signalling Without Delivery

Beyond formal reclassification, financial institutions frequently make public declarations about ESG commitments. These include net-zero targets, impact objectives, or alignment with the Paris Agreement. However, these announcements often lack implementation plans. As if that were not concerning enough, many ESG funds that claim strong sustainability goals do not enforce exclusion lists or carry out active carbon reduction measures (Fraser & Fiedler, 2023).

In these cases, fund managers appear to utilise ESG ambition as a marketing tool to enhance the attractiveness of their funds. Such ambition can be seen as performative rather than substantive without corresponding adjustments in holdings or investment strategy. These gaps between claims and practice highlight the problem of symbolic compliance in ESG investing.

2.4.3 Greenwashing and the Limits of ESG Integrity

Greenwashing occurs when a fund or financial firm exaggerates its environmental, social, and governance (ESG) credentials. This does not always involve false claims but often relies on selective reporting or framing. Passive investment products, particularly ESG exchange-traded funds (ETFs), have been

identified as high-risk areas. Several studies have shown that ESG ETFs often exhibit little difference in carbon exposure compared to conventional funds, despite their ESG labelling (Dyck et al., 2019).

Inconsistencies in ESG ratings between different agencies further complicate the situation. One study found that divergence in ESG scores for the same companies allowed fund managers to "shop around" for favourable assessments (Berg et al., 2022). This creates room for intentional or unintentional greenwashing, weakening investor trust in ESG labels.

2.4.4 Motivations Behind Strategic Repositioning

Fund managers are not operating in a vacuum. Several market and regulatory factors incentivise strategic ESG positioning:

- **Asset Flows:** ESG-labelled products attract more capital, often from retail investors, even when the ESG improvements are marginal (Pastor et al., 2021).
- **Regulatory Gaps:** Ambiguity in ESG definitions and flexible enforcement under regulations like SFDR give fund managers considerable discretion in self-labelling (Yu et al., 2020).
- **Reputation Management:** ESG has become a key reputational differentiator, and public commitments, even if vague, can significantly elevate brand perception.

Leg 2: ESG and Performance

2.5 ESG and Fund Performance: Empirical Evidence

The relationship between environmental, social, and governance (ESG) integration and mutual fund performance has received growing scholarly and industry attention. Financial service providers,

particularly mutual fund managers, face increasing pressure to justify ESG-oriented investment strategies not just on ethical grounds but also in terms of performance metrics. The question at the heart of this discourse is whether ESG integration enhances, detracts from, or has a neutral effect on fund performance. Empirical studies present a complex and often nuanced picture.

2.5.1 Performance Outcomes Vary by Context and Strategy

Several studies suggest that ESG factors can contribute positively to mutual fund performance, particularly during periods of market distress. For example, Petridis et al., (2023) found that funds with higher ESG scores outperformed their lower-rated peers during the COVID-19 crisis. Using data envelopment analysis, their research demonstrated that high-ESG funds showed superior efficiency scores and risk-adjusted returns regardless of fund type. This suggests that ESG characteristics provide resilience during systemic shocks, potentially by filtering out firms with higher operational or reputational risk.

Similarly, Hasnaoui (2024) examined Eurozone mutual funds with significant exposure to the technology sector and found that funds with high ESG ratings consistently outperformed in terms of both absolute and risk-adjusted returns. These funds also showed stronger market timing capabilities, highlighting the potential value of ESG as a forward-looking metric in volatile sectors.

2.5.2 No Universal Performance Premium

Despite these findings, not all research supports a clear-cut ESG performance premium. Plagge and Grim (2020) analysed a broad set of U.S. ESG equity funds. They concluded that, after controlling for style factors, most ESG funds did not produce statistically significant positive or negative alpha. Their study emphasised high dispersion in fund performance and recommended fund-specific analysis rather than general assumptions about ESG efficacy.

Moscan (2019) offered a similar conclusion through a factor-based performance analysis. While some ESG funds outperformed others, the overall results varied depending on the model and region analyzed. Notably, the study found no consistent link between ESG strategy and manager skill, indicating that strong returns may result from traditional financial expertise rather than ESG integration alone.

2.5.3 ESG and Active Management

There is growing evidence that active fund managers who integrate ESG information systematically into their decision-making may outperform passive ESG strategies. Chen et al. (2024) analysed mutual funds using daily firm-level ESG data and found that active managers not only traded on ESG signals but also achieved improved risk-adjusted performance. The results suggest that when ESG information is used as a dynamic input, rather than a static screening tool, it can enhance portfolio quality and align better with investor expectations.

This finding is particularly relevant given the criticism of passive ESG funds for holding positions inconsistent with their stated sustainability goals. Baily and Gnabo (2022) found that while ESG funds showed differentiation in portfolio composition early in their adoption, they became more homogeneous and similar to conventional funds over time. This “convergence effect” undermines the distinctiveness of ESG strategies, raising questions about their long-term value proposition.

2.5.4 Fund Managers’ Role and ESG Signalling

Fund managers also engage in ESG signaling, which can affect fund flows regardless of the actual ESG impact. For instance, Gibbon et al. (2025) studied fund renaming behaviour and discovered that managers who added ESG terms to fund names tended to improve ESG portfolio metrics post-renaming. While this indicates at least some level of alignment between branding and behaviour, it also underscores the importance of verifying whether ESG claims reflect substantive change.

Yet, not all ESG-labelled funds demonstrate such alignment. Raghunandan and Rajgopal (2022) found that some self-labelled ESG mutual funds in the U.S. invested in firms with poorer labour and environmental compliance records than those held by non-ESG funds within the same institutions. This performance inconsistency, coupled with higher fees and lower returns, points to the risk of greenwashing, where ESG language is used to attract flows without delivering better outcomes.

2.6 Risk-Adjusted Returns and Sustainable Investing

Evaluating the performance of ESG funds requires more than a simple comparison of raw returns. In sustainable investing, performance is best assessed through risk-adjusted metrics that reflect how well a fund compensates investors for the risks it takes. Fund managers and financial institutions increasingly rely on measures such as the Sharpe ratio, Jensen's alpha, and the Sortino ratio to capture the nuanced relationship between sustainability and performance.

2.6.1 Why Risk-Adjusted Returns Matter in ESG Investing

Traditional investment analysis often emphasises absolute returns. However, sustainable investing typically focuses on long-term stability and responsible capital allocation, rather than short-term gains. ESG funds may naturally lean toward lower-volatility sectors such as technology or consumer staples and may avoid high-risk, high-return industries like energy or mining. This positioning requires metrics that normalize performance against volatility.

Risk-adjusted return measures enable fund managers to evaluate whether ESG-aligned portfolios offer superior value concerning the risks they undertake. They are also critical in justifying ESG strategies to investors and regulators, especially when ESG mandates may result in constrained diversification or sector biases.

2.6.2 Empirical Findings on ESG and Risk-Adjusted Performance

Several studies highlight that ESG funds often deliver competitive or superior risk-adjusted returns, particularly during periods of market stress. Guimarães and Malaquias (2023), analysing over 3,800 mutual funds, found that ESG-related funds significantly outperformed traditional funds during financial downturns, including the COVID-19 crisis. Their findings showed higher Sharpe ratios and improved alpha values, indicating that ESG integration may serve as a buffer in turbulent markets.

Hasnaoui (2024) extended this analysis to tech-heavy Eurozone mutual funds and reported that funds with higher ESG ratings consistently delivered better risk-adjusted returns, as measured by both Sharpe and Sortino ratios. These funds also demonstrated superior market timing capabilities, a factor that fund managers often struggle to optimise.

Furthermore, a study focusing on UK investors found that ESG funds exhibited stronger performance in terms of Sharpe ratios across equity segments over a three-year period (Schmidt and McCann, 2022). This suggests that ESG strategies are not only viable but may even outperform conventional strategies when evaluated on a risk-adjusted basis.

However, not all studies reach the same conclusion. Soni (2023) examined ESG funds in the Indian market. She observed that while ESG scores correlated with better performance in some cases, they did not consistently generate positive alpha during regular or crisis periods. The author attributed this to higher screening and opportunity costs associated with socially responsible investing. These findings underscore the need for region and strategy-specific analysis.

2.6.4 Managerial Implications and Strategy

For fund managers, risk-adjusted return metrics are viewed as more than just performance indicators; they are seen as tools for product differentiation. With rising investor demand for transparency and regulatory

frameworks like the SFDR, managers must demonstrate not only that ESG strategies are responsible but also financially competitive. Superior risk-adjusted returns help establish the legitimacy of sustainable products and reduce scepticism about ESG being a mere marketing label.

Active managers, in particular, have used ESG signals to adjust portfolio exposure in real-time. Chen et al. (2024) found that fund managers who actively trade on daily ESG information achieve improved performance compared to peers who apply ESG as a static screen. This supports the view that ESG integration, when used dynamically, contributes meaningfully to alpha generation and downside protection.

Nevertheless, fund managers must also remain cautious. As ESG metrics vary widely between rating agencies, misalignment between perceived and actual risk-adjusted performance can lead to reputational damage and regulatory scrutiny.

2.7 ESG Trade-Offs: Values vs. Value

Incorporating environmental, social, and governance (ESG) criteria into investment decisions often requires striking a balance between ethical priorities and financial objectives. This tension, frequently referred to as the “values versus value” trade-off, arises when portfolio strategies align with sustainability principles but may conflict with traditional risk-return optimisation. For fund managers and financial service providers, understanding and navigating this trade-off is crucial to meeting fiduciary obligations and stakeholder expectations.

2.7.1 Conceptualising the Trade-Off

The trade-off between ESG values and financial value is not purely theoretical. Investors and asset managers often encounter scenarios where applying ESG filters results in the exclusion of high-performing sectors or companies. For example, avoiding fossil fuels, arms manufacturing, or specific emerging markets may result in portfolios that diverge from market benchmarks, introducing tracking error or reduced diversification.

Branch, Goldberg, and Hand (2019) demonstrate that ESG portfolio construction often involves tilting portfolios toward or away from particular sectors based on ethical screens. While these adjustments may align investments with investors' values, they can increase exposure to unintended risks or reduce overall performance consistency. This reality requires investors and fund managers to determine how much deviation from optimal financial outcomes is acceptable in pursuit of non-financial goals (Branch et al., 2019).

2.7.2 Empirical Evidence on Performance Trade-Offs

Erol, Unal, and Coskun (2023) analysed ESG-rated real estate investment trusts (REITs) across developed markets and found that environmental-focused investments often led to reduced financial performance due to high compliance and capital costs. These results supported the neoclassical view that ESG considerations could impair returns if they impose costs not fully compensated by market premiums. However, the same study reported that social-focused investments were positively associated with market valuation, suggesting that not all ESG dimensions exhibit the same trade-off intensity (Erol et al., 2023).

Further evidence of trade-offs can be found in the UK market. Al-Tarawneh et al. (2024) observed that firms with higher ESG scores, especially those emphasising governance practices, were associated with lower market valuations, as measured by Tobin's Q. This was interpreted as an indication that the financial

benefits of ESG initiatives are not always immediately visible or rewarded by the market, particularly when such practices entail high short-term costs or reduced operating flexibility (Al-Tarawneh et al., 2024).

However, Yu et al. (2024) investigated how ESG performance influences capital versus environmental investment decisions in BRICS countries. Their study revealed a positive relationship between ESG scores and earnings-focused capital investment, but a negative relationship with ecological investment. This pattern suggests that firms may prioritise ESG components that align more closely with financial goals, while deprioritising initiatives with higher costs and less immediate payoffs (Yu et al., 2024).

2.8 Literature Gaps and Study Contribution

The existing literature examining the relationship between ESG performance and fund outcomes has grown significantly in recent years. However, it continues to exhibit notable limitations in scope and focus. One prominent trend is the increasing focus on traditional mutual funds, particularly equity-based products, in the United States and other major financial markets. For example, Curtis, Fisch, and Robertson (2021) conducted a comprehensive empirical analysis of ESG mutual funds to evaluate whether these funds deliver on their stated sustainability objectives. Their findings confirmed that many ESG funds enhance exposure to sustainability factors without compromising financial returns. However, like many others, their study is confined to U.S.-domiciled mutual funds and does not explore the ESG-performance dynamic in more complex or diversified fund structures (Curtis et al., 2021).

This narrow emphasis creates a gap in the literature regarding more complex investment structures, particularly multi-asset and multi-index funds. These vehicles allocate capital across multiple asset classes, including equities, fixed income, and alternatives, which introduces challenges for ESG implementation that differ significantly from single-asset funds. Issues such as cross-asset ESG scoring compatibility and portfolio-level sustainability benchmarking are often absent from existing models.

The present study contributes to filling this gap by focusing specifically on ESG implementation and performance within multi-asset funds. This category of funds requires asset managers to balance competing ESG metrics and investment mandates across different asset classes, a challenge largely unaddressed in existing performance studies. As such, this research responds to the need for a more comprehensive understanding of ESG integration in diversified portfolio structures.

Another significant contribution is the geographic focus. Much of the empirical evidence on ESG fund performance remains U.S.-centric, with relatively fewer studies examining funds domiciled in the European Union. This is a significant omission given the EU's regulatory leadership in sustainable finance. Regulations such as the Sustainable Finance Disclosure Regulation (SFDR) have transformed how ESG is reported, classified, and marketed within Europe. The European context provides a unique environment for evaluating how classification standards, particularly Articles 6, 8, and 9, are operationalised by fund managers. While some studies include European data, few focus exclusively on funds operating within the EU's regulatory perimeter.

Finally, this study extends beyond return metrics by analysing strategic repositioning and ambition signalling within ESG classifications. Existing literature often treats ESG integration as a static process, whereas real-world fund management involves ongoing adjustments in response to regulatory changes and market expectations. By incorporating both performance outcomes and fund-level ESG strategy, this study provides a broader view of how financial service providers manage ESG mandates in practice.

3. ANALYTICAL FRAMEWORK

3.1 Modern Portfolio Theory (MPT) and Performance Analysis

Harry Markowitz introduced Modern Portfolio Theory (MPT) in 1952, a key model in financial economics for assessing investment performance. The theory holds that investors can optimise their portfolios by balancing expected return with risk, defined as the standard deviation of returns. According to MPT, an efficient portfolio is one that offers the highest possible expected return for a given level of risk or the lowest possible risk for a given level of expected return (Markowitz, 1952). Modern Portfolio Theory (MPT) suggests that a well-diversified portfolio offers a better risk-return trade-off compared to investing in a single asset or asset class (Logue, 2023).

Given the MPT's focus on diversification of asset classes, this study adopts MPT as the primary theoretical basis for measuring the performance of multi-asset funds, particularly in the context of ESG classification. Multi-asset funds are inherently diversified across asset classes and geographies. The application of MPT allows for a structured analysis of whether different ESG classifications under the SFDR correspond to observable differences in fund efficiency.

The study uses standard performance metrics from Modern Portfolio Theory (MPT), including the Sharpe, Sortino, and Treynor ratios, to evaluate the selected funds. The Sharpe ratio measures excess return for each unit of total risk (Brinza et al., 2024). On the other hand, the Treynor ratio adjusts returns by the level of market risk, as captured by beta (Treynor, 1965). For the Sortino ratio, it is particularly relevant in the context of sustainable investing because it focuses only on downside volatility, rather than total volatility. This distinction is important for long-term investors such as pension funds, which tend to be more sensitive to losses below a target threshold than to general fluctuations in returns (Sortino & Van der Meer, 1991).

Moreover, research indicates that ESG-integrated portfolios may offer improved risk-adjusted returns in some circumstances. Guimarães and Malaquias (2023), for example, found that ESG-aligned mutual funds outperformed non-ESG funds on efficiency metrics during periods of financial stress. Their findings suggest that ESG characteristics may help reduce downside risk, although the extent of this benefit varies across fund types and market conditions.

Hence, by applying MPT-based performance analysis to funds classified under SFDR Articles 6, 8, and 9, this study aims to determine whether greater ESG ambition correlates with improved or impaired financial efficiency, particularly for funds with diversified asset classes, which is at the core of MPT. The findings are expected to contribute to the ongoing discussions about whether ESG integration is compatible with the traditional objectives of portfolio optimisation.

3.2 ESG Integration and Stakeholder Theory

Fund managers are increasingly incorporating environmental, social, and governance (ESG) criteria into asset selection and portfolio management, reflecting a shift in financial practice from a focus on shareholders to a broader consideration of multiple stakeholders. Stakeholder theory, proposed by Freeman in 1984, holds that companies should be accountable not only to shareholders but also to employees, customers, suppliers, communities, and the environment. Stakeholder theory becomes particularly useful in contexts where capital allocation decisions affect a wide range of social and environmental outcomes, providing a reasonable basis for ESG investing that prioritises all stakeholders, which is often the case in asset management.

In asset management, stakeholder theory justifies ESG integration as a way to manage long-term risks and align investment practices with societal expectations. It challenges the traditional view that the sole objective of investment is to maximise financial return. Instead, it emphasises that long-term value creation depends on the stability and sustainability of the broader ecosystem in which firms operate. As a

result, fiduciary responsibility for asset managers is increasingly being expanded to include non-financial impacts, which have to be considered by fund managers (Eccles et al., 2020).

The application of stakeholder theory to fund management practices is particularly relevant in the European Union, where policy frameworks such as the SFDR and the EU Taxonomy explicitly aim to reorient capital flows toward sustainable economic activities. These frameworks encourage asset managers to take into account stakeholder-relevant risks and outcomes, such as climate change, social equity, and governance quality. Funds classified under SFDR Articles 8 and 9, for example, are expected to embed ESG considerations in a way that reflects both transparency and investor alignment (Cochran et al., 2025).

Research has shown that firms with stronger stakeholder relationships tend to exhibit more stable long-term performance and reduced reputational risk. Fatemi et al. (2018) found that firms with comprehensive ESG policies were better placed to withstand operational disruptions and regulatory changes. From the perspective of fund performance, ESG integration informed by stakeholder theory can contribute to risk mitigation, particularly during periods of economic or geopolitical uncertainty

This thesis adopts stakeholder theory as a conceptual lens to interpret ESG classification and fund strategy. By doing so, it seeks to understand ESG implementation not only as a compliance task but as a deliberate positioning of the fund in response to stakeholder demands. The classification of a fund as Article 8 or Article 9 under SFDR can therefore be read as a signal of how seriously the fund manager engages with stakeholder concerns and long-term sustainability objectives.

3.3 SFDR as Regulatory Signalling: Voluntary vs. Enforced ESG

The Sustainable Finance Disclosure Regulation (SFDR), introduced by the European Union in 2021, aims to enhance transparency regarding the integration of sustainability into investment decisions. The regulation mandates that financial products must be classified into one of three categories: Article 6, Article 8, or Article 9. Article 6 funds do not assert any sustainability claims, whereas Article 8 funds

actively promote specific environmental or social characteristics. In contrast, Article 9 funds are dedicated to achieving explicit sustainable investment objectives. Disclosure obligations accompany these classifications, but they also serve as signals to investors regarding the fund's ESG intent and ambition (Cochran et al., 2025).

Although the SFDR is a regulatory requirement, the choice of classification often reflects more than minimum compliance. Fund managers actively decide how their products are positioned within this framework. This decision can be based on internal sustainability philosophy, the need to align with investor expectations, or the strategic desire to appeal to ESG-oriented capital flows. The classification, therefore, serves as both a regulatory label and a reputational signal to the market.

This dual role creates a tension between enforced and voluntary ESG integration. Enforced ESG refers to disclosures made purely to meet regulatory obligations, sometimes with minimal substantive changes to investment practices. Voluntary ESG reflects a deeper integration of sustainability into portfolio construction and firm strategy. From an investor's perspective, distinguishing between these two approaches is essential for assessing the credibility of ESG claims.

Recent research has highlighted the inconsistencies in how fund managers apply SFDR labels. Chesney and Lambillon (2023) found that several funds classified under Article 9 did not demonstrate meaningful differences in holdings compared to Article 8 funds. Similarly, Abouarab et al. (2025) observed that significant changes in ESG integration or investment approach did not accompany some reclassifications. These findings suggest that some fund managers may be using SFDR categories as a marketing tool rather than as a reflection of a genuine shift in sustainability strategy.

For regulators and investors, this raises concerns about greenwashing and the reliability of sustainability disclosures. For fund managers, the decision to adopt a particular SFDR label involves weighing reputational benefits against the risk of regulatory scrutiny and the operational cost of aligning with more

stringent sustainability goals. This study incorporates SFDR classification as a key analytical variable to investigate whether Article 6, 8, and 9 funds differ not only in stated ESG ambition but also in measurable performance outcomes. It also considers whether the classification acts as a credible signal of a fund's ESG integration or merely as a regulatory formality.

3.4 Analytical Framework for Dual-Leg Analysis

This thesis adopts a dual-leg analytical framework to examine the relationship between ESG classification and financial performance in multi-index funds. The two analytical legs correspond to the central pillars of the research: (1) the structural and regulatory foundation of ESG integration, and (2) the empirical evaluation of fund performance. This approach enables the study to address not only whether ESG ambition influences returns and risk but also how fund managers position their products within the Sustainable Finance Disclosure Regulation (SFDR) framework.

The first leg of the analysis focuses on fund classification under Articles 6, 8, and 9 of the SFDR. This involves assessing fund disclosures, stated sustainability objectives, and structural characteristics such as asset allocation and ESG screening methodologies. These variables are used to determine the extent to which a fund's ESG positioning is aligned with its formal classification. The goal is to evaluate whether SFDR labels reflect genuine differences in ESG integration or if they function primarily as signalling mechanisms. This leg draws on stakeholder theory to interpret fund classification as a reflection of institutional priorities, investor expectations, and regulatory pressures.

The second leg examines fund performance using risk-adjusted metrics derived from Modern Portfolio Theory (MPT). Key indicators include the Sharpe ratio, Sortino ratio, and volatility. These metrics allow for a systematic comparison of financial outcomes across Article 6, 8, and 9 funds. In particular, the Sortino ratio is used to assess downside risk efficiency, which is especially relevant for long-term

investors concerned with capital preservation during periods of market stress. The analysis also includes return and volatility measures to provide a comprehensive picture of fund performance.

By combining these two analytical legs, the framework allows for the assessment of potential trade-offs between ESG ambition and financial value. It supports the investigation of whether funds with higher sustainability commitments (as indicated by SFDR Article 8 or 9 classifications) perform differently from those with limited or no ESG integration (Article 6). It also facilitates the exploration of whether such differences, if present, are explained by genuine portfolio characteristics or by strategic signalling.

The dual-leg framework reflects the interdisciplinary nature of the research, integrating regulatory, strategic, and financial dimensions of ESG investing. It is designed to provide both conceptual clarity and empirical robustness, supporting the study's objective to assess how multi-index funds balance values and value in the European sustainable finance context.

4. RESEARCH DESIGN AND METHODOLOGY

Leg 1: ESG Classification Method

4.1 Research Strategy and Fund Selection

This research adopts a structured, empirical strategy to investigate the relationship between ESG classification and financial performance in European multi-index funds. The strategy is grounded in a cross-sectional comparative design, enabling the study to evaluate multiple funds across different ESG categories under the SFDR framework at a single point in time. This approach is appropriate given the aim to compare risk-adjusted return metrics across Article 6, 8, and 9 classifications.

The sample was selected from a curated dataset of multi-index funds domiciled within the European Union and affiliated jurisdictions. Multi-index funds were chosen due to their relevance in diversified, long-term investment strategies, particularly for institutional investors such as pension funds. These funds typically invest across various indices, including equity and fixed-income benchmarks, which makes them a useful case for examining how ESG integration influences performance in complex, diversified portfolios.

The selection process began with a broad universe of European-domiciled investment funds, narrowed by applying the following criteria:

- The fund must be classified under Article 6, Article 8, or Article 9 of the SFDR, with clear public documentation of this classification.
- The fund must have available and complete performance data, including at minimum: rate of return, standard deviation, Sharpe ratio, and Sortino ratio.
- The fund must be multi-index or multi-asset in structure, allocating capital across more than one asset class or benchmark.

- The fund must be active during the period under review and report performance figures over a consistent time horizon.

Funds that lacked transparency in SFDR classification or performance metrics were excluded to preserve data integrity and analytical consistency. The final sample comprises funds domiciled in EU member states including Ireland, Luxembourg, France, Germany, the Netherlands, and others. This reflects the harmonised regulatory context provided by EU financial law, particularly under SFDR implementation.

This sampling strategy ensures that the study addresses its core objective: to assess whether ESG classification, as a proxy for sustainability ambition, correlates with differences in risk and return outcomes in a real-world, policy-driven investment environment.

4.2 Data Sources and Disclosure Documents

The data for this study were sourced from Refinitiv via LSEG Workspace, a widely recognised financial data and analytics platform. Refinitiv provides comprehensive and standardised information on fund-level characteristics, regulatory classifications, ESG scores, and performance metrics. This source was selected due to its extensive coverage of European investment funds and its integration of ESG indicators aligned with regulatory standards, including those established under the Sustainable Finance Disclosure Regulation (SFDR).

The final dataset includes a total of 269 multi-index funds that met the criteria for inclusion. Each fund was required to meet the following conditions: classification under SFDR Article 6, 8, or 9; and a domicile within an EU member state or jurisdiction governed by EU financial regulation.

Fund-level SFDR classification was retrieved from both Refinitiv's structured metadata and supplementary disclosure fields, where available. These classifications were cross-referenced with publicly available fund documents, including Key Investor Information Documents (KIIDs), sustainability reports, and official

fund factsheets. This cross-validation ensured consistency between data provider labels and the fund manager's own ESG claims.

Disclosure documents were consulted to confirm the stated investment objective of each fund, its ESG screening methodology (if applicable), and whether sustainability risks were considered in the investment decision-making process. These documents were accessed either through fund websites or regulatory filings submitted under SFDR reporting requirements.

The Refinitiv dataset also includes historical return data and risk metrics such as standard deviation, Sharpe ratio, Sortino ratio, and Treynor ratio. These performance indicators form the basis for the second analytical leg of the research, which evaluates whether ESG ambition, as defined by SFDR categorisation, corresponds with variation in fund performance outcomes.

The use of Refinitiv as the primary data source ensures that the analysis is based on standardised, verifiable, and replicable information, while the supplementary disclosure review enhances the credibility and classification accuracy of the sample.

4.3 SFDR Article Classification Approach

The classification of funds under the Sustainable Finance Disclosure Regulation (SFDR) framework forms the foundation of the first analytical leg of this study. The SFDR mandates the classification of investment products into three specific categories: Article 6 encompasses funds that do not incorporate sustainability considerations into their investment strategies; Article 8 pertains to funds that actively promote environmental or social characteristics; while Article 9 refers to funds whose primary objective is sustainable investment.

In this research, the classification of funds into Articles 6, 8, and 9 was derived directly from data sourced through Refinitiv (LSEG Workspace). Refinitiv collects SFDR classifications from asset managers and fund issuers, based on disclosures submitted in accordance with European regulatory requirements. The

classifications in the dataset reflect the fund managers' declarations and are based on the fund's self-reported adherence to the regulatory definitions outlined in the SFDR.

The researcher undertook no reclassification or re-interpretation of fund status. The SFDR Article assigned to each fund was accepted as provided, ensuring that the analysis remains consistent with market-available information and reflects the classifications as perceived by investors and other market participants. These classifications were also cross-referenced, where possible, with publicly available fund documents such as factsheets and Key Investor Information Documents (KIIDs) to confirm the stated Article designation and reduce the risk of misclassification.

This approach recognises the potential signalling function of SFDR labels in addition to their regulatory purpose. Since fund managers choose their Article designation in light of both regulatory compliance and market positioning, the classification also offers insight into the sustainability ambition of the fund. By using these labels as given, the study is able to assess whether differences in ESG ambition, as expressed through SFDR classification, are associated with measurable variation in fund performance.

The classification framework therefore provides both the structure for comparative analysis and a proxy for ESG integration levels, which is used throughout the empirical components of the research.

Leg 2: Fund Performance Analysis Method

4.4 Defining Financial Metrics:

To evaluate whether ESG classification under the SFDR framework corresponds to differences in investment performance, this study applies a set of established financial metrics. These indicators were selected for their relevance to portfolio theory and their widespread application in asset management. Each metric captures a distinct dimension of fund performance and supports a structured comparison across

Article 6, 8, and 9 funds. The metrics include rate of return, volatility, Sharpe ratio, Sortino ratio, and Treynor ratio.

These measures are grounded in Modern Portfolio Theory (MPT), which provides a consistent framework for evaluating return and risk (Elton et al., 2014). Risk-adjusted metrics are essential in this context because they allow for comparison across funds with differing volatility profiles. The subsections below define each metric and explain its use in the analysis.

4.4.1 Rate of Return

The rate of return measures the percentage change in a fund's value over a defined period. It is the most direct measure of investment performance and provides a baseline for comparing funds. In this study, annualised return figures are used to ensure comparability across funds regardless of reporting frequency (Bodie et al., 2014).

Although informative, the rate of return does not capture the variability of returns or the level of risk involved in achieving them. Therefore, additional risk-adjusted performance metrics are used in the analysis to provide a more complete picture.

4.4.2 Volatility (Standard Deviation)

Volatility is quantified using the standard deviation of a fund's returns, and this serves as a measure of the fund's total risk (Elton et al., 2014). It captures the dispersion of a fund's returns around its mean, reflecting the degree of uncertainty associated with its performance.

In the context of this study, standard deviation helps identify whether funds classified under different SFDR Articles exhibit differing risk profiles. This is especially important when comparing funds that may adopt ESG strategies, which result in sectoral concentration or narrower investment universes.

4.4.3 Sharpe Ratio (Risk-Adjusted Return)

The Sharpe ratio measures an investment's performance by comparing the excess return earned to the total risk taken. Mathematically, it is represented as the ratio of the difference between the investment's return and the risk-free rate to the standard deviation of the investment's returns, providing a measure of risk-adjusted performance.

It is calculated as:

$$\text{Sharpe Ratio} = (R_p - R_f) / \sigma_p$$

Where:

R_p is the return of the portfolio,

R_f is the risk-free rate, and

σ_p is the standard deviation of portfolio returns.

This ratio was developed by William Sharpe (1966) and is a widely accepted measure for evaluating portfolio performance. An elevated Sharpe ratio signifies enhanced risk-adjusted performance in investment returns. In this study, it enables standardised comparison across funds with different volatility characteristics. Sharpe ratios used in this study were derived from Refinitiv (LSEG Workspace)

4.4.4 Sortino Ratio

The Sortino ratio serves as an alternative to the Sharpe ratio, emphasising the measurement of downside risk rather than overall volatility. This metric specifically accounts for variations in negative returns, thereby providing a more nuanced assessment of an investment's risk-adjusted performance. By isolating downside deviations, the Sortino ratio offers a clearer perspective on the potential for undesirable outcomes, facilitating a more informed evaluation of risk exposure in portfolio management (Buhler &

Nemani, 2023). Thus, it considers only the standard deviation of negative returns, making it more sensitive to the risk of capital loss rather than total variability (Sortino & Van der Meer, 1991). The formula (Buhler & Nemani, 2023) is:

$$\text{Sortino Ratio} = (R_p - R_f) / \sigma_d$$

Where:

- R_p is the return of the portfolio
- R_f is the risk-free rate
- σ_d is the downside deviation of returns.

This metric is particularly relevant in the context of ESG investing, as ESG-oriented funds are often promoted as offering better downside protection. The Sortino ratio allows for a targeted analysis of this claim by isolating harmful volatility. Sortino ratios used in this study were derived from Refinitiv (LSEG Workspace)

4.4.5 Treynor Ratio

The Treynor ratio measures excess return in relation to systematic risk, represented by beta. It provides insight into how well a fund compensates investors for the market risk it undertakes. The formula is :

$$\text{Treynor Ratio} = (R_p - R_f) / \beta_p \text{ (Treynor, 1965)}$$

Where:

- β_p is the beta of the portfolio.

The Treynor can be beneficial when comparing funds that have different exposures to market movements (Treynor, 1965). In this study, it complements the Sharpe and Sortino ratios by isolating the component of

risk attributable to market fluctuations. Treynor Ratios used in this study were derived from Refinitiv (LSEG Workspace)

4.5 Benchmarking and Data Assumptions

To ensure comparability across funds and consistency in performance evaluation, this study adopts a set of benchmarking practices and underlying data assumptions. These decisions are necessary for interpreting risk-adjusted performance metrics and classifying funds based on ESG integration under the SFDR framework.

4.5.1 Benchmarking Approach

Although the funds in the dataset are classified as multi-index or multi-asset, they do not all track a common benchmark. As a result, the analysis does not rely on a single market index for relative comparison. Instead, each fund's performance is assessed on an absolute basis using return and risk-adjusted metrics. This avoids benchmark bias that may arise from applying a single index to structurally diverse portfolios.

In accordance with established methodologies in fund performance evaluation, the risk-free rate applied in the computation of the Sharpe, Sortino, and Treynor ratios is derived from the yield of 10-year government bonds in the eurozone. This rate reflects a conservative, regionally appropriate measure of a risk-free investment, ensuring that excess returns are assessed relative to a stable and widely accepted baseline (Elton et al., 2014).

4.5.2 Time Horizon and Reporting Consistency

All performance data used in the study are based on annualised figures to enable meaningful cross-fund comparisons. The underlying data is sourced from Refinitiv report returns and risk metrics using consistent time frames, typically over a trailing three- or five-year period. Funds that did not provide performance metrics over a minimum of three years were excluded from the sample.

This standardisation is necessary to avoid distortions caused by uneven reporting periods and to align with best practices in empirical finance research (Bodie et al., 2014). Where multiple time horizons were available, the most recent and complete annualised set was selected for consistency.

4.5.3 ESG Classification Stability

Another assumption in this study is that the SFDR classification assigned to each fund at the time of analysis accurately reflects the fund's ESG strategy over the performance period. While reclassifications do occur, the analysis treats classification as a fixed characteristic based on the most recent disclosure. This decision is informed by data constraints, as historical SFDR classifications are not consistently disclosed across providers.

Although this may introduce some bias in cases where funds have changed classification recently, the cross-sectional nature of the study mitigates this concern by focusing on the status of funds during the period when performance was measured.

4.5.4 Currency and Geographic Assumptions

All funds in the sample are domiciled in European Union member states or jurisdictions subject to EU financial regulation. As such, performance data are presented in euros, and currency effects are not modelled separately. This geographic and currency consistency enhances comparability and aligns with the policy focus of the SFDR framework.

4.6 Tools and Software Used

The data analysis for this study was conducted using a combination of professional financial platforms and statistical software to ensure analytical rigour, transparency, and reproducibility. Each tool was selected for its ability to process structured financial datasets and apply industry-standard performance calculations.

4.6.1 Refinitiv (LSEG Workspace)

Refinitiv, accessed through the LSEG Workspace platform, served as the primary data source. It provided structured fund-level information including SFDR classification, domicile, asset allocation, and historical performance metrics. Refinitiv's coverage is widely regarded as one of the most comprehensive in the industry, encompassing ESG disclosures, fund risk profiles, and risk-adjusted return indicators. This platform ensured consistency in data definitions and reporting intervals.

4.6.2 Microsoft Excel

Microsoft Excel was used for preliminary data cleaning, verification, and manual inspection of disclosure classifications. It supported tasks such as filtering incomplete records, standardising text fields, and conducting basic summary statistics. Excel was also used to review the integrity of reported risk and return measures across funds before quantitative analysis.

4.6.2 RStudio

RStudio, a sophisticated integrated development environment tailored for the R programming language, was employed for conducting all statistical analyses and data visualisations. Key libraries included tidyverse for data manipulation, PerformanceAnalytics for calculating and verifying financial ratios, and ggplot2 for producing charts and plots. These tools enabled the calculation of descriptive statistics, validation of risk-adjusted performance metrics, and a clear graphical representation of fund characteristics across ESG classifications.

RStudio was chosen for its flexibility, open-source nature, and wide use in academic finance research. Its capacity to handle complex data structures and generate reproducible code ensured that the analytical process was both rigorous and transparent.

By combining data from Refinitiv with technical analysis conducted in RStudio and preliminary validation in Excel, the study successfully integrated high-quality financial data with robust empirical methods suitable for evaluating ESG and performance trade-offs.

4.7 Methodological Limitations and Delimitations

This study presents several methodological constraints and limitations that must be considered when evaluating the findings. These relate to the scope of the dataset, the nature of the classification system under the SFDR, the chosen performance metrics, and the cross-sectional design of the analysis.

4.7.1 Limitations

One limitation concerns the reliance on self-reported SFDR classifications. The classification of funds into Articles 6, 8, or 9 is provided by fund managers based on their interpretation of regulatory guidance. Although this information is sourced from Refinitiv and cross-checked against public fund disclosures, discrepancies may exist between declared ESG ambition and actual investment practice. This introduces a risk of greenwashing, where a fund's sustainability claims exceed its substantive ESG integration.

Another limitation is the availability of performance data. While the dataset includes 230 funds with sufficient information for analysis, the performance metrics are based on trailing periods and may not capture the full impact of recent regulatory or strategic changes. Additionally, it is worth noting that certain risk-adjusted metrics, specifically the Sortino and Treynor ratios, were not available for all funds included in the analysis. This limitation may impact the comparability of the findings across the different funds.

The study also uses a cross-sectional rather than longitudinal design. This limits the ability to draw causal inferences about the relationship between ESG classification and performance over time. The findings describe patterns and associations at a specific point rather than long-term trajectories. In addition,

macroeconomic factors, such as interest rate shifts or sector-specific shocks, are not controlled for in the analysis.

Lastly, while risk-free rates and benchmarks are standardised using euro area government bonds, country-specific risks and currency hedging strategies are not modelled. These may influence fund-level outcomes, especially in internationally diversified portfolios.

4.7.2 Delimitations

The study is deliberately limited to multi-asset funds domiciled within the European Union. This focus ensures a consistent regulatory environment under the SFDR and reflects the harmonised disclosure practices required by EU financial authorities. Funds domiciled outside of the EU, even if ESG-oriented, were excluded to maintain regulatory comparability.

In addition, only funds with complete and accessible performance and classification data were included. Funds that lacked documentation on SFDR status or omitted key financial indicators were removed from the sample. This decision prioritises data quality and analytical validity over sample size.

Moreover, the performance metrics selected such as rate of return, volatility, Sharpe ratio, Sortino ratio, and Treynor ratio, represent a conventional set of tools within Modern Portfolio Theory. While informative, they do not capture broader qualitative dimensions of ESG impact such as stewardship activity, voting behaviour, or climate alignment. These aspects lie outside the scope of this thesis but may be valuable for future research.

Last but not least, funds lacking sufficient time-series coverage were excluded from the corresponding segment of the analysis. For instance, funds without a ten-year performance record were not assessed within the ten-year Sharpe or Sortino ratio calculations but could still be included in the three- and five-year assessments if data were available. This approach ensures internal consistency and avoids biases that may result from extrapolating incomplete return series.

5. RESULTS AND ANALYSIS

Leg 1: ESG Classification Outcomes

5.1 Distribution of Funds by SFDR Article

This section presents the distribution of the 269 multi-index funds selected for analysis, categorised by their classification under the Sustainable Finance Disclosure Regulation (SFDR). The classification was derived from Refinitiv (LSEG Workspace) and cross-verified with fund-level disclosure documents. Only funds with explicit Article 6, 8, or 9 designations were included in the final dataset (Figure 1).

Out of the total 269 funds:

156 funds (58.0%) are classified under Article 6, indicating that they do not integrate sustainability into their investment decisions beyond minimal disclosure requirements.

A total of 104 funds, representing 38.7% of the total, are categorised under Article 8. These funds aim to promote environmental or social characteristics; however, sustainable investment does not serve as their primary objective.

Nine funds (3.3 per cent) are classified under Article 9, indicating that they pursue sustainable investment as a core objective.

The dominance of Article 6 funds in the sample highlights the continued prevalence of non-ESG-focused strategies within the multi-asset segment followed by Article 8 funds. The proportion of funds classified as Article 8 in the data reflects ESG ambition from fund managers. Furthermore, Article 9 funds remain relatively rare, consistent with broader market observations that these funds are often highly specialised and subject to more rigorous sustainability requirements.

This distribution provides a foundation for the comparative analysis that follows in subsequent sections. It supports the investigation of whether funds with higher ESG ambition exhibit distinct characteristics in terms of disclosures and financial performance.

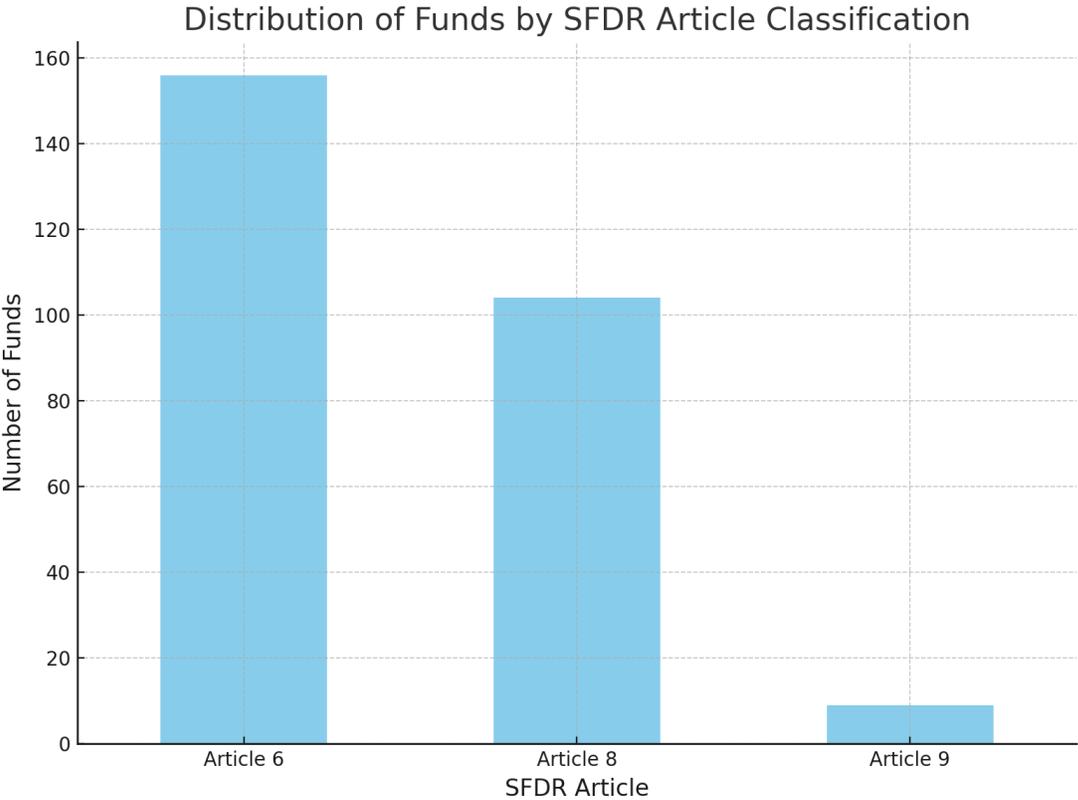


Figure 1: Distribution of funds by SFDR Classification. n=269. Source: Author.

5.2 Patterns in Fund Disclosures and ESG Claims

This section examines how multi-index funds differ in their ESG disclosures, using ESG Combined Scores sourced from Refinitiv (LSEG Workspace). These scores are used in this study to understand the extent to which funds incorporate environmental, social, and governance (ESG) considerations in their

investment strategy. Although ESG scores were not available for all funds, a total of 47 funds across the SFDR classifications reported complete ESG Combined Score data and were included in this analysis.

A comparative summary reveals a pattern aligned with regulatory intent (Figure 2):

Article 6 funds, which are not required to integrate ESG considerations, generally display the lowest ESG scores. The median ESG score for Article 6 funds in the sample is lower than that of Article 8 and Article 9 funds.

Article 8 funds, which promote objectives that are environmental or social in nature, exhibit a wider distribution of ESG scores but with a higher central tendency than Article 6 funds.

Article 9 funds, which pursue sustainable investment as a priority, have the highest as well as the most consistent ESG scores among the three groups.

The boxplot (Figure 2) visualises these differences. Article 6 funds show both lower median scores and greater variability, while Article 8 and 9 funds tend to cluster around higher ESG ratings. However, some overlap exists, suggesting that ESG ambition does not always translate into clear differentiation in scoring.

These results suggest that while SFDR classifications do broadly correspond with ESG scores, the distinctions are not absolute. This reinforces concerns raised in recent literature that ESG disclosure and implementation remain heterogeneous even within regulatory categories (OECD, 2020).

5.2.1 Patterns in Fund SFDR Classification and Emissions

This subsection examines the relationship between SFDR classification and portfolio emissions scores, using data sourced from Refinitiv (Figure 2 and Table E1 in Appendix E). Emissions Scores are used in this study to determine the carbon intensity of a fund's holdings, where higher scores indicate stronger emissions performance or lower carbon exposure. The analysis is based on a sample of 47 funds for which complete emissions data were available.

5.2.1.1 Article 9 Funds

The analysis includes three funds classified under Article 9. For this group, the mean emissions score is 81.30 and the median score is also 81.30. The scores for these funds range from a minimum of 76.51 to a maximum of 84.27. Based on the available data, this group, which is designed to pursue sustainable investment as its primary objective, does not exhibit the highest emissions scores among the three classifications.

5.2.1.2 Article 8 Funds

The dataset contains 16 funds classified under Article 8. This classification reports the highest mean emissions score of the three groups at 82.77 and the highest median score at 83.00. The scores for Article 8 funds range from 70.57 to 88.15. The median score is marginally higher than the median for Article 6 funds, indicating a very slight performance differential between these two categories.

5.2.1.3 Article 6 Funds

The largest cohort, comprising 28 funds, is classified under Article 6. This group has a mean emissions score of 81.82 and a median score of 82.38. The median for this category, which is not required to integrate sustainability into its investment process, exceeds that of the Article 9 funds. The data for Article 6 funds also show the widest distribution, with scores ranging from a minimum of 54.02 to a maximum of 90.14. Notably, the highest individual emissions score recorded in the entire 47-fund sample (90.14) belongs to a fund classified under Article 6.

5.2.1.4 Comparative Analysis of Emission Scores

The analysis of emissions scores across the three SFDR categories does not reveal a clear performance gradient corresponding to the stated levels of sustainability ambition. The median score for Article 8 funds

(83.00) is the highest, followed closely by Article 6 funds (82.38). The median for Article 9 funds (81.30) is the lowest of the three.

Furthermore, the data demonstrate a significant overlap in the distribution of scores, with the range of Article 6 and Article 8 funds fully encompassing the range of Article 9 funds. These findings indicate that, within this dataset, a fund's SFDR classification is not a consistent predictor of its emissions performance as measured by Refinitiv scores.

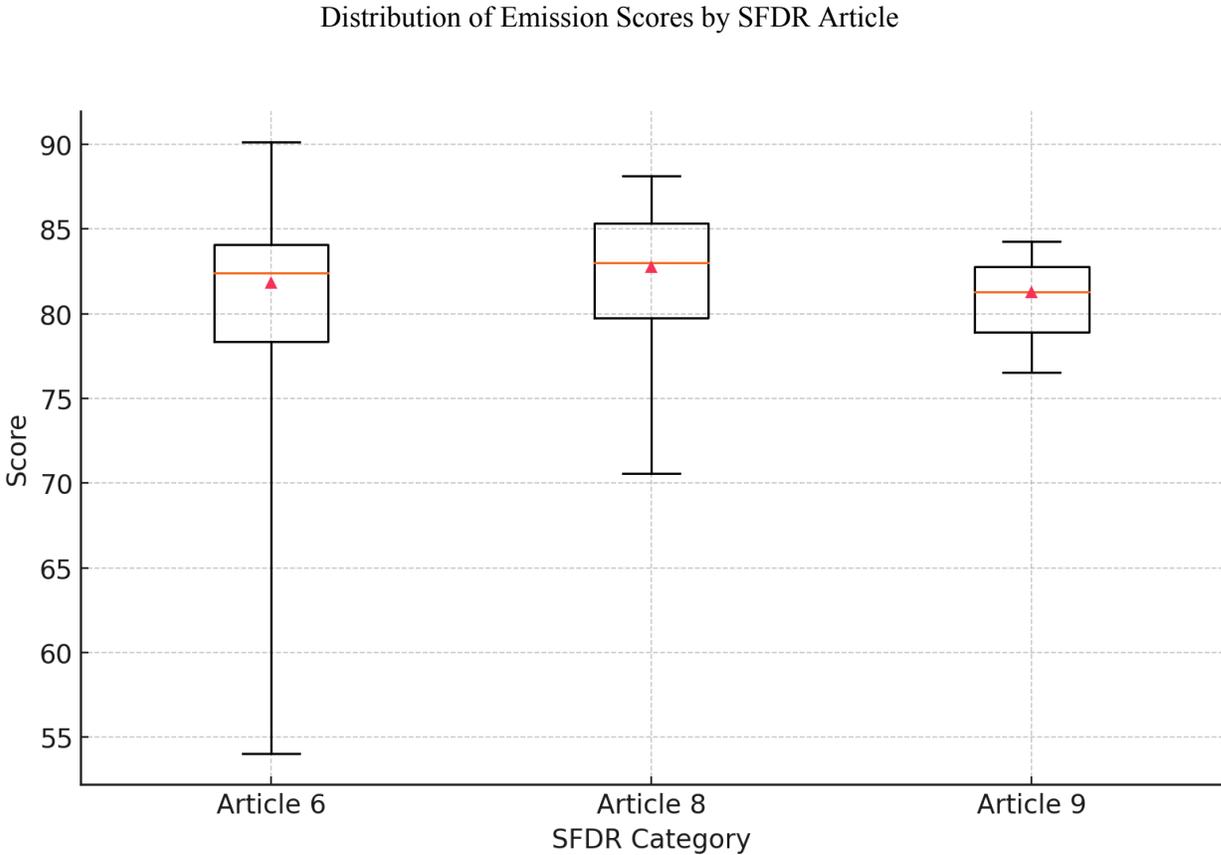


Figure 2: Distribution of Emission Scores by SFDR Article. Source: Author

5.3 Fund Domicile Distribution

This section examines the geographic distribution of fund domiciles among the 269 classified multi-asset funds included in the analysis (Figure 4). The place where a fund is domiciled is essential because the regulatory environment and market infrastructure in a fund's country of domicile can significantly influence its operational structure, disclosure practices, and access to sustainable finance frameworks, particularly in the context of EU-based ESG regulations.

The dataset reveals a marked concentration of funds in a few key European jurisdictions (See Table A1 in the Appendix). Luxembourg emerges as the leading domicile, accounting for 66 funds, followed by France with 53 funds and Italy with 43 funds. Together, these three countries account for approximately 60% of the sample. The chart below presents the top 10 domiciles based on the number of funds they host.

These results deviate slightly from broader trends in European fund registration, where Ireland often surpasses France and Italy in terms of the total number of fund listings (Delbecque et al., 2025). In this specific dataset, however, Ireland does not appear among the top three, indicating that for ESG-classified multi-index funds, Luxembourg, France, and Italy have a stronger representation. This could reflect differences in how ESG integration is prioritised in national fund markets or the availability of disclosure data.

The dominance of Luxembourg is consistent with its established reputation as a cross-border fund hub in the EU (Delbecque et al., 2025), supported by regulatory clarity, strong administrative infrastructure, and established practices in ESG reporting. France's position reflects the depth of its domestic asset management sector, and Italy's presence may indicate increasing national interest in ESG-aligned investing.

This domicile breakdown affirms the European scope of the thesis and provides geographic context for interpreting subsequent regulatory and performance-related findings.

Distribution of Fund Domicile by Country

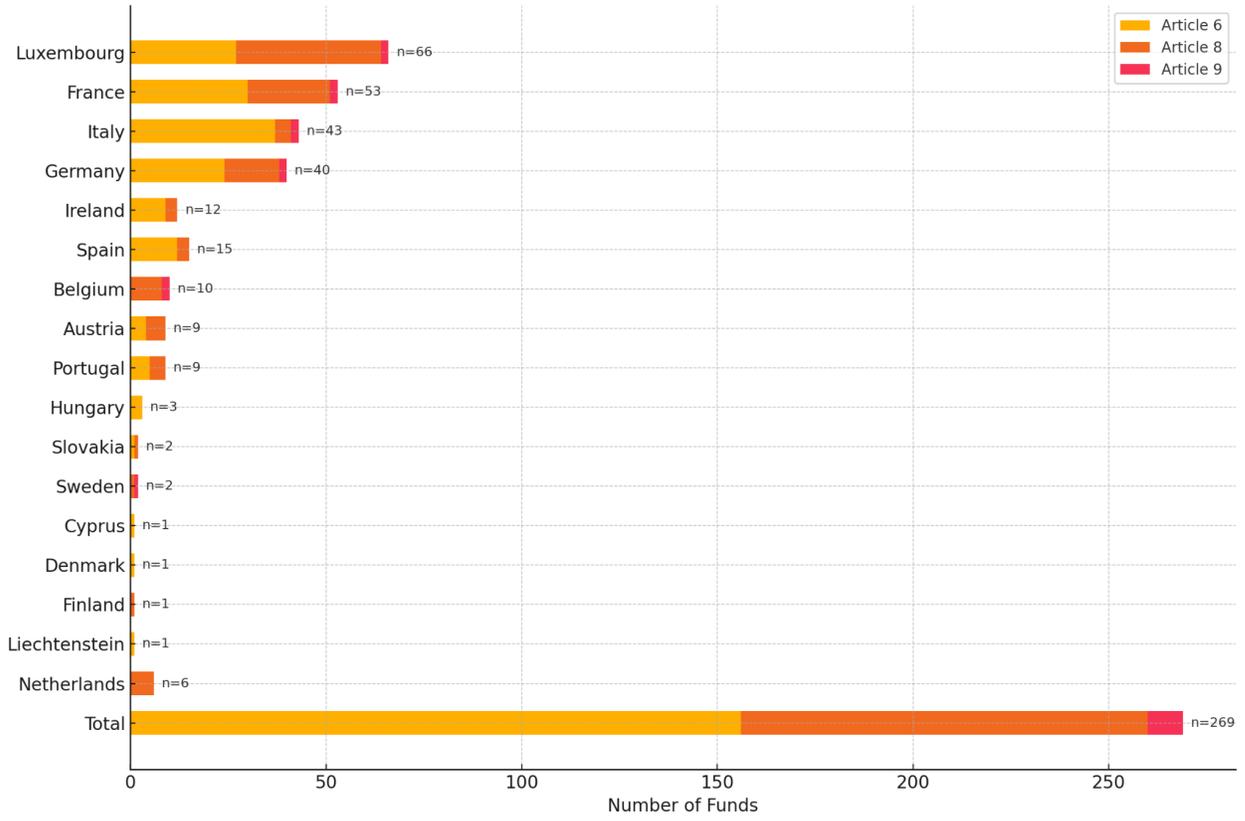


Figure 4: Distribution of Fund Domicile by Country. Source: Author

Leg 2: Performance Insights by Article Category

5.3 Descriptive Statistics and Group Comparison

This part of the study shows the descriptive statistics of the multi-asset funds studied in the research work. The key characteristics examined include return, volatility, and the Sharpe Ratio across three time horizons: three years, five years, and ten years.

5.4 Return, Volatility, and Sharpe Ratio Patterns

This section analyses return and risk dynamics across SFDR classifications by examining three-year (short-term), five-year (medium-term), and ten-year (long-term) performance horizons. The metrics include annualised return, standard deviation (volatility), and the Sharpe ratio. This approach allows for both immediate and sustained insights into the comparative performance of Article 6, 8, and 9 funds.

5.4.1 Three-Year Horizon

The analysis of the three-year performance horizon includes an examination of the mean annualised return, mean annualised standard deviation (volatility), and mean Sharpe ratio for funds classified under SFDR Articles 6, 8, and 9. The data reveal distinct performance and risk profiles across the three regulatory categories for this specific period. See Table D1 in Appendix D.

5.4.1.1 Article 8 Funds

The analysis includes 92 funds classified under Article 8. This group reports the highest mean annualised return of the three categories at 2.59%. Concurrently, it exhibits the lowest mean volatility, with an annualised standard deviation of 5.45%. The resulting mean Sharpe ratio for this category is -0.016, which, while negative, represents the strongest risk-adjusted performance among the three classifications over this time frame.

5.4.1.2 Article 6 Funds

The largest cohort, comprising 130 funds classified under Article 6, reports a mean annualised return of 1.55%. The mean volatility for this group is 5.89%, a figure higher than that recorded for Article 8 funds. The combination of a lower average return and higher average volatility results in a mean Sharpe ratio of -0.022.

5.4.1.3 Article 9 Funds

The smallest sample size in this analysis, consisting of eight funds classified under Article 9, reports the lowest mean annualised return at 1.27%. This category also exhibits the highest mean volatility, with an annualised standard deviation of 6.13%. Consequently, Article 9 funds show the poorest risk-adjusted performance, with a mean Sharpe ratio of -0.086.

5.4.1.4 Comparative Summary

Over the three-year horizon, the data indicate a clear performance hierarchy. Article 8 funds demonstrate the most favourable profile, characterised by the highest average returns and the lowest average volatility. Article 6 funds occupy an intermediate position. Article 9 funds, which are designated with the most explicit sustainability objectives, show the weakest performance profile, delivering the lowest average returns while undertaking the highest level of volatility. For all three categories, the mean Sharpe ratios are negative, indicating that none of the groups generated positive returns on a risk-adjusted basis during this period.

5.4.2 Five-Year Horizon

The analysis of the 5-year performance horizon shows a continued differentiation of risk and return characteristics across the three SFDR classifications. The following section presents the mean annualised return, mean annualised standard deviation (volatility), and mean Sharpe ratio for each category. See Table D2 in Appendix D.

5.4.2.1 Article 6 Funds

The analysis includes 110 funds classified under Article 6. This group reports a mean annualised return of 4.21%, the highest of the three categories over this period. The mean volatility for these funds is 7.03%. The resulting mean Sharpe ratio of 0.078 is also the highest recorded among the groups, indicating the most favourable risk-adjusted performance.

5.4.2.2 Article 8 Funds

For the 83 funds classified under Article 8, the mean annualised return is 3.64%. A key characteristic of this group is its mean volatility of 6.66%, which is the lowest among the three classifications. The combination of these risk and return figures produces a mean Sharpe ratio of 0.072, a value proximate to that of the Article 6 cohort.

5.4.2.3 Article 9 Funds

The five funds classified under Article 9 report the lowest mean annualised return of the three groups at 3.42%. This category also exhibits the highest mean volatility, with an annualised standard deviation of 7.27%. The resulting mean Sharpe ratio is -0.010, indicating a negative risk-adjusted return for this classification over the five-year horizon.

5.4.2.4 Comparative Summary

Over the five-year period, the performance data show a clear hierarchy. Article 6 funds generated the highest average returns and the strongest risk-adjusted performance as measured by the Sharpe ratio. Article 8 funds, while delivering a lower return, demonstrated the lowest volatility of the three groups. Article 9 funds recorded the lowest average return and the highest volatility, resulting in a negative Sharpe ratio. Unlike the three-year horizon where all categories showed negative Sharpe ratios, both Article 6 and Article 8 funds achieved positive risk-adjusted returns over this five-year period.

5.4.3 Ten-Year Horizon

The analysis of the ten-year performance horizon provides insight into the nature of the long-term risk and return of funds across the three SFDR classifications. The findings are based on a smaller cohort of funds, as many in the sample do not possess a ten-year performance history. The following section details the

mean annualised return, mean annualised standard deviation (volatility), and mean Sharpe ratio for each category. See Table D3 in Appendix D

5.4.3.1 Article 6 Funds

The analysis includes 80 funds classified under Article 6. This group reports a mean annualised return of 3.24%, the highest of the three categories over this long-term period. The mean volatility for these funds is 7.83%. The resulting mean Sharpe ratio is 0.07, which is also the highest recorded among the groups, indicating the most favourable risk-adjusted performance.

5.4.3.2 Article 8 Funds

For the 68 funds classified under Article 8, the mean annualised return is 2.16%. A key characteristic of this group is its mean volatility of 7.52%, the lowest among the three classifications, suggesting a more stable long-term risk profile. This combination of risk and return produces a mean Sharpe ratio of 0.05.

5.4.3.3 Article 9 Funds

The analysis for Article 9 funds is based on a sample of three funds. This cohort reports a mean annualised return of 2.21% and the highest mean volatility at 8.62%. The calculated mean Sharpe ratio is 0.01. The small sample size for this category limits the statistical reliability and generalisability of these specific findings.

5.4.3.4 Comparative Summary

Over the ten-year period, the performance data show a distinct hierarchy. Article 6 funds generated the highest average returns and the strongest risk-adjusted performance as measured by the Sharpe ratio. Article 8 funds, while delivering a lower return, demonstrated the lowest volatility. Article 9 funds, based on the limited data available, recorded the highest volatility and the lowest risk-adjusted return. All three categories produced positive mean Sharpe ratios over this ten-year horizon.

Return by SFDR Category Across Time Horizons

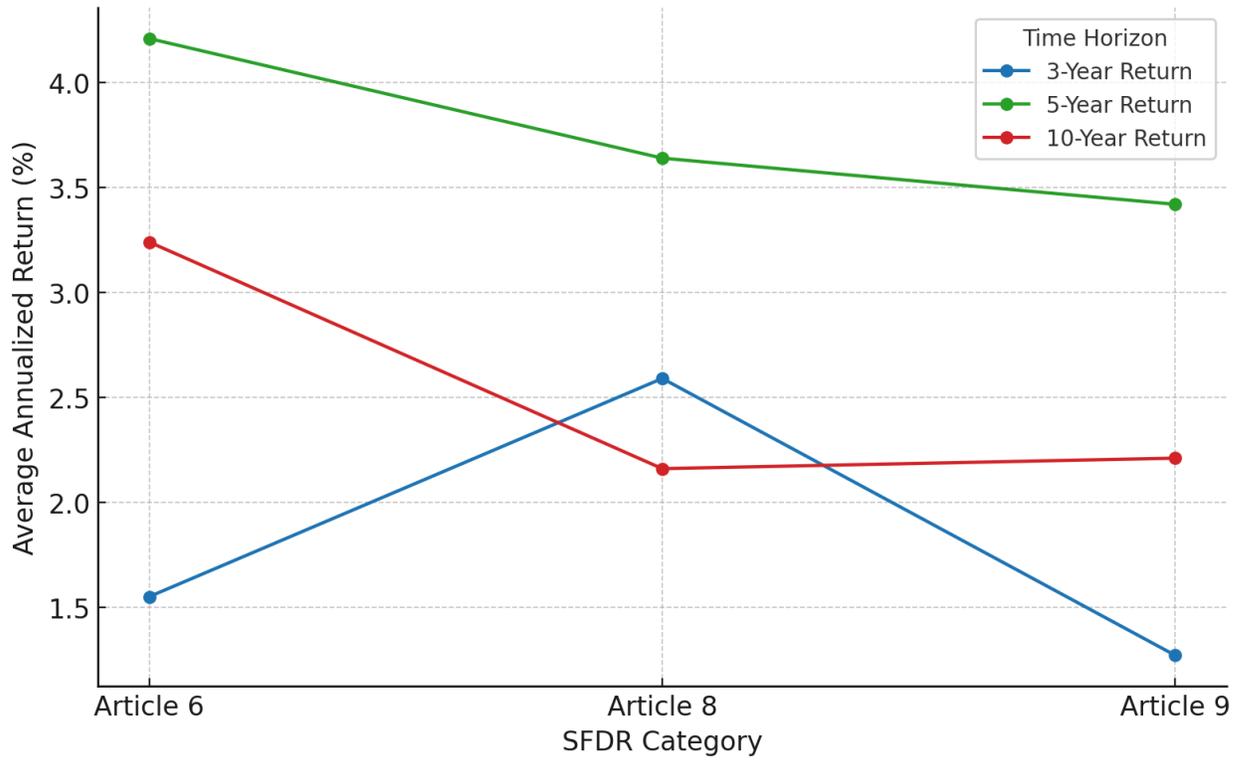


Figure 5: Return by SFDR Category Across Time Horizons. Source: Author

Volatility by SFDR Category Across Time Horizons

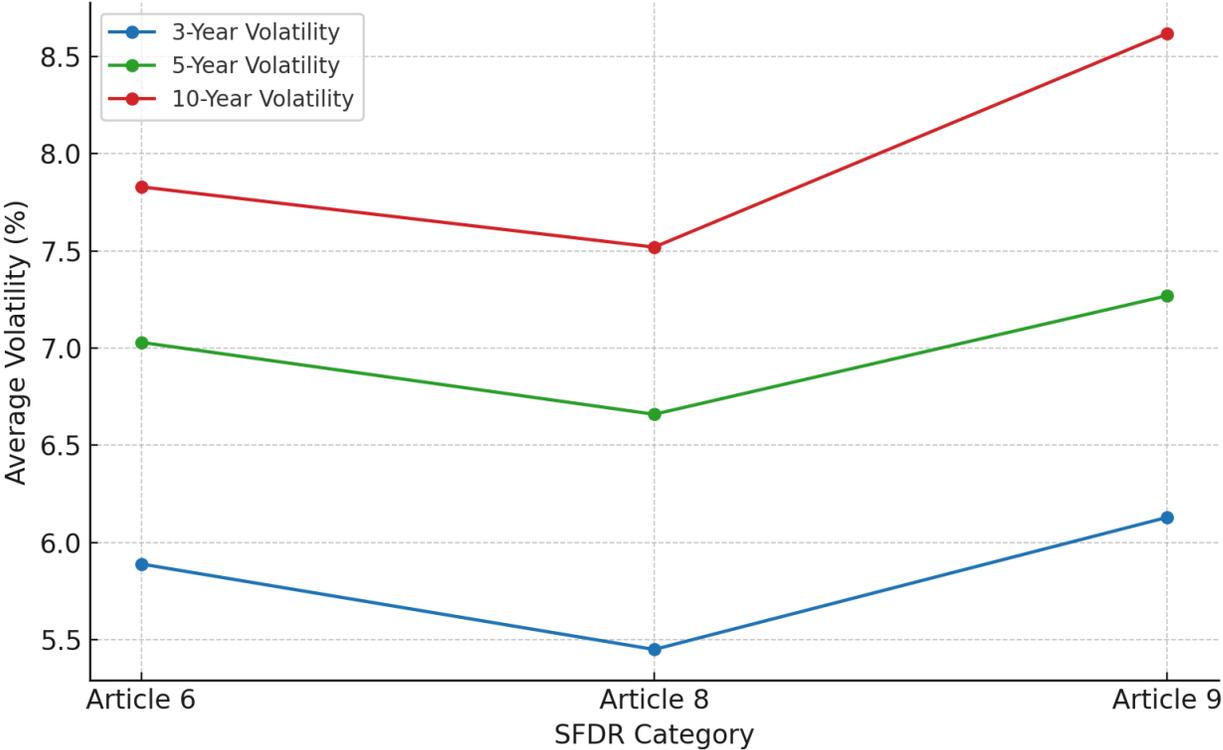


Figure 6: Volatility by SFDR Category Across Time Horizons. Source: Author

Sharpe Ratio by SFDR Category Across Time Horizons

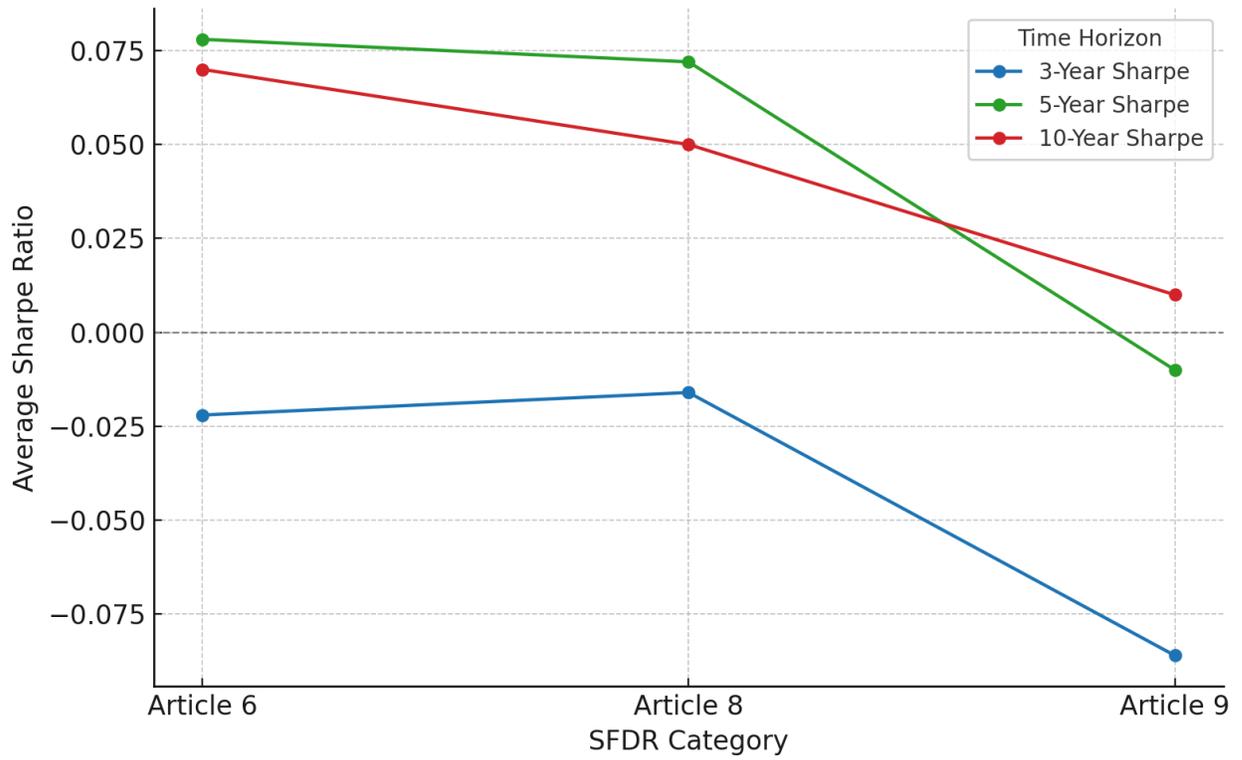


Figure 7: Sharpe Ratio by SFDR Category Across Time Horizons. Source: Author

6. DISCUSSION

6.1 Interpretation of ESG Classification Trends

The SFDR classification of the 269 analysed multi-index funds reveals a strong skew toward Article 6 and Article 8 designations, with only a small subset falling under Article 9. Specifically, Article 6 accounts for 156 funds, Article 8 includes 104, and Article 9 comprises just 9. This distribution reflects the industry's hesitation regarding complete alignment with the stringent sustainability requirements outlined in Article 9. This distribution reflects the industry's hesitation regarding complete alignment with the stringent sustainability requirements outlined in Article 9. The observed classification trends suggest a strategic balancing act by fund providers.

While ESG branding can offer reputational and commercial benefits, full Article 9 alignment imposes a degree of operational, reporting, and legal risk that many providers appear unwilling to accept. As a result, Article 8 has become a de facto compromise, despite variability in its execution.

The limited uptake of Article 9 classification, despite its perceived signalling value, suggests that asset managers may be reluctant to commit to its more strict sustainability thresholds. The requirements associated with demonstrating sustainable investment as an explicit objective, combined with regulatory risk and scrutiny around greenwashing, may contribute to this cautious approach. As noted in the results (See Table A1 in Appendix A), Article 9 funds represent under 3 per cent of the total classified funds in this dataset, reflecting a broader trend where firms may prefer the relative flexibility of Article 8 or choose to remain outside the ESG classification system altogether.

The data also indicate a wide dispersion in ESG-related disclosures among Article 8 funds. The emissions analysis revealed significant overlap in emissions scores across Article 6, 8, and 9 categories (See Figure 2 and Table E1 in Appendix E). This suggests that classification alone does not consistently predict underlying portfolio sustainability. Some Article 6 funds exhibit emissions profiles comparable to those in

the higher classifications, while several Article 8 funds fall short of what might be expected from products marketed with ESG credentials. This inconsistency supports previous concerns raised in academic and regulatory literature about the clarity and consistency of Article 8 implementation (OECD, 2020).

Moreover, the relative dominance of Article 6 and Article 8 funds across domiciles, particularly in Luxembourg, France, and Italy, suggests that national regulatory guidance or market conventions may influence classification practices. Fund managers may respond not only to investor demand but also to the interpretative stance taken by their local regulators regarding the definitions of SFDR Articles and the required disclosures.

6.2 Financial Implications of ESG Strategy

The financial consequences of ESG orientation in multi-asset funds were assessed by comparing return-based and risk-adjusted metrics across SFDR Articles 6, 8, and 9. The dataset of 269 funds revealed a nuanced relationship between a fund's ESG classification and additionally its performance financially, with data that changed across time horizons and risk metrics.

Over the five- and ten-year periods, Article 6 funds recorded the highest average annual returns, with figures of 4.21% and 3.24%, respectively (See Table D2 and Table D3 in Appendix D). Article 8 funds followed closely, while Article 9 funds reported lower average returns of 3.42% and 2.21%. Risk-adjusted outcomes, as shown by the Sharpe ratio, also reinforced this pattern. Articles 6 and 8 funds achieved positive Sharpe ratios over ten years (Figure 7), while Article 9 funds recorded a negative Sharpe ratio. Volatility was also highest for Article 9 funds, averaging 7.27% over five years and 8.62% over ten years, compared to 7.83% and 7.52% for Articles 6 and 8, respectively (See Table D2 and Table D3 in Appendix D).

Although Article 9 funds exhibited slightly higher median risk-adjusted returns over shorter horizons, these advantages did not persist over more extended periods and were often accompanied by greater

volatility. These findings align with results from Soni (2023), who found no consistent performance premium for high-ESG mutual funds in India, and Papathanasiou and Koutsokostas (2024), who reported that ESG scores were not associated with higher alpha in Norwegian and European funds.

Some studies have highlighted conditions under which ESG strategies may offer relative benefits. For example, Guimarães and Malaquias (2023) showed that ESG funds can outperform during periods of financial distress, suggesting that any performance advantage may be episodic rather than systematic.

From the fund manager's perspective, the ESG strategy may bring reputational benefits and increased capital inflows, even if financial outcomes remain ambiguous. As demonstrated by Becker, Martin, and Walter (2023), better SFDR classifications attract more investor interest, leading to higher fund inflows. This effect is particularly relevant under regulatory pressure, as higher Article classification may function as a signal of ESG commitment, even when the performance gap is narrow.

Other studies have confirmed this signalling effect. For instance, Sinha (2024) finds that ESG funds often deliver returns comparable to conventional benchmarks but struggle with consistent performance gains. Similarly, a study on mutual fund naming conventions by Fisch and Robertson (2023) suggests that ESG-labelled funds may not deliver superior returns, contrary to investor expectations.

At the same time, concerns remain about the alignment between ESG labels and actual portfolio characteristics. Some Article 6 funds demonstrated strong emissions profiles, while several Article 9 funds showed only modest improvements compared to Article 8. These discrepancies suggest gaps in implementation and raise the risk of investor misinterpretation. Yu et al. (2020) argue that ESG greenwashing can spread across fund families when scrutiny is limited and reputational incentives are high.

Taken together, the evidence suggests that an ESG strategy, as reflected in the SFDR classification, does not currently guarantee enhanced performance. While Articles 8 and 9 may align more closely with

sustainability objectives, Article 6 funds in this study consistently outperformed in long-term returns. This pattern suggests that fund managers should not rely on classification alone as a guide to financial outcomes. For investors and asset allocators, the findings underscore the importance of evaluating fund-level characteristics, such as actual portfolio exposures, risk controls, and stewardship practices, rather than relying solely on ESG ambition to infer performance advantages.

6.3 Do ESG-Ambitious Funds Sacrifice Performance?

The question of whether ESG ambition comes at the cost of financial returns remains one of the most contested in sustainable finance. This study's findings indicate that ESG-ambitious funds, particularly those that identify as Article 9, do not outperform their Article 6 and 8 counterparts. For instance, the three-year annualised Sharpe ratio for Article 9 funds was -0.86, compared with -0.016 and -0.022 for Article 6 and Article 8 funds, respectively (See Table C4 in Appendix C).

Existing literature presents mixed findings that help contextualise these results. Studies, such as those by Jin (2024), have found that systematic ESG risk can be priced into expected returns, allowing certain hedge fund strategies to benefit from ESG exposure, albeit conditionally on market timing and factor sensitivity (Jin, 2024). Similarly, Guimarães and Malaquias (2023) observed that ESG funds outperformed during periods of financial constraint, but not consistently in normal market conditions (Guimarães & Malaquias, 2023).

Contrastingly, Soni (2023) found no significant differences in performance between high- and low-ESG scoring mutual funds in India, suggesting that responsible investing may carry higher costs or opportunity losses that offset potential return benefits (Soni, 2023). Similarly, the study by Papathanasiou and Koutsokostas, (2024), examining Norwegian funds, found no abnormal alphas across ESG rating quintiles, although some outperformance was noted in European funds with higher ESG momentum (Papathanasiou & Koutsokostas, 2024).

This aligns with the results of Ciciretti et al. (2021), who reported that ESG funds pursuing differentiated, anti-herding strategies achieved higher risk-adjusted returns without incurring greater systematic risk (Ciciretti, Dalò, & Ferri, 2021).

Therefore, while an ESG strategy may influence fund positioning and investor perception, this study finds that a structural return penalty may be associated with higher ESG classifications especially for Article 9 funds.

6.4 Strategic, Regulatory, and Investor Implications

The findings of this study on ESG classifications and fund performance have several implications across three key domains: fund strategy, regulatory effectiveness, and investor behaviour. Each dimension offers valuable insight into how sustainability-linked classifications under the SFDR are shaping the European asset management industry.

6.4.1 Strategic Implications for Fund Managers

For fund managers, the results underscore the challenge of aligning sustainability objectives with consistent financial performance. The observation that Article 9 funds do not consistently outperform Article 6 and 8 funds, especially over longer investment horizons, points to a complex interplay between ESG ambition and market realities. These patterns align with the findings of Scheitza and Busch (2024), who observed heterogeneity in the actual impact strategies employed by Article 9 funds. Not all funds classified under Article 9 deliver measurable sustainability benefits, despite their regulatory label (Scheitza & Busch, 2024).

Despite this, ESG strategies may still offer strategic advantages beyond return maximisation. From a fund management perspective, improved ESG disclosure and higher SFDR classification are linked to reputational benefits and increased investor interest. As demonstrated by Becker, Martin, and Walter (2023), higher SFDR classification enhances fund inflows due to perceived ESG commitment, even in the

absence of superior performance (Becker et al., 2023). For many fund managers, this inflow effect could justify the investment in ESG reporting and compliance structures.

6.4.2 Regulatory Implications under the SFDR Framework

From a regulatory standpoint, the results point to both strengths and areas requiring refinement within the SFDR. The regulation has increased disclosure and standardisation, yet the observed inconsistencies in emissions scores across classifications, such as some Article 6 funds reporting emissions performance similar to Article 8 funds, raise concerns about the effectiveness of classification criteria. Martinez-Meyers et al. (2024) noted that SFDR has successfully reduced ESG risk exposure and improved ESG performance post-implementation, but they also caution that spillover effects and classification ambiguities could compromise its integrity (Martinez-Meyers et al., 2024).

Moreover, a growing body of work indicates that the regulatory intent behind SFDR is not always matched by investor comprehension or corporate disclosure. Gebhardt et al. (2023) found that institutional investors still struggle to obtain reliable sustainability information necessary to make informed decisions, highlighting a disconnect between regulatory requirements and data availability (Gebhardt et al., 2023).

6.4.3 Implications for Investors and Asset Allocators

Investors face a more complex landscape under the SFDR regime. This study shows that a higher Article classification does not guarantee more substantial financial returns or lower risk. The inconsistent performance of Article 9 funds relative to Article 6 and 8 funds suggests that ESG labels should not be used in isolation to inform investment decisions. Instead, investors must assess each fund's underlying strategy, ESG metrics, and historical performance. This aligns with the findings of Cosma et al. (2023), who argue that the lack of persistence in Article 9 fund performance during crises limits their effectiveness as a hedge against volatility (Cosma et al., 2023).

Investor attention to SFDR classifications has been shown to influence market behaviour significantly, especially under stressed market conditions. This reinforces the role of SFDR not only as a regulatory framework but also as a signalling mechanism that shapes investor perception, even if the substance behind the classification remains variable.

6.5 Reflection on the SFDR's Effectiveness and Integrity

The European Union initiated the SFDR to boost transparency in ESG investing so as to mitigate the risk of greenwashing. This study's findings provide an empirical lens through which to assess whether the regulation has succeeded in its stated objectives.

Analysis of the 269 multi-index funds classified under Articles 6, 8, and 9 revealed inconsistencies in emissions performance across the SFDR categories. Specifically, some Article 6 funds exhibited emissions profiles comparable to those in Article 8, despite having no stated ESG integration. Similarly, the emissions performance of Article 9 funds was only marginally better than that of Article 8 funds. These findings suggest that fund classification under the SFDR does not consistently reflect differences in actual sustainability-related outcomes.

This interpretation aligns with current academic literature. Cardoso and ter Hoeven (2025) argue that the SFDR suffers from definitional vagueness, especially regarding what qualifies as a "sustainable investment." Their study highlights that the regulatory language leaves room for subjective interpretation by fund managers, thereby enabling inconsistent classification practices (Cardoso & ter Hoeven, 2025).

On the other hand, Becker, Martin, and Walter (2023) found that SFDR classifications have a significant effect on fund inflows. Their analysis shows that Article upgrades result in higher capital allocations, regardless of actual ESG performance. This evidence supports the conclusion that SFDR labels currently function more as marketing signals than as indicators of sustainability credentials (Becker et al., 2023)

Nonetheless, other research indicates that the SFDR has introduced some benefits. Martinez-Meyers, Ferrero-Ferrero, and Muñoz-Torres (2024) document improvements in ESG scores for Article 8 and Article 9 funds following the SFDR adoption. However, they also note that these improvements are uneven and do not always correspond to long-term performance advantages (Martinez-Meyers et al., 2024).

Taken together, these findings suggest that while SFDR has improved baseline transparency in ESG disclosures, its classification system lacks the rigour necessary to prevent greenwashing and to ensure credibility in sustainable finance. The absence of robust enforcement mechanisms and the flexibility afforded to fund providers in defining sustainability allow for strategic rather than substantive classification. Without more precise definitions, clearer thresholds, and independent verification of ESG claims, the regulation's capacity to align financial flows with sustainability objectives remains constrained.

7. CONCLUSION

7.1 Summary of Key Findings

This study assessed the relationship that currently exists between a fund's ESG classification and fund performance in multi-asset funds domiciled within the European Union. The analysis focused on funds classified under Articles 6, 8, and 9 under the SFDR, using a dataset of 269 funds filtered from a larger population of over 2,000 products.

The first key finding concerns the distribution and characteristics of ESG classifications. A majority of the analysed funds fell under Article 8, with smaller proportions in Articles 6 and 9. Emissions scores across classifications revealed considerable overlap. Several Article 6 funds demonstrated emissions profiles comparable to or better than those of some Article 8 funds. Similarly, Article 9 funds did not consistently exhibit superior emissions metrics, raising concerns about classification consistency and potential greenwashing.

The second significant finding relates to fund performance. Article 6 funds displayed the highest average returns over five- and ten-year horizons. Article 8 funds followed closely, while Article 9 funds showed the lowest returns. In terms of volatility, Article 9 funds exhibited the highest levels, suggesting elevated risk exposure. Risk-adjusted metrics, such as the Sharpe and Sortino ratios, further reinforced this pattern, with Article 6 and 8 funds achieving modestly positive outcomes, while Article 9 funds underperformed.

Thirdly, the research highlighted a disconnect between ESG classification and financial performance. The results show that higher SFDR classifications do not guarantee superior return profiles or lower risk. This finding agrees with the existing literature, which raises questions about the financial efficacy of ESG integration when not accompanied by rigorous implementation.

Finally, this study identified limitations in the SFDR framework. Despite its intent to improve transparency and reduce greenwashing, the regulation currently allows for significant discretion in classification. This has enabled some funds to adopt higher ESG labels without delivering commensurate sustainability outcomes.

These findings suggest that ESG labels under SFDR may function more as signals than as accurate indicators of sustainability or financial performance. Fund managers, regulators, and investors must engage critically with these classifications to ensure that ESG commitments are both meaningful and measurable.

7.2 Theoretical and Practical Contributions

This thesis adds to the literature on sustainable finance by providing a focused examination of ESG classification and fund performance within the relatively underexplored domain of multi-asset funds. Existing research has primarily concentrated on mutual funds, particularly those domiciled in the United States and other major global markets (Soni, 2023). By contrast, this study offers new insights into the European fund landscape, drawing on a dataset of 269 multi-asset products and their classification under the SFDR framework.

On a theoretical level, the study integrates Modern Portfolio Theory (MPT) with ESG integration frameworks to assess the risk-return profiles of Article 6, 8, and 9 funds. The findings support the premise that ESG ambition alone does not determine performance consistency, reinforcing the notion that portfolio construction remains critical in sustainable investing. The study also incorporates stakeholder theory to interpret the strategic motivations behind ESG positioning, particularly in light of the observed mismatch between ESG labels and actual sustainability outcomes.

From a practical perspective, the research provides fund managers with evidence-based benchmarks for comparing ESG-labelled products across multiple performance horizons. The results show that Article 6

and 8 funds can deliver comparable or even superior returns relative to Article 9 funds, particularly over longer timeframes. This finding may guide asset allocators in re-evaluating the assumptions that underlie ESG screening and fund selection.

The study also offers practical value for regulatory stakeholders. By identifying discrepancies between emissions data and SFDR classifications, the study highlights the need to refine classification criteria and enhance verification mechanisms. Regulators may use these insights to refine the regulatory framework and improve market integrity.

Finally, investors benefit from the study's clarification of the relationship between a fund's ESG labelling and a fund's performance. The analysis highlights the importance of conducting independent due diligence, rather than relying solely on SFDR classifications, particularly when evaluating long-term sustainability and financial returns.

7.3 Implications for Policy, Fund Strategy, and Disclosure

This study adds to the theoretical development of sustainable finance by critically assessing the alignment between regulatory classifications under the SFDR and the actual financial and environmental performance of investment funds.

Theoretically, it reinforces the ongoing debate within finance and ESG research about the extent to which sustainability-oriented labels correspond with meaningful performance differentials or signal quality in capital markets. Specifically, the findings add empirical weight to the view that ESG classifications are not always reliable proxies for return, volatility, or emissions outcomes. This finding is consistent with earlier literature, which has found a minimal correlation between ESG scoring and superior financial returns, especially when regulatory labels become symbolic rather than functional tools of differentiation (Sinha, 2024; Papathanasiou & Koutsokostas, 2024).

From a practical standpoint, the research highlights several implications for fund managers, regulators, and institutional investors. For asset managers, the study reveals that SFDR Article 9 funds, although marketed as the most sustainable, do not systematically outperform Article 6 or Article 8 funds in emission scores, long-term returns, and in some cases, exhibit higher volatility. This suggests that ESG commitment may bring reputational benefits or attract capital flows, but not necessarily lead to improved performance metrics.

For regulators, these results prompt caution. Although the SFDR has improved transparency and ESG risk profiles in the fund market (Martinez-Meyers et al., 2024), the lack of standardisation in how Article 8 and 9 classifications translate into actual emissions or performance metrics calls into question the regulation's effectiveness in curbing greenwashing. Some funds appear to meet classification requirements without demonstrating clear sustainability advantages, a concern also echoed by Scheitza and Busch (2024) in their analysis of Article 9 funds' inconsistent commitment to impact strategies (Scheitza & Busch, 2024).

For investors, the findings provide evidence that ESG classification alone may be insufficient as a decision-making tool. Given the variability in emissions and financial performance across funds within the same SFDR category, due diligence must extend beyond reliance on labels. The study thereby supports calls in the literature for enhanced sustainability due diligence and the refinement of ESG metrics and reporting frameworks.

7.4 Future Research Directions

This research has opened several avenues for further academic inquiry into ESG integration, fund performance, and regulatory effectiveness. One immediate direction is the need for research that investigates the long-term persistence of ESG fund performance across varying macroeconomic cycles. While this thesis examined three-, five-, and ten-year horizons, future studies could explore how ESG performance responds to specific market stress periods, such as inflationary shocks or geopolitical crises.

This would help determine whether ESG strategies offer downside protection under adverse conditions, a claim often made but insufficiently substantiated.

Another area requiring further attention is the operational diversity within SFDR classifications. Although funds are grouped under Articles 6, 8, and 9, they may adopt materially different ESG approaches within each category. Comparative case studies using fund-level strategy disclosures and engagement reports could help unpack these internal variations and provide a greater understanding of how sustainability goals are implemented in practice.

There is also scope to examine investor decision-making in response to SFDR classifications. Behavioural research could investigate whether Article labels influence asset allocation independently of performance metrics, especially for retail investors with limited access to granular data. Such studies would complement quantitative fund-level analyses by shedding light on the demand-side dynamics that sustain ESG-marketed products.

Geographically, most existing research continues to focus on mutual funds in North America. This thesis has contributed to the growing literature on European multi-asset funds, but broader cross-jurisdictional comparisons could help assess the global impact of disclosure-based regulation. Comparative work involving the United States' SEC disclosure framework, the UK's Sustainability Disclosure Requirements (SDR), and Asia-Pacific regulations could reveal how regulatory designs influence ESG credibility and financial outcomes across contexts.

Finally, further methodological development is needed to integrate sustainability metrics with traditional financial models. Existing approaches such as the Sharpe or Sortino ratio do not capture non-financial dimensions like biodiversity exposure or climate resilience. Emerging methodologies that incorporate ESG-adjusted risk factors into portfolio optimisation should be tested more extensively across asset classes.

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9. APPENDICES

Appendix A. Fund Domicile

Table A1

Fund Domicile

Rank	Domicile	Article 6 Funds	Article 8 Funds	Article 9 Funds	Total Funds
1	Luxembourg	27	37	2	66
2	France	30	21	2	53
3	Italy	37	4	2	43
4	Germany	24	14	2	40
5	Ireland	9	3	0	12
6	Spain	12	3	0	15
7	Belgium	0	8	2	10
8	Austria	4	5	0	9
9	Portugal	5	4	0	9
10	Hungary	3	0	0	3
11	Slovakia	1	1	0	2
12	Sweden	0	1	1	2

13	Cyprus	1	0	0	1
14	Denmark	1	0	0	1
15	Finland	0	1	0	1
16	Liechtenstein	1	0	0	1
17	Netherlands	0	6	0	6
	Total	156	104	9	269

Appendix B. SFDR Category and Fund Performance Calculations

Table B1

Fund Performance by SFDR Category across three time horizons

Time Horizon (Year)	SFDR Category	Mean Performance	Median Performance	count
3Y	6	2.6	2.49	130
3Y	8	2.66	2.44	92
3Y	9	-0.31	2.42	8
5Y	6	4.29	3.73	110

5Y	8	3.64	3.47	84
5Y	9	0.85	3.43	5
10Y	6	1.45	1.08	84
10Y	8	1.35	1.19	69
10Y	9	0.28	0.96	3

Appendix C. Data on Fund Returns
Table C1

3-Year Annualised Returns by SFDR Category

SFDR Category	Mean (%)	Median (%)	Count
6	1.55	2.76	130
8	2.59	2.65	92
9	1.27	1.27	8

Table C2*5-Year Annualised Returns by SFDR Category*

SFDR Category	Mean (%)	Median (%)	Count
6	4.21	4.14	110
8	3.64	4.18	84
9	3.42	3.43	5

Table C3*10-Year Annualised Returns by SFDR Category*

SFDR Category	Mean (%)	Median (%)	Count
6	3.24	2.18	84
8	2.16	1.57	69
9	2.21	2.21	3

Table C4*Sharpe Ratio Summary By SFDR Category Across Three Time Horizons*

SFDR Category	3Y Mean	3Y Median	5Y Mean	5Y Median	10Y Mean	10Y Median
6	-0.022	-0.012	0.078	0.085	0.028	0.025
8	-0.016	-0.012	0.072	0.088	0.037	0.037
9	-0.086	-0.01	-0.01	0.059	-0.136	0.008

Appendix D: Data on Fund Returns, Volatility and Sharpe Ratio by SFDR Category

Table D1*3-Year Returns, Volatility and Sharpe Ratio by SFDR Category*

SFDR Category	Fund Count	Average Annualised 3-Year Return	Average 3-Year Volatility	Average 3-Year Sharpe Ratio
Article 8	92	2.59%	5.45%	-0.016
Article 6	130	1.55%	5.89%	-0.022
Article 9	8	1.27%	6.13%	-0.086

Table D2*5-Year Returns, Volatility and Sharpe Ratio by SFDR Category*

SFDR Category	Fund Count	Average Annualized 5-Year Return	Average 5-Year Volatility	Average 5-Year Sharpe Ratio
Article 6	110	4.21%	7.03%	0.078
Article 8	83	3.64%	6.66%	0.072
Article 9	5	3.42%	7.27%	-0.010

Table D3

10-Year Returns, Volatility and Sharpe Ratio by SFDR Category

SFDR Category	Fund Count	Average Annualized 10-Year Return	Average 10-Year Volatility	Average 10-Year Sharpe Ratio
Article 6	80	3.24%	7.83%	0.07
Article 8	68	2.16%	7.52%	0.05
Article 9	3	2.21%	8.62%	0.01

Figure D1

Three-Year Annualised Return by SFDR Classification

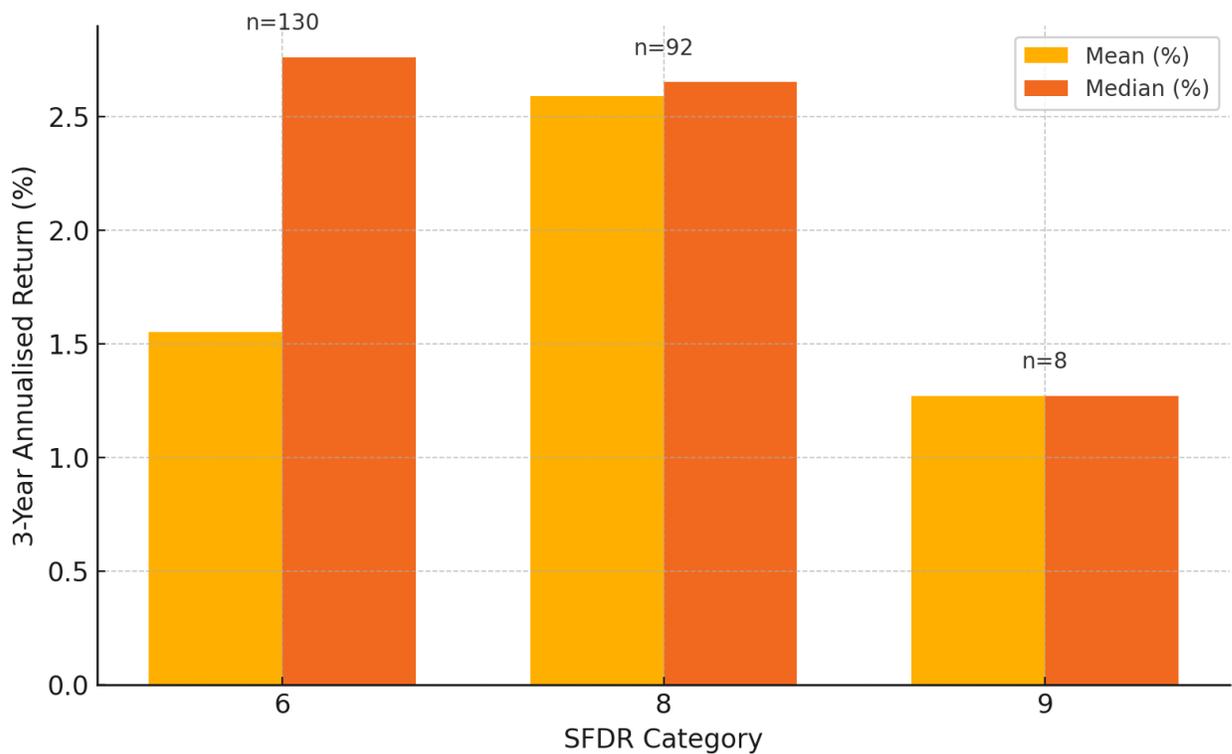


Figure D2

Five-Year Annualised Return by SFDR Classification

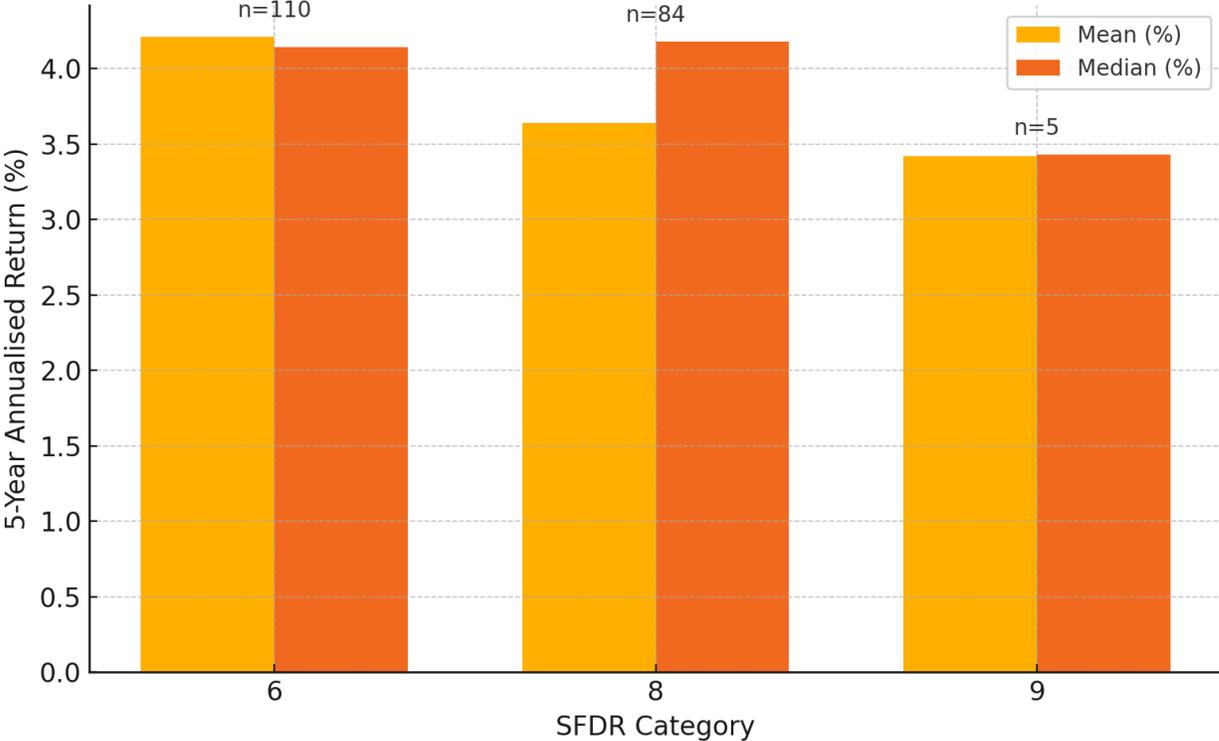
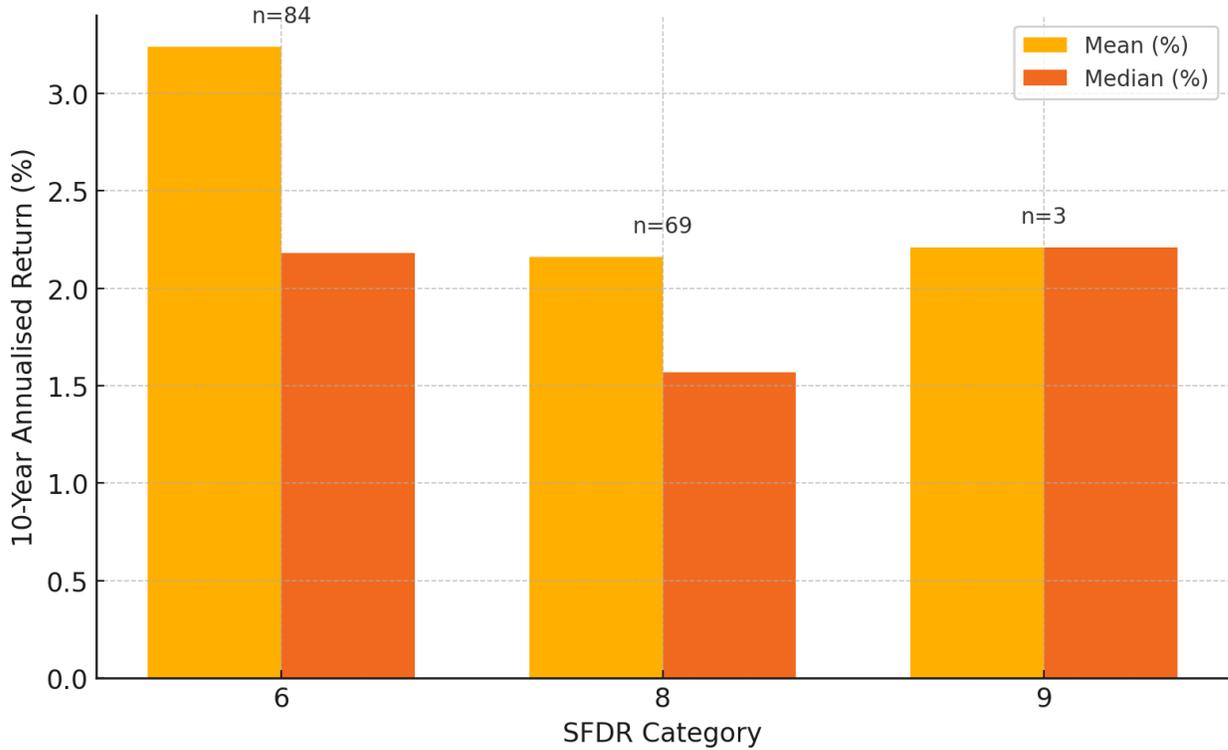


Figure D3

Ten-Year Annualised Return by SFDR Classification



Appendix E: Emissions Data

Table E1

Emissions Data by SFDR Category

SFDR Category	Mean	Median	Standard Deviation	Min	Max	Count
6	81.82	82.38	6.08	54.02	90.14	28
8	82.77	83.00	3.68	70.57	88.15	16
9	81.30	81.30	3.37	76.51	84.27	3

Figure E1

Average Emissions Score by SFDR Classification

