

How Much Green Is Enough? Green Investing between Regulation, Returns, and Impact

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Abstract

This paper examines green investing: its origins, the European regulatory regime, the categories and product classes, and the question of what green security selection means for returns, costs, and real-world environmental impact. The analysis is written from the perspective of a financial analyst and relies exclusively on publicly available regulatory documents, index and product data covering the last ten years, and the empirical research literature.

Three results stand out. First, in broad markets the return differences between conventional indices and their green variants are small over ten years — the MSCI World SRI returned 13.2 per cent per annum against 13.3 per cent for its parent index — whereas strict screens in narrow markets produce large gaps (United Kingdom: 4.8 versus 9.0 per cent per annum). Second, for bonds of identical credit quality, maturity, and currency, the yield concession on green securities (the greenium) currently amounts to zero to four basis points for government bonds and is close to zero for corporate bonds. Third, green index products now cost about the same as conventional ones (differences of a few basis points); among actively managed funds, ESG funds are on average even cheaper than funds without an ESG focus.

As regards real-world impact: buying a share in the secondary market provides the company with no capital, and according to the empirical evidence exclusion decisions shift the cost of capital of the affected firms by mere fractions of a basis point. What demonstrably works are binding laws — such as the European emissions trading system — together with engagement and financing through the

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primary market. Green investing is therefore first and foremost an expression of preferences and a filter within risk management, but not a reliable driver of returns. Rules for investors are derived from these results.

Keywords: Sustainable investing · ESG · SFDR · Green bonds · Greenium · Greenwashing.

JEL codes: G11, G12, G18, M14, Q56.

Non-Technical Summary

Hardly any part of asset management has grown as strongly over the past fifteen years as green — or sustainable — investing: funds classified as sustainable manage around USD 3.7 trillion worldwide, roughly 84 per cent of which is domiciled in Europe. At the same time, countercurrents have gathered force: outflows, renamings, political resistance in the United States, and a simplification of the European rulebook. The title question of this paper is therefore addressed to the investor: How much green is enough — and what may one expect from it?²

The paper first traces what the introduction of green investment products rests on: on decades-old ethical exclusions, but above all on the Paris Climate Agreement of 2015 and the EU action plan of 2018, which explicitly employs the financial market as an instrument of climate policy. Since then, disclosure duties, a classification system for sustainable activities, product categories, and naming rules have emerged; the supervisory authorities in Brussels and Paris as well as in Germany, Austria, and Switzerland enforce them — with remarkably different approaches.

The paper then sorts the terms that are often used interchangeably: ESG, SRI, impact, exclusion, best-in-class, thematic funds, engagement. It shows that ESG assessments from different providers agree only loosely and that the EU categories (Articles 8 and 9) are about to be replaced by new classes. It then describes the green product forms in each asset class — from green savings deposits to green bonds and equity funds — together with the question of how greenwashing can be recognised.

The return and cost comparison yields a sober picture: over ten years, broad green equity variants sit roughly level with their parent indices; since the interest-rate turnaround of 2022 and the rally in energy and defence shares they have lagged. Strict green screens in small markets lead to strong concentration and can carry results far away from the market. For bonds of identical credit quality, maturity, and currency, green now costs only a few basis points of yield, and the ongoing charges of green index products are by now practically identical to conventional ones.

The critical closing question is whether green security selection actually makes companies greener. The research shows: buying in the secondary market gives the company no money, and exclusion hardly moves the cost of capital; binding laws such as emissions trading, and active engagement, change behaviour far more strongly. The practical conclusion: as green as one's convictions require — but with broad diversification, cost control, and realistic expectations about impact.

² Asset and regional figures according to Morningstar, Global Sustainable Fund Flows, second quarter of 2026.

Contents

Non-Technical Summary.....	3
1 Introduction.....	5
2 What Green Investing Rests On: Origins and Regulation.....	6
2.1 From Ethical Exclusion to the Paris Agreement.....	6
2.2 The EU Body of Rules	7
2.3 Supervision: Brussels and Paris — Bonn, Vienna, Bern	8
3 Green Is Not Green: Categories and Their Differences.....	9
3.1 ESG, SRI, Impact: Terms and Investment Styles.....	9
3.2 The SFDR Classes — and Their Planned Successors	10
3.3 Limits of Measurement: When Ratings Disagree	11
4 Green Product Forms by Asset Class.....	12
4.1 Liquidity.....	12
4.2 Bonds	13
4.3 Equities and Equity Funds	13
4.4 Greenwashing: How to Examine Green Products	13
5 Returns and Costs: Green versus Conventional.....	14
5.1 Bonds: The Greenium in the Twin Test	14
5.2 Equity Indices: Ten Years in Paired Comparison	15
5.3 Costs: Hardly Any Premium Left for Green	17
6 What Does Green Selection Really Achieve?.....	18
6.1 How Investment Can Have an Effect.....	18
6.2 Law or Portfolio: What Really Changes Companies	18
7 Conclusion and Recommendation.....	19
References	21
Disclaimer	23

1 Introduction

In the second quarter of 2026, funds classified as sustainable managed around USD 3.7 trillion worldwide; a good four fifths of that is domiciled in Europe. What was a niche for church investors at the turn of the millennium has become a product world of its own, with its own body of law, its own indices, ratings, and quality labels. At the same time the headwind has stiffened: at the end of 2023 sustainable funds recorded net outflows worldwide for the first time, and the first quarter of 2025 brought Europe's first quarter of outflows; hundreds of funds dropped sustainability terms from their names, the term ESG became politically contested in the United States, and the EU is simplifying its own rulebook. Anyone investing today therefore faces a twofold question: How much green is enough — and what does green actually deliver?³

This paper answers that question from the perspective of a financial analyst in five steps. First: What does the introduction of green investment products rest on — what role did the EU and the European supervisory authorities play, in particular in Germany, Austria, and Switzerland? Second: Which green categories exist — ESG, SRI, impact, and related approaches — and how do they differ? Third: Which green product forms exist in the asset classes liquidity, bonds, equities, and equity funds, and how does one recognise greenwashing? Fourth: How have green investments fared against comparable conventional investments — measured on bonds of identical credit quality, maturity, and currency, and on index pairs for the UK market, the SPI, the DAX, the S&P 500, and the MSCI World over the last ten years — and are green products more expensive? Fifth: Does green security selection really change companies, or do national laws work more powerfully?

The academic literature offers solid starting points for each of these questions. Price theory shows that exclusion by sufficiently many investors can raise the cost of capital of the shunned firms (Heinkel, Kraus, and Zechner, 2001), that shunned securities then carry higher expected returns (Hong and Kacperczyk, 2009; Bolton and Kacperczyk, 2021), and that a green price rally driven by rising demand must not be mistaken for permanently higher returns (Pastor, Stambaugh, and Taylor, 2021, 2022). For bonds, the yield concession of green securities has been measured (Zerbib, 2019; Larcker and Watts, 2020; Flammer, 2021); for ESG ratings, their disagreement (Berg, Kölbel, and Rigobon, 2022); for the impact question, the distinction between engagement and mere selection (Kölbel, Heeb, Paetzold, and Busch, 2020; Berk and van Binsbergen, 2025; Edmans, Levit, and Schneemeier, 2022; Hartzmark and Shue, 2023).

Methodologically, the paper is a factual, purely economic analysis. It relies exclusively on publicly available sources — legal texts and supervisory publications, index factsheets,

³ On the first worldwide outflows in the fourth quarter of 2023, Europe's outflow quarter in early 2025, and the recovery in the second quarter of 2026, see Morningstar, Global Sustainable Fund Flows (quarterly reports 2023 to 2026).

product and market data, research literature —, reports figures as approximate values with their as-of dates, and, where misconduct of individual market participants is concerned, names only function and industry, not names. It is general information and academic discussion, not investment advice.

The paper is structured as follows. Section 1 (the present section) develops the research question and surveys the literature. Section 2 describes the origins and the regulatory regime of green investing, including the role of the supervisory authorities in the EU, Germany, Austria, and Switzerland. Section 3 sorts the green categories and their differences. Section 4 describes the product forms in each asset class, including the greenwashing question. Section 5 compares returns and costs of green and conventional investments in bonds and equities. Section 6 examines what green selection actually changes at companies, and Section 7 presents the conclusion and recommendation.

2 What Green Investing Rests On: Origins and Regulation

2.1 From Ethical Exclusion to the Paris Agreement

Green investing is older than its name. Religiously motivated investment rules — abstaining from alcohol, tobacco, and weapons businesses — have existed since the eighteenth century; in 1971 the Pax World Fund became the first broadly distributed ethical fund in the United States, and in the 1980s the withdrawal of capital from South Africa's apartheid regime grew into the first worldwide divestment movement. The Domini 400 Social Index of 1990 was the first sustainability index, followed in 2001 by the FTSE4Good family as the first index series of a major European exchange. The term ESG — Environmental, Social, Governance — originates from the United Nations context: in 2006 the Principles for Responsible Investment (PRI) were launched, which several thousand asset managers with combined assets of more than one hundred trillion US dollars have since signed.⁴

The decisive push, however, came from climate policy. The Paris Agreement of 2015 states in Article 2.1c the goal of making finance flows consistent with a pathway towards low greenhouse gas emissions. The financial market thus became an explicit part of climate policy: if states cannot finance the enormous investment of the transition — energy, transport, buildings, industry — from public budgets alone, private capital flows are to be redirected. In economic terms this is an attempt to bring an externality — emissions whose costs are borne by the public — into capital allocation through information and incentive rules. Whether this route works, or whether only binding pricing and regulatory law do, is the core question of Section 6.

⁴ The PRI most recently counted more than 5,000 signatories. The six principles commit signatories, among other things, to incorporating ESG considerations into investment decisions and ownership practices.

2.2 The EU Body of Rules

In 2018 the EU translated the Paris goal into its action plan on financing sustainable growth, with three aims: redirecting capital towards sustainable activities, embedding sustainability risks in risk management, and curbing short-termism. Within a few years this produced the world's densest body of rules for sustainable investing; Table 1 orders the most important steps.⁵

Table 1: Milestones of the European regulatory regime for sustainable investing

Year	Step	Essence
2006	UN Principles for Responsible Investment	Voluntary commitment of institutional investors; origin of the term ESG
2015	Paris Climate Agreement, Art. 2.1c	Finance flows are to be aligned with climate goals
2018	EU action plan on sustainable finance	Redirect capital, embed risks, curb short-termism
2019	Disclosure Regulation SFDR (EU) 2019/2088; Benchmark Regulation (EU) 2019/2089	Transparency duties for financial market participants; EU climate benchmarks (CTB, PAB)
2020	Taxonomy Regulation (EU) 2020/852	Classification system: substantial contribution to six environmental objectives without significantly harming the others
2021	SFDR applicable (10 March)	Product classification under Articles 6, 8, and 9 becomes the de facto market standard
2022	MiFID II sustainability preferences; CSRD (EU) 2022/2464	Mandatory preference query in investment advice; corporate sustainability reporting
2024	EU Green Bond Standard (EU) 2023/2631 applicable; ESMA fund-name guidelines	Voluntary bond standard tied to the Taxonomy; 80 per cent rule for sustainability terms in fund names
2025	Omnibus simplification (“stop the clock”, agreement in December)	CSRD only above 1,000 employees and EUR 450 m turnover; second-wave reports from 2027
2025	Proposal to revise the SFDR (20 November)	New product categories Sustainable, Transition, and ESG Basics (70 per cent thresholds each) to replace Art. 8/9
2026	Negotiation of the SFDR reform	Under deliberation as of August 2026; application about twelve months after entry into force

Sources: EUR-Lex; European Commission; ESMA; own compilation.

Notes: CTB/PAB: Climate Transition and Paris-aligned Benchmarks. Status as of August 2026.

Three rules shape today's product world. The Taxonomy Regulation defines which economic activity counts as environmentally sustainable: it must contribute substantially to one of six environmental objectives, must not significantly harm any of the others, and must respect social minimum safeguards. The disclosure regulation SFDR requires fund providers to state whether and how a product promotes environmental or social characteristics (Article 8) or pursues sustainable investment as its objective (Article 9);

⁵ European Commission, Action Plan: Financing Sustainable Growth, COM(2018) 97 final of 8 March 2018.

these disclosure tiers unintentionally turned into quality labels. The ESMA naming guidelines require since 2024/25 that funds carrying sustainability terms in their names invest at least 80 per cent accordingly and observe fossil-fuel exclusions; as a consequence, 674 European funds were renamed — around 17 per cent of all funds carrying such terms.⁶

The change of direction since 2025 is remarkable: the Omnibus package cut corporate reporting duties back to large companies with more than 1,000 employees, in 2026 the reporting standards themselves were trimmed by around 61 per cent of their data points, and the Commission has proposed replacing the Article 8/9 system with three more clearly defined product categories carrying minimum investment quotas of 70 per cent. For investors this means: the labels under which green products are sold today are transitional law; the economic questions of this paper — returns, costs, impact — remain untouched by it.⁷

2.3 Supervision: Brussels and Paris — Bonn, Vienna, Bern

At the European level, three authorities share the work. The securities regulator ESMA helps develop the technical standards under the SFDR, issued the naming guidelines, publishes greenwashing reports, and coordinates common supervisory actions of the national authorities; the banking authority EBA is responsible for banks' ESG disclosure (including the green asset ratio, which since 2024 measures the taxonomy-aligned share of a bank's balance sheet) and, together with the ECB, ran the first climate stress test in 2022; the insurance authority EIOPA plays the same role for insurers and for advice under the insurance distribution directive.⁸

In Germany, BaFin enforces EU law. It presented its own draft guideline for sustainable investment funds in 2021 but shelved it in favour of the European rules; since then it has acted through administrative practice, prospectus review, and market studies. That enforcement also happens outside financial supervision was shown by Europe's best-known greenwashing case: the fund subsidiary of a large German bank settled with the US securities regulator for USD 19 million in 2023 and accepted a fine of EUR 25 million from the Frankfurt public prosecutor in April 2025, because advertised sustainability standards did not match actual practice.⁹

Austria's FMA published a guideline on dealing with sustainability risks as early as 2020 and last updated it in 2025; sustainability is one of its declared supervisory priorities,

⁶ Number of renamings according to an analysis by Finanzwende, urgewald, and Facing Finance of 28 May 2025 (391 funds dropped the terms, 283 softened them, 86 added them); guidelines ESMA34-1592494965-657 of 14 May 2024, effective 21 November 2024 (existing funds: 21 May 2025).

⁷ Omnibus: approval of the trilogue result by the European Parliament on 16 December 2025; the CSDDD will in future apply from 5,000 employees and EUR 1.5 bn turnover, applicable from 2028/29.

⁸ See ESMA, Progress Reports on Greenwashing (2023/2024) and the common supervisory actions on sustainability disclosures in funds.

⁹ According to concurring press and authority statements 2023 to 2025; participants are referred to here by function only.

with a focus on prospectus statements and greenwashing. An Austrian speciality is the state-run Austrian Ecolabel for sustainable financial products (guideline UZ 49), awarded since 2004 — years before the EU rulebook — to funds, bonds, and savings products against audited criteria.¹⁰

Switzerland takes a different route: no EU law, but principles-based supervision and self-regulation. FINMA warned against greenwashing in funds in a 2021 supervisory notice, requires large institutions to be transparent about climate risks, and, with Circular 2026/1 on nature-related financial risks, sets risk-management requirements from 2026. In 2024 the Federal Council refrained for the time being from state greenwashing rules after the fund industry and the banks had tightened their self-regulation — while expressly reserving the right to revisit the question in the light of EU developments; the voluntary Swiss Climate Scores of 2022 come on top. For investors in the German-speaking area, three regimes therefore coexist: detailed EU law in Germany and Austria, principles and industry standards in Switzerland.¹¹

3 Green Is Not Green: Categories and Their Differences

3.1 ESG, SRI, Impact: Terms and Investment Styles

The terms of sustainable investing denote different things and yet are often used interchangeably. ESG initially names three assessment dimensions — environment, social, governance — that is, a layer of information, not yet an investment policy. SRI (socially responsible investing) traditionally stands for values-based selection with strict exclusions. Impact investing additionally requires an intended, measurable effect. In between lie graduated investment styles that are combined in practice; Table 2 orders the common systematics.¹²

¹⁰ FMA guideline on dealing with sustainability risks, document 01/2025; Ecolabel guideline UZ 49 of the climate ministry, audited by the Austrian consumer association VKI.

¹¹ FINMA supervisory notice 05/2021; FINMA Circular 2026/1 (12 December 2024, in force from 1 January 2026, transitional periods to 2028); Federal Council decision of 19 June 2024 in favour of the self-regulation of AMAS and the Bankers Association.

¹² Systematics following the Global Sustainable Investment Alliance and Eurosif; the styles are not mutually exclusive and usually appear combined in products.

Table 2: Investment styles of sustainable investing

Style	Approach	Typical implementation
Exclusion	Avoiding certain industries or practices (weapons, coal, tobacco, norm violations)	Almost all sustainable funds; revenue thresholds
Norm-based	Screening against international norms (UN Global Compact, ILO, OECD guidelines)	Exclusion or dialogue upon violations
Best-in-class	Selecting the best-rated firms per industry; no industry avoided outright	SRI and ESG leaders indices
ESG integration	ESG variables enter valuation and selection alongside financial metrics	Active management; no exclusion promise
Thematic	Concentration on sustainability themes	Funds for renewable energy, water, circular economy
Impact	Intended, measured effect alongside return	Microfinance, green bonds with reporting duties, Article 9 funds
Engagement	Exercising ownership: dialogue, proposals, voting rights	Stewardship programmes of large asset managers

Sources: GSIA; Eurosif; own presentation.

How strict a green product really is shows less in its label than in its selection ratio. The index families make this visible: screened variants remove only proscribed businesses and largely keep the market; leaders variants keep about half of the market capitalisation per industry; SRI variants only about one quarter. With each step, the deviation from the market grows — and with it the range of possible out- or underperformance. This simple rule — the stricter the screen, the larger the difference to the market in both directions — carries the entire discussion of results in Section 5.¹³

3.2 The SFDR Classes — and Their Planned Successors

In the market, the classification under the disclosure regulation has established itself as shorthand, although it was designed as a transparency rule, not a product rule: Article 6 products make no sustainability claim, Article 8 products promote environmental or social characteristics, Article 9 products pursue sustainable investment as their objective. At the end of September 2025, Article 8 and Article 9 funds together accounted for around 52 per cent of EU-domiciled funds and, at roughly four trillion euros, just under 59 per cent of the fund assets covered; the assets of the strict Article 9 class had previously almost halved after hundreds of funds were downgraded following clarifications by the Commission, and have shrunk further since. Table 3 summarises the classes.¹⁴

¹³ Selection ratios according to MSCI methodology documents (ESG Screened; ESG Leaders: 50 per cent, SRI: 25 per cent of market capitalisation per sector).

¹⁴ Market data according to Morningstar, SFDR Article 8 and Article 9 Funds: Q3 2025 in Review (universe covered: around EUR 6.8 trillion); downgrade wave at the end of 2022/beginning of 2023.

Table 3: Product classes of the disclosure regulation and their planned successors

Class	Characteristic	Market
Article 6	No sustainability claim; disclosure whether sustainability risks are considered	41.2% of assets; 47.7% of funds
Article 8	Promotes environmental/social characteristics (“light green”); wide range of strictness	56.0% of assets; 48.2% of funds
Article 9	Sustainable investment as objective (“dark green”); only a small residual of other holdings	2.8% of assets; 4.1% of funds
Planned: ESG Basics	Minimum standards and exclusions; 70% of holdings accordingly	Proposal of 20 Nov 2025
Planned: Transition	Finances the transition; 70% in transition assets with credible plans	Proposal of 20 Nov 2025
Planned: Sustainable	70% in already sustainable assets	Proposal of 20 Nov 2025

Sources: Regulation (EU) 2019/2088; European Commission, COM(2025) 841 final of 20 November 2025; market shares according to Morningstar (30 September 2025).

Notes: Shares of the EU fund universe covered by Morningstar (around EUR 6.8 trillion); the new categories are under negotiation as of August 2026.

Two things follow for investors. First, Article 8 is not a quality grade but a very broad residual class — from almost market-neutral products with a few exclusions to strictly screened portfolios. Second, the entire system is about to be replaced: the planned categories with 70 per cent thresholds and binding exclusions would substitute clearer product rules for self-classification. Whoever selects products today should therefore rely not on the article number but on the fund terms: exclusion list, minimum quotas, metrics.

3.3 Limits of Measurement: When Ratings Disagree

Green selection needs yardsticks — and the yardsticks are inconsistent. The widely cited study by Berg, Kölbel, and Rigobon (2022) compared the ESG assessments of six major providers: the average correlation was 0.54 (between 0.38 and 0.71) — credit ratings of different agencies reach 0.99. The differences arise from the choice of topics, measurement, and weighting; the same firm can be exemplary with one provider and a laggard with the next. In Switzerland, for instance, the SIX exchange bases its ESG indices on the impact ratings of Inrate (minimum grade C+), while the large international indices draw on MSCI or S&P assessments.¹⁵

In addition, there is a fundamental difference of perspective: many ESG ratings measure above all which sustainability risks act on the company (financial materiality), not how the company acts on the environment and society (double materiality in the sense of EU law). A security can thus be rated well because it manages climate risks skilfully — not because it makes the world greener. For the investor this means: an ESG rating is a

¹⁵ Berg, Kölbel, and Rigobon (2022); on the Inrate methodology, the SIX index rules for the SPI ESG (admission from rating C+, revenue limits for nine business areas).

judgement under assumptions, not a measurement; whoever uses it should know the provider's methodology and seek second opinions.

4 Green Product Forms by Asset Class

Green investing is not an asset class of its own but a selection rule laid across all asset classes. Table 4 gives the overview; the following sections describe the forms and the respective points to examine.

Table 4: Green product forms by asset class

Asset class	Forms	What to examine
Liquidity	Green sight, call, and term deposits with use-of-funds commitments; sustainable money market funds; ecolabelled savings products	The bank's use-of-funds report; deposit insurance unchanged; rate concession versus market rates
Bonds	Green bonds (use of proceeds), social and sustainability bonds, sustainability-linked bonds (KPI linkage), EU green bonds, green government bonds and covered bonds, green bond funds	Issuer credit quality remains decisive; framework, external review, reporting; greenium (Section 5.1)
Equities	Single stocks from environmental industries; broad green index variants (screened, leaders, SRI, climate benchmarks CTB/PAB)	Industry bets and valuation cycles in single stocks; screen strictness drives market deviation
Equity funds	Active ESG, thematic, and impact funds; ETFs on green indices; Article 8/9 products	Fund terms rather than labels; costs; concentration in narrow markets (Section 5.2)

Sources: Own presentation.

4.1 Liquidity

In the deposit segment, green sight, call, and term deposits promise to lend the funds received only for defined purposes — such as renewable energy or energy-efficient housing. Economically it remains a bank deposit: the bank's credit quality and the statutory deposit insurance are the same as for the conventional product; the green element lies solely in the use-of-funds commitment, which is only as reliable as its audited report. In Austria, the UZ 49 Ecolabel also covers savings products. In addition there are sustainable money market funds holding short-dated paper of screened issuers; they are subject to fund regulation and to the same interest environment as their conventional counterparts.¹⁶

The investor's checkpoint here is less the risk than the price: green deposits sometimes pay below market rates. A deliberate rate concession is legitimate — but it should be visible and not disappear behind the label.

¹⁶ For deposits, the statutory protection of EUR 100,000 per customer and bank in the EU applies irrespective of the green use-of-funds commitment.

4.2 Bonds

The bond is the oldest and largest green product form. With a green bond under the ICMA Green Bond Principles, the issuer commits to allocating the proceeds to defined environmental projects and to reporting on them; social and sustainability bonds widen the purposes. The sustainability-linked bond instead ties the coupon to company-level targets — if the issuer misses its target, the coupon steps up; in practice the step-ups are often small and the targets soft, which is why this form requires particularly careful review. Since December 2024, the EU Green Bond provides the first statutory standard: proceeds must be allocated largely in line with the Taxonomy and be externally reviewed; usage has so far remained modest.¹⁷

Sovereigns have become anchor issuers. Since September 2020, Germany has issued green federal securities under the twin concept — every green bond has a conventional twin with the same coupon and the same maturity, so that the price difference measures the willingness to pay for green exactly (Section 5.1); at the end of 2023 around EUR 56 billion was outstanding, and across several maturities a green yield curve has since formed. Austria and Switzerland have also issued green government bonds since 2022; green covered bonds of banks come on top. Important for the investor: the credit risk of a green bond is that of its issuer — green is the use of proceeds, not the credit quality.¹⁸

4.3 Equities and Equity Funds

For single stocks, green usually means industry choice: producers of renewable energy, grid and storage technology, efficiency. Such securities follow pronounced valuation cycles — the multiplication of many solar and wind shares up to 2021 was followed by a deep decline during the 2022-2024 rise in interest rates — and they bundle technology, subsidy, and interest-rate risks. For wealth formation, broad forms are therefore the rule: index variants with exclusions (screened), best-in-class variants (leaders, SRI), climate benchmarks under the EU standard (CTB, PAB), and active funds. The strictness of the screen determines the deviation from the market; the results in Section 5.2 show the range.¹⁹

4.4 Greenwashing: How to Examine Green Products

Greenwashing denotes sustainability claims that actual investment practice does not support. Europe's best-known case — the fund subsidiary of a large German bank that did

¹⁷ ICMA, Green Bond Principles; Regulation (EU) 2023/2631, applicable since 21 December 2024; first issues from early 2025, initially mainly by utilities and public issuers.

¹⁸ German Finance Agency, green federal securities (twin concept); federal finance ministry monthly report of February 2024: in 2023 Germany was the largest issuer of green euro bonds (EUR 17.25 bn).

¹⁹ By way of example, the world's most watched clean energy index peaked in January 2021 after a strong rise in the two preceding years and gave back a substantial part of that gain in the following years.

not consistently apply its advertised ESG standards internally — ended with a USD 19 million settlement with the US securities regulator (2023) and a EUR 25 million fine by the Frankfurt public prosecutor (2025). Regulation has responded: the ESMA naming guidelines enforced the 80 per cent rule with fossil-fuel exclusions from 2024/25; 674 European funds were renamed, and in the United States index providers partly removed the very acronym ESG from index names — a reminder that labels also follow political fashions.²⁰

For practice, a short checklist suffices: first, read the fund terms rather than the name — minimum quotas, exclusion list, metrics; second, clarify the data basis — which rating, which threshold, which index; third, examine the reports — annual sustainability reports, for bonds the allocation and impact reports, for deposits the use-of-funds statement; fourth, consult independent labels such as the Austrian Ecolabel or the Swiss Climate Scores. Where information is missing or evasive, the absence is itself the information.

5 Returns and Costs: Green versus Conventional

5.1 Bonds: The Greenium in the Twin Test

Whether green bonds cost return can be measured nowhere more cleanly than in Germany's green federal securities: their conventional twin has the same debtor, the same currency, the same coupon, and the same maturity — the yield difference, the greenium, therefore isolates exactly the willingness to pay for green. This difference has always been small and has shrunk over the years: around 1.5 basis points at the first issue in September 2020, 7.4 basis points at the peak (2021), at times below one basis point thereafter; the 2023 issues brought 0.5 to 9.0 basis points, in early 2024 4.2 and 1.2 basis points were measured; since then the greenium of ten-year federal securities has moved in the low single digits.²¹

The broad market shows the same picture. Research finds an average yield concession of green bonds of around two basis points (Zerbib, 2019); for exactly matched US municipal bonds practically zero (Larcker and Watts, 2020); a survey by the German insurance association orders the market phases: from 20 to 100 basis points in the early period 2012/13 to single-digit values or parity since 2018, and for investment-grade corporate bonds most recently around zero to slightly negative. This answers the question about comparable bonds — five years to maturity, identical credit quality and currency: the running yield disadvantage of green securities today amounts to zero to a few basis points; in stress phases, green bonds have in addition proved somewhat more price-stable thanks to their long-horizon investor base. Whoever subscribes green thus foregoes almost nothing

²⁰ See Section 2.3; on the renaming wave the analysis by Finanzwende, urgewald, and Facing Finance (28 May 2025) and the renaming of the S&P ESG indices to “Scored & Screened” (2025).

²¹ German Finance Agency (twin concept, greenium based on Bundesbank reference prices); federal finance ministry monthly report February 2024. The peak of 7.4 basis points was reached in August 2021.

— but receives no extra return either: the greenium is the market price of the good cause, not its reward.²²

5.2 Equity Indices: Ten Years in Paired Comparison

For equities, the paper compares five market pairs — the conventional index and its most common green variant — on the basis of price and total return data of the last ten years: MSCI World against MSCI World SRI, the S&P 500 against its ESG variant, the DAX against the DAX 50 ESG+, the SPI against the SPI ESG, and for the United Kingdom the MSCI United Kingdom against its SRI variant. Within each pair the data basis is identical (gross index returns or ETF returns after costs); for the UK market the MSCI pair is used because no exchange-traded fund tracks the FTSE4Good UK selection. Table 5 shows the results, Figure 1 the five-year returns in a chart.²³

Table 5: Annualised returns of conventional indices and their green variants over five and ten years

Market pair	5y conv.	5y green	10y conv.	10y green	Green variant live since
MSCI World / World SRI (USD)	11.7%	9.9%	13.3%	13.2%	June 2011
S&P 500 / S&P 500 ESG (USD)	13.4%	14.4%	15.5%	–	January 2019
DAX / DAX 50 ESG+ (EUR, ETF)	10.1%	9.2%	8.9%	–	ETF since April 2020
SPI / SPI ESG (CHF, ETF)	5.2%	5.7%	–	–	February 2021
MSCI UK / UK SRI (GBP)	13.7%	4.6%	9.0%	4.8%	January 2012

Sources: MSCI index factsheets (31 Jul 2026); iShares Core S&P 500 and SSGA factsheet EFIV (31 Jul and 30 Jun 2026); extraetf data on iShares Core DAX and Amundi DAX 50 ESG II (26/27 Aug 2026); factsheets iShares Core SPI and UBS SPI ESG (31 Jul and end-July 2026); own compilation.

Notes: Returns p.a.; “–”: green variant without ten-year history. The ESG variant of the S&P 500 has traded since 2025 as “S&P 500 Scored & Screened”. The DAX figures come from the Amundi DAX 50 ESG II, which tracks the DAX 50 ESG+ (the DAX 50 ESG itself was launched in March 2020); SPI ESG via the ETF on the SPI ESG Weighted.

²² GDV (2022), The greenium in European bonds; on price stability in March 2020, ibidem. On first issues under the EU standard see Section 4.2.

²³ As-of dates: MSCI pairs 31 July 2026 (gross returns in USD and GBP); S&P 500 31 July 2026, ESG variant 30 June 2026; DAX pair 26/27 August 2026; Swiss pair end-July 2026.

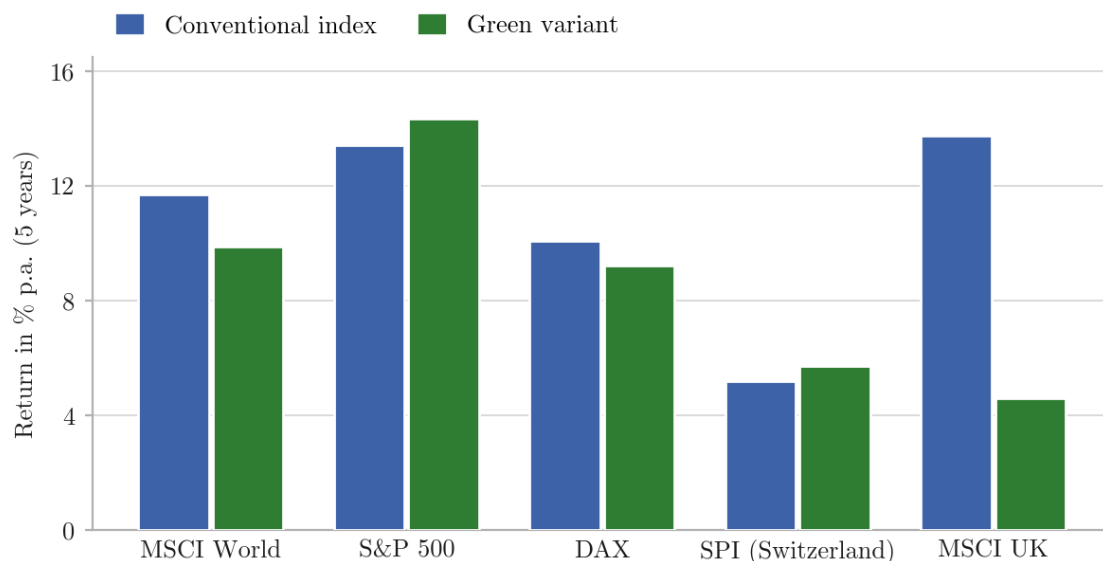


Figure 1: Annualised five-year returns of conventional indices and their green variants in five markets, as-of dates June to August 2026; data basis identical within each pair, details in Table 5. Sources: MSCI; SSGA; iShares; UBS; extraetf; own presentation.

Three results stand out. First, in the broad markets the differences over ten years are small — the MSCI World SRI, at 13.2 against 13.3 per cent per annum, sits practically level with its parent index, and the mildly screened ESG variant of the S&P 500, which deliberately keeps industry weights close to the market, is even slightly ahead over five years; so is the Swiss pair, whose sustainability-weighted variant stands slightly ahead of the broad market at 5.7 against 5.2 per cent. Second, since the interest-rate turnaround of 2022 and the rally in energy, defence, and bank shares, the more strictly screened variants of the large markets have lagged; over three years the gap for the world index amounts to almost four percentage points per annum (14.8 against 18.6 per cent). The years 2019 to 2021 showed the mirror image — then the green variants led. Third, strict screens in narrow markets create concentration. The SRI variant of the UK market holds only a few dozen securities, missed the rally in oil, defence, and bank shares, and over ten years stayed more than four percentage points a year behind the market at 4.8 against 9.0 per cent — over the last year it stood at minus 2.3 per cent while the market gained 23.6 per cent.²⁴

These results square with theory. Rising green demand lifts the prices of green securities once and at the same time lowers their expected future return; shunned brown securities must conversely offer a premium (Pastor, Stambaugh, and Taylor, 2021, 2022; Bolton and Kacperczyk, 2021). The green outperformance of 2019 to 2021 was accordingly to a large extent repricing, not a permanent state — and the years since have shown the countermovement, reinforced by energy prices, rising rates, and the defence cycle. For forming expectations this means: broad green variants are, over the long run, roughly

²⁴ Figures from the sources listed in Table 5; three-year values MSCI World SRI 14.8%, MSCI World 18.6% p.a. as of 31 July 2026.

market-like with a slightly lower expected return as the price of the preference; the stricter and narrower the screen, the larger the possible deviation in both directions. At the company level, the research finding is not a negative one: the survey by Friede, Busch, and Bassen (2015) of more than two thousand empirical studies mostly reports a non-negative relation between ESG characteristics and corporate performance — which does not, however, mean that a screened portfolio beats the market. Finally, the history of the indices themselves calls for caution: of the five green variants, only one has been calculated live for more than twelve years; longer series are partly back-calculations, which experience shows tend to look friendlier than lived results.²⁵

5.3 Costs: Hardly Any Premium Left for Green

That leaves costs. Table 6 sets, for four markets, the ongoing charges (TER) of broad-market ETFs against their green counterparts: the differences range from zero to two basis points; in the German pair both variants cost the same. The blanket statement that green products are more expensive is therefore obsolete for index investing; it belonged to the early period of small fund volumes. At the level of the whole market, the European securities regulator reaches the same conclusion: according to its market report of March 2026, the ongoing costs of ESG funds were below those of comparable funds without an ESG focus — the regression-based gap is around five basis points — while the ESG funds lagged their performance in 2024; the authority attributes this to their stronger exposure to European and global markets, which trailed America and Asia in the second half of 2024. Narrow thematic and impact products, by contrast, are often more expensive than the market average; here the cost comparison is particularly worthwhile.²⁶

Table 6: Ongoing charges of broad-market ETFs and their green variants

Market	Conventional	TER	Green variant	TER
World	iShares Core MSCI World	0.20%	iShares MSCI World SRI	0.20%
USA	SPDR S&P 500 (SPY)	0.09%	SPDR S&P 500 ESG (EFIV)	0.10%
Germany	iShares Core DAX	0.16%	Amundi DAX 50 ESG II	0.16%
Switzerland	iShares Core SPI	0.10%	UBS SPI ESG	0.12%

Sources: Provider factsheets (iShares, SSGA, Amundi, UBS; June to August 2026); own compilation.

Notes: TER p.a. according to the official factsheets; some fund databases still state 0.15% for the Amundi DAX 50 ESG II. Front-end loads and transaction costs apply irrespective of the product.

²⁵ MSCI expressly notes in its factsheets that there are frequently material differences between back-tested and actual performance; the DAX 50 ESG and the SPI ESG were launched only in 2020/21, the S&P variant in 2019.

²⁶ ESMA, ESMA Market Report on Costs and Performance of EU Retail Investment Products 2025 (ESMA50-1949966494-4065, 3 March 2026); on the cost drivers ESMA (2022), The Drivers of the Costs and Performance of ESG Funds.

6 What Does Green Selection Really Achieve?

6.1 How Investment Can Have an Effect

Why is it the financial industry, of all places, that concerns itself with green investing? Four motives work together: client demand, whose preferences have even had to be queried since 2022; risk management, which must treat climate risks as financial risks; regulation, which prescribes disclosure and categories; and — stated soberly — the business interest of providers, for whom a new product family means new fees. None of these motives guarantees that companies actually become greener through green selection. Any effect must run along one of three routes: through the cost of capital, through fresh capital in the primary market, or through influence as an owner.

The first route is weaker than it appears. Whoever buys or shuns a share on the exchange trades with another investor — not a euro flows to the company. An effect would only arise if broad exclusion depressed the prices of the shunned firms and made their financing more expensive (Heinkel, Kraus, and Zechner, 2001). Empirically this effect is tiny: Berk and van Binsbergen (2025) put the effect of the divestment movement to date on the cost of capital of the affected companies at less than one basis point — too little to change investment decisions. Pushed to the extreme, pressure can even be counterproductive if costlier capital suppresses precisely those investments that would make brown firms greener (Hartzmark and Shue, 2023); Edmans, Levit, and Schneemeier (2022) therefore recommend weighting by progress instead of outright exclusion.²⁷

The other two routes are better documented. In the primary market — new bond issues and loans — money reaches the company directly; green bonds with audited use of proceeds and earmarked loans are therefore the forms closest to impact, and Flammer (2021) shows that green bond issuers subsequently display measurably better environmental performance. Engagement, in turn — dialogue, proposals, voting — changes corporate behaviour in a considerable share of cases, as the review by Kölbel, Heeb, Paetzold, and Busch (2020) compiles; exclusion alone shows the weakest evidence there. Whoever seeks impact should therefore ask less what a fund excludes and more how it votes, where it conducts dialogue, and what it subscribes in the primary market.²⁸

6.2 Law or Portfolio: What Really Changes Companies

The counter-test is provided by regulatory law. The European emissions trading system has priced the emissions of power plants and industry bindingly since 2005; the emissions

²⁷ Berk and van Binsbergen (2025) estimate the cost-of-capital effect at around 0.3 to 0.4 basis points; effective price differences would require a multiple of today's green asset volume.

²⁸ Kölbel, Heeb, Paetzold, and Busch (2020) distinguish the impact routes of capital allocation, engagement, and indirect effects, and classify engagement as the best documented.

covered have roughly halved since then, at certificate prices most recently above 80 euros per tonne. A law of this kind acts on every company within its scope — listed or not, with or without green shareholders — and is in this respect categorically superior to portfolio selection, whose price signal of a few basis points hardly reaches any investment calculation. Whoever wants to make companies greener achieves more through the emissions price, border adjustment, and technical standards than through the composition of a securities account.²⁹

It does not follow, however, that green investing is ineffective or superfluous — its role is a serving one. First, the capital market finances the legally mandated transition: without bond and loan markets that absorb green projects, every requirement remains paper. Second, disclosure disciplines: what must be reported gets measured and compared. Third, engagement shifts behaviour where laws leave room. And fourth, green investing fulfils an honest private function: it allows investors to bring their wealth into line with their convictions. Only, nobody should confuse the one with the other: security selection in the portfolio is an expression of preference and part of risk management — the engine of change sits in the statute book.

7 Conclusion and Recommendation

The initial questions can now be answered briefly. What does green investing rest on? On a long ethical tradition, but above all on the Paris mandate to align finance flows with climate goals, which the EU has translated since 2018 into the world's densest rulebook — carried by ESMA, EBA, and EIOPA and enforced nationally by BaFin and the FMA, while Switzerland relies on principles and self-regulation. Which categories exist? A graduated sequence from mere ESG integration through exclusion, best-in-class, and thematic funds to the impact claim, overlaid by SFDR classes that are about to be replaced by the categories Sustainable, Transition, and ESG Basics — and measured by ratings that confirm one another only loosely.

What do returns and costs show? For bonds of identical credit quality, maturity, and currency, green today costs zero to a few basis points of yield; the twin test of the German federal securities makes this price exactly visible. For equities, broad green variants sit roughly level with their parent indices over ten years, behind since 2022, ahead before; strict screens in narrow markets, by contrast, can cost several percentage points a year for years — the UK example of this paper shows 4.8 against 9.0 per cent per annum over ten years. The ongoing charges of green index products now practically match the conventional ones, and active ESG funds are on average even cheaper than funds without an ESG focus.

²⁹ Emission reductions in the EU emissions trading system according to the European Environment Agency (stationary installations roughly halved against 2005).

And the impact? Buying in the secondary market hardly changes companies; demonstrably effective are engagement, primary-market financing — and above all the law.³⁰

The recommendation to the investor therefore reads: how much green is enough is decided by one's own convictions — not by the return expectation. Whoever wants to invest green can do so today at no notable cost premium and at a small return price, provided three rules are observed. First, diversification before strictness: broad, mildly screened variants of large markets as the core; strict SRI screens, thematic and single-stock bets at most as a limited addition — never as a substitute for the market, least of all in small markets. Second, terms before labels: read investment limits, exclusions, metrics, and reports, use quality labels such as the Austrian Ecolabel as a second opinion, compare costs. Third, judge impact realistically: whoever wants impact should choose products with credible engagement and primary-market exposure — green bonds achieve more here than a mere equity screen — and, beyond that, support the political pricing of emissions, which is what really changes companies.

The limits of this paper lie in the data: the return comparisons rest on the stated 2026 as-of dates, partly on back-calculated index histories, and on a decade that was unusually eventful with a zero-rate phase, a pandemic, an interest-rate turnaround, and an energy crisis; the European regulatory reform is not complete. Future research will be able to examine the new product categories, the effect of the naming rules, and the question of whether the greenium disappears for good as supply grows. The core message is unlikely to change: green comes cheap in the portfolio — the economy is changed elsewhere.

³⁰ Summary of the results of Sections 5 and 6 with the sources and as-of dates stated there.

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Preliminary note: legal acts, supervisory documents, and index and product materials are cited in full in the footnotes and in the source lines of the tables and are not repeated here.

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All assessments reflect the state of information as of 28 August 2026 and may change with new information — for instance the completion of the SFDR revision. The author gratefully receives notices of inaccuracies and will take them into account in future versions.