

ESG investing within the Framework of Sustainable finance: Conceptual Foundations and Contemporary Practices

Ouassila Belhadi¹ / Laboratory of Algerian capital market assessment in the context of globalization, Faculty of Economics, Commerce and Management Sciences, University of Setif1 – Ferhat Abbas, Setif, Algeria, wassila.belhadi@univ-setif.dz

Received: 14-10-2025

Accepted: 26-12-2025

Published: 29-12-2025

Abstract:

ESG investing has gained global prominence and become a cornerstone of sustainable finance. This study aims to explore ESG investing through outlining its theoretical foundations, identifying key worldwide drivers and challenges, and analyzing contemporary global practices and trends. Employing a descriptive analytical methodology, this study draws on data and institutional reports to explore how ESG investing considerations are incorporated across various investors and regions. The findings reveal a shift of ESG investing from an ethical initiative to a mainstream financial strategy, accompanied by growing convergence toward standardization and transparency in reporting. Overall, the study enhances understanding of ESG investing as a mechanism that reconciles financial performance with ethical and long-term sustainability goals.

Keywords: ESG investing, sustainable finance, responsible investment, sustainability reporting.

Jel Classification Codes : G11; G23 ; Q01 ; Q56.

Résumé:

L'investissement fondé sur les critères environnementaux, sociaux et de gouvernance (ESG) a acquis une importance mondiale et s'impose désormais comme un pilier essentiel de la finance durable. Cette étude vise à examiner l'investissement ESG en présentant ses fondements théoriques, en identifiant les principaux moteurs et défis à l'échelle mondiale, et en analysant les pratiques et tendances contemporaines. En adoptant une méthodologie descriptive et analytique, la recherche s'appuie sur des données et des rapports institutionnels afin d'explorer la manière dont les considérations ESG sont intégrées par différents types d'investisseurs et dans diverses régions. Les résultats mettent en évidence la transition de l'investissement ESG d'une approche éthique vers une stratégie financière dominante, accompagnée d'une convergence croissante vers la normalisation et la transparence des pratiques de reporting. Dans l'ensemble, cette étude contribue à une meilleure compréhension de l'investissement ESG en tant que mécanisme alignant la performance financière sur la responsabilité éthique et les objectifs de durabilité à long terme.

Mots clés: investissement ESG, finance durable, investissement responsable, reporting de durabilité.

Jel Classification Codes : G11; G23 ; Q01 ; Q56.

¹. Corresponding author: Ouassila Belhadi, e-mail address: wassilabelhadi@yahoo.fr

I. Introduction

Sustainable investing create long-term value by balancing traditional investing with environmental, social, and governance-related (ESG) insights to improve investment outcomes. The growing consensus among industry participants indicates that some ESG factors represent economic drivers, especially in the long term, and it is, therefore, important to incorporate material ESG issues (CFA, 2020). ESG investing has witnessed remarkable growth in recent years. According to GSIA (2022) global sustainable investment assets reached approximately \$30.3 trillion. The incorporation of sustainability in investment management is an important element in the industry's mission to serve society by improving long-term outcomes (CFA, 2020).The expansion of ESG and related sustainable approaches reflects a paradigm shift in financial markets, where investors increasingly recognize the intrinsic link between long-term value creation and sustainable practices.

This research highlights and explores the diverse range of sustainable finance instruments, such as sustainable bonds and sustainable funds, while acknowledging the persistent challenges in data quality and standardization that hinder broader adoption. Accordingly, to address the research objectives, offering an expansive overview of ESG investing and assessing how it is applied in real world practices, the paper is structured around two perspectives:

- The theoretical aspect that focuses on the conceptual foundations on ESG investing, including the theoretical background and evolution, as well as the definition and related concepts.
- The practical aspect that addresses the real world implementation of ESG investing. It enlightens global drivers and challenges affecting ESG adoption, such as regulations, market pressure, and data availability. It also explores current practices, instruments, and trends across financial markets.

This distinction enables the research to bridge theoretical insights with practical realities, thereby providing an inclusive understanding of ESG investing.

I.1 Research objectives

This research aims to provide a clear understanding of ESG investing within the broader framework of sustainable finance. It seeks to explore contemporary developments that define the evolution of ESG practices. It is guided by the following objectives:

- To define ESG investing and its scope;
- To analyze the main investment approaches;
- To enlighten the key drivers and challenges influencing ESG adoption
- To explore contemporary global practices and trends in ESG

implementation.

1.2 Methodology

This study adopts a descriptive and analytical methodology aimed at providing a structured and comprehensive understanding of ESG investing. To achieve this, the research synthesizes insights from a range of credible academic literature and institutional reports, including publications from the Organization for Economic Co-operation and Development (OECD), World Bank, and the CFA Institute, which provide authoritative perspectives on ESG considerations and market adoption. Complementary industry data and statistics from sources and databases such as Statista, Morningstar, the Global Sustainable Investment Alliance (GSIA) and Natixis are integrated to illustrate the global evolution of ESG assets and investment dynamics, offering quantitative context to the descriptive analysis.

II. Literature review and Theoretical background

II.1. Literature review

Although research on ESG investing has grown, the literature remains fragmented across several thematic strands. A large body of work concentrates on the impact of ESG practices on firm performance. Kumar (2023) documents how ESG engagement is associated with variations in profitability, risk exposure, and market valuation, but the analysis is largely confined to financial outcomes at the firm level.

Agapova, Filatova, and Yuk (2025) examine specific approaches such as exclusionary screening, ESG integration, and thematic investing, and assess their implications for portfolio construction and performance. A growing literature investigates the motives driving ESG investment Kräussl, Oladiran, & Stefanova (2023) highlights the coexistence of financial and non-financial motives, showing that investors are influenced by ethical values and beliefs. As well, several authors address the challenges associated with ESG incorporation. Berg, Koelbel, and Rigobon (2022) expose major inconsistencies across ESG rating providers, raising concerns about measurement error and comparability. Jonsdottir et al. (2022) discuss operational and governance-related barriers to ESG implementation within financial institutions, whereas Das, Bora, and Das (2025) emphasize regulatory fragmentation, data limitations, and greenwashing risks.

Little work has attempted to synthesise all the dimensions into a unified framework. This gap underscores the need for a broader perspective that integrates these strands to better understand how ESG considerations shape investment behavior and capital markets worldwide.

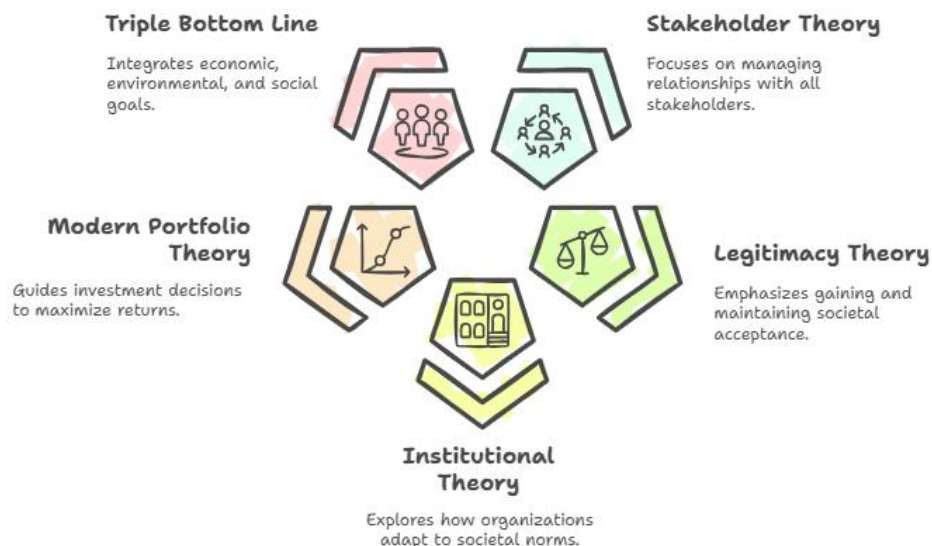
II.2. Background

ESG investing is grounded in key management and finance theories, which explain its shift from ethically motivated exclusion practices to a widely adopted investment approach. This section outlines the theoretical foundations, followed by a brief review of ESG evolution.

II.2.1 Theoretical foundations of ESG

Multiple theories underline ESG investing, and explain its ethical and financial dimensions. The most relevant theories are presented below and depicted in Figure 1.

Fig.1: ESG underlying theories



Source: Created by the author using Napkin (2025).

Stakeholder theory (Freeman, 1984): expands organizational accountability to all parties affected by corporate actions, claiming that firms should balance the interests of shareholders, employees, customers, governments and communities (Sun, Davey, Arunachalam, & Cao, 2022). This implies that value creation for every stakeholder is more important than just maximizing profits for shareholders. This perspective frames firms as ethically responsible to all parties involved (Das, Bora, & Das, 2025, p.347).

Legitimacy theory: suggests that in order to sustain legitimacy and social acceptance firms strive to align their values and actions with societal norms and expectations (Sun, Davey, Arunachalam, & Cao, 2022).

Institutional theory: explains how firms and investors adapt to institutional pressures, aligning their practices with societal expectations (Sun, Davey,

Arunachalam, & Cao, 2022).

Modern Portfolio Theory: Markowitz originated Modern Portfolio Theory (MPT) in 1952 and then developed it in 1959. He established the mathematical foundation for optimizing risk and return. MPT distinguishes between systematic risk, which is inevitable, and unsystematic risk, which can be mitigated through diversification. Later the theory was expanded by William Sharpe through the Capital Asset Pricing Model in 1964, linking asset pricing to market risk (Mangram, 2013, p.59 and p.61).

Triple bottom line framework (Elkington, 1997): introduces the idea that firms should measure success across three dimensions: people, planet and profit i.e. combines social, environmental and economic goals into a three-part framework. The environmental pillar stresses balancing economic growth with ecosystem protection. To address the environmental issues (pollution, resource depletion, carbon emission, etc.) firms should implement sustainable strategies –such as low-emission technologies, renewable energy...). The social dimension focuses on stakeholders' well-being, ethical labor practices, and governance, which may lead to gaining trust, reputation and improved financial performance. Whereas the Economic sustainability stresses financial viability while integrating environmental and social responsibilities (Das, Bora, & Das, 2025, pp. 348 -350).

ESG investing conforms closely with those theories. Legitimacy and institutional theories emphasize the social and regulatory drivers of ESG adoption, while modern portfolio theory and the triple bottom line provide the financial and normative rationale for integrating environmental, social, and governance considerations into investment decisions.

II.2.2 Evolution of ESG investing

The historical evolution of ESG practices reflects how the aforementioned theories have shaped investment behavior over time. This evolution began with ethical exclusions in The 1960s and gradually developed into a structured approach as SRI gained momentum in the 1980s and 1990s. This progression laid the foundation for modern ESG practices, which integrate environmental, social, and governance considerations into investment decisions.

Beginning in the 1960s, investors started removing certain stocks or entire sectors from their investment portfolios “negative screens” in order to avoid supporting businesses deemed morally objectionable (Bouyé, Klingebiel, & Ruiz, 2021, p.12). These practices are widely recognized in the literature as the first attempts to incorporate non-financial values into portfolios construction, and they were predominantly ethical or value-driven, rather than grounded in and explicit risk-return framework (Martini, 2021).

During the 1980s and 1990s, socially responsible investing (SRI) evolved into an investment approach, with refers to allocating capital to companies and funds that generate positive social impact (Bouyé, Klingebiel, & Ruiz, 2021, p.12). This period saw the rise of dedicated SRI funds and indexes that applied both exclusionary screens and positive “best-in-class” criteria. It also combined issue-driven divestment, such as anti-apartheid, environmental, and anti-nuclear and labor-oriented projects (Townsend, 2020).

The 2000s marked a turning point as SRI evolved into ESG investing (Townsend, 2020). In 2000, the UNEP finance Initiative’s UN Global Compact report introduced the term “ESG” and proposed six principles for integrating it into investment practices, gaining support from the Swiss government and major financial institutions (Bouyé, Klingebiel, & Ruiz, 2021, p.12). In 2005, Kofi Annan’s “Who cares wins” initiative further encouraged global investors to adopt SG guidelines (Bouyé, Klingebiel, & Ruiz, 2021).

Growing awareness of climate change and its financial implications has strengthened investor interest in sustainability (Bouyé, Klingebiel, & Ruiz, 2021) and increased demand for ESG-aligned and climate-themed products, such as low-carbon indexes and green bonds. Climate risk is now widely treated as financial risk (Billio, Murgia, & Vismara, 2024). Since 2005, ESG factors have become central to investment decisions, guiding both impact generation and broader risk-return assessment (Bouyé, Klingebiel, & Ruiz, 2021). From the mid-2000s, international organizations, regulators, and standard setters expanded ESG disclosure and integration through initiatives such as the carbon disclosure project, global reporting frameworks, and evolving stewardship codes (Billio, Murgia, & Vismara, 2024). During this period, ESG investing also gained traction –especially in Europe- as a proactive approach to evaluate non-financial risks, and the 2008 financial crisis further accelerated its adoption (Townsend, 2020).

ESG now treated as one pillar of a broader sustainable finance ecosystem alongside SRI, impact investing, climate finance, and SDG-aligned strategies (Bouyé, Klingebiel, & Ruiz, 2021). Academic debate now centers on how ESG affects risk-adjusted returns, capital allocation, and real-economy outcomes, and on refining metrics to capture both financial materiality and broader stakeholder impact (Billio, Murgia, & Vismara, 2024). Drawing on the above, ESG investing has transitioned from ethics-driven exclusions to theory-supported model linking sustainability with long-term performance.

III. Theoretical framework

III. 1 Definition

ESG investing is a subset of sustainable finance (SF), which represents the broader paradigm of considering financial decisions alongside with long-term environmental and social sustainability goals. According to the world bank report (Bouyé, Klingebiel, & Ruiz, 2021, p.4), “The term ESG, often used interchangeably with sustainable investing, denotes an investment approach in which analysis goes beyond purely financial factors”. While the European commission defined sustainable finance as the integration of environmental, social and governance factors (ESG) into investment decisions to support long-term sustainable growth (Roncalli, 2024, p.1).

ESG investing signifies the elements that measure the sustainability of an investment, and its goal is to incorporate extra financial analysis into asset selection (Roncalli, 2024, p.2). It comprises the fundamental environmental, social and governance dimensions that organizations evaluate, manage and report on to generate and sustain value. It constitutes an integrated managerial framework that embeds sustainability factors essential to long-term resilience (ESG Centre of Excellence, 2024, p.5). Consequently, at its expansive level, ESG investing can be understood as a form of investing that considers how a company performs regarding one or more of these inclusive areas of concern (Statista, 2024, p.5).

Environmental factors cover areas such as climate change mitigation, protecting biodiversity, reducing pollution and promoting a circular economy. Societal considerations address the relationships businesses have with people and institutions in their organizations, communities and supply chains. Social matters are often separated into social or human capital (ESG Centre of Excellence, 2024, p.5). Social factors relate to challenges such as inequality, inclusivity, labor conditions, community development, investment in human capital, and respect for human rights. Governance refers to the way a business is managed, including the policies, controls, and procedures to make decisions, comply with law, and meet stakeholder needs (ESG Centre of Excellence, 2024, p.5). Governance in both public and private institutions- including leadership structures, workforce relations, and executive compensations- is essential to ensure that environmental and social aspects are properly integrated into decision-making (Roncalli, 2024, p.1).

ESG scores, which were extensively used since the 1980s, assess how well a company achieves those dimensions. They are provided by external agencies and comprise standardized metrics that help investors evaluate and compare companies' ESG performance. They are practical tools for integrating sustainable considerations into investment decisions (Statista, 2024, p.5).

Therefore, ESG investing, within the framework of sustainable finance, constitutes a comprehensive and strategic investment approach that integrates environmental, social and governance concireations to foster sustainable corporate practices and resilient long-term financila performance.

III. 2. ESG related concepts

The boundary between Sustainable finance and ESG is not clear. In addition to that the two concepts overlap with other terms and they frequently used interchangeably (See Figure 2).

Fig.2: ESG investing and related terms



Source: (Roncalli, 2024, p.2)

Similarly, the terms SRI and ESG investing are often employed interchangeably in literature and institutional discourse. Furthermore, professional bodies—including the UN Principles for Responsible Investment (PRI), the Global Sustainable Investment Alliance (GSIA), and the CFA Institute—have launched a joint initiative to harmonize ESG terminology, admitting the universal interchangeability of terms and the urgent need for standardized usage across the investment industry. Using the terms as synonyms reflects the absence of universally standardized definitions (CFA, 2020).

III.3 ESG investment approaches

OECD (Boffo, 2020), GSIA (2022), and CFA Institute (MATOS, 2020) classify ESG investment approaches into at least six main forms, depending on how extensively asset managers apply the ESG framework. These approaches are not mutually exclusive and can be combined within a portfolio.

Exclusionary screening: involves setting criteria that determine whether an investment is permissible. This can mean excluding firms and governments

whose behaviors conflict with ESG standards such as manufacturing controversial weapons, alcohol, tobacco, coal, or violation of global morals.

Inclusionary screening (Norms-based): Includes or select investments that comply with international standards (e.g., OECD Guidelines, UN Global Compact principles,), often through **best-in-class** selection of high ESG performers.

ESG tilt: Realigning assets by ESG scores, shifting exposure toward higher ESG-rated issuers and away from lower-rated ones, whether via ESG indices (passive) or proprietary active strategies.

Thematic strategies: targets specific ESG themes or trends such as carbon footprint, green finance, renewable energy, social standards. These can be financially- or values-driven, often blurring financial and social objectives.

Impact focus: Targeting financial returns while improving ESG practices. This may involve active engagement (voting, dialogue, and divestment) or investing in transitioning companies. Impact investing can also be thematic, such as green bonds or governance reforms.

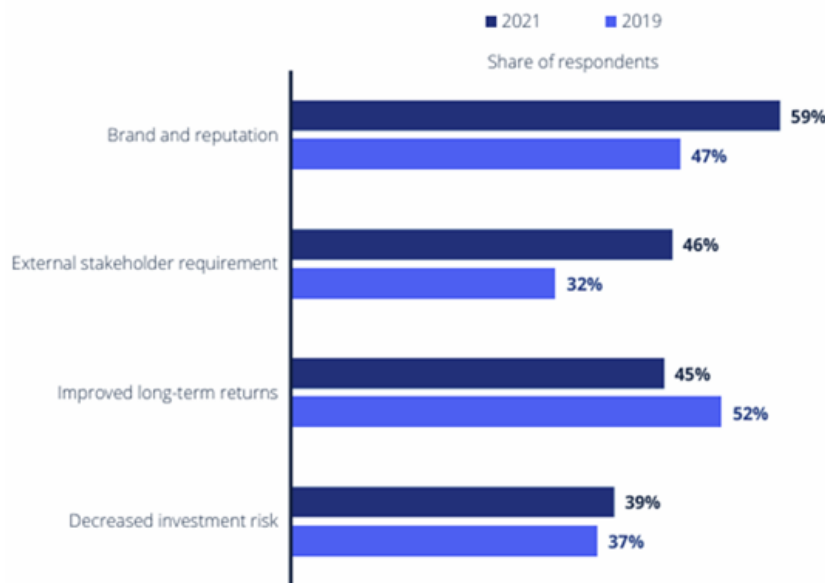
ESG integration: refers to systematically embedding ESG risks and opportunities into asset selection, portfolio balancing, and risk management. This typically involves governance structures, research tools, exclusion and engagement policies, and comprehensive resource allocation.

There has been a marked shift toward ESG adoption among institutional investors by. ESG integration has emerged as the dominant (P. Raghavendra & Yu, 2023) and most widely used approach by 2021 (Statista, 2024), showing a strong and consistent increase over time. Exclusionary screening and active ownership also remain important strategies, while impact investing, Best-in-Class Selection, and thematic investing have gained momentum. At the same time, the proportion of investors not implementing ESG strategies has declined significantly (Statista, 2024, p.7), emphasizing the growing acceptance of ESG investing. Investors are increasingly combining ESG strategies and embedding ESG factors into core risk-return analysis, moving beyond simple exclusions. This shift aligns with evidence of rising ESG integration and greater use of multi-thematic strategies to enhance diversification and risk-adjusted returns (Natixis, 2021; Capital Group, 2024).

IV. ESG investing Drivers

The growing incorporation of ESG practices -and their evolving perception from an ethical choice to a mainstream investment paradigm- is driven by a combination of multiple factors.

Fig.3: Key drivers of ESG investing for professional investors (2019, 2021)



Source: (Statista, 2024, p.13)

Figure 3 demonstrates that brand and reputation is the most important driver, growing from 47% to 59%, showing investors growing focus on corporate image. The other significant driver is external stakeholder requirements, which raised from 32% to 46%, indicating stronger pressure from regulators, partners, clients, etc. to implement ESG practices. As for improved long-term returns, though its share was high 52% in 2019, it declined to 45% in 2021. Whereas decreased investment risk remained relatively stable (37% and 39%).

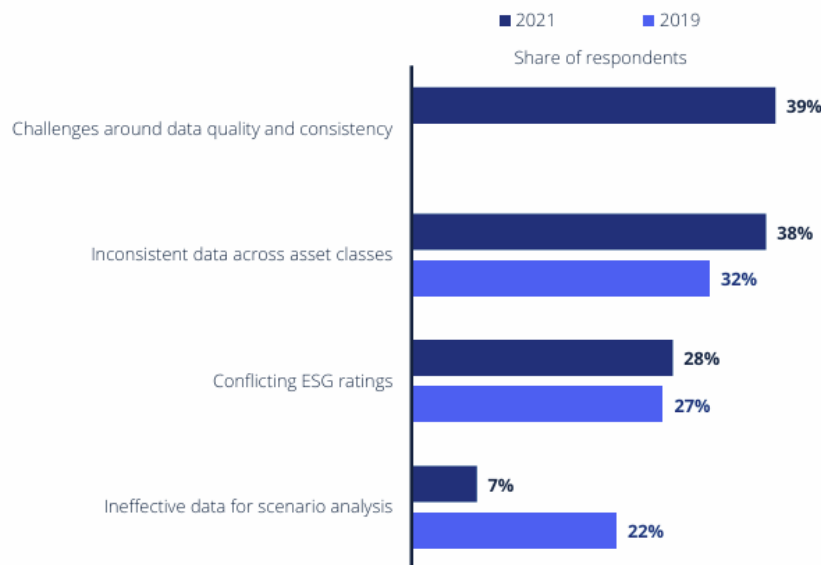
Generally, the findings advocates that ESG concerns have become more predominant in society, and the key motives are reputational and stakeholder considerations more than pure financial motivations. Overall, Professional (institutional) investors as appeared in the figure above are likely to prioritize financial returns, and decrease investment risks. While, as stated in Statista (2024) retail investors tend to emphasize on the moral and ethical considerations of ESG investing. The ESG global Study (Capital Group, 2024) discloses that regulatory compliance is the main motivation for ESG adoption, while managing material risks and pursuing net zero goals are also significant drivers.

These factors show that ESG adoption is a mixture of ethical motives (Kräussl, Oladiran, & Stefanova, 2023), risk and financial considerations (P. Raghavendra & Yu, 2023), and social objectives. In line with this multidimensional nature of ESG, The OECD distinguishes ESG investing between social returns, which address societal and environmental issues and financial returns, which focus on maximizing shareholder and debtholder value (Boffo, 2020, p.14).

V. Global challenges in ESG investment practices

The global diffusion of ESG investing has exposed structural and methodological obstacles that constrain its effectiveness.

Fig.4: The global challenges to ESG investing in 2019 and 2021



Source: (Statista, 2024, p.23)

The paramount concerns of investors regarding ESG investing relate to problems with data quality and consistency (39%). Investors increasingly point to the lack of standardized and reliable ESG data. This explains why ESG reporting often varies by company, sector and region, leading to inconsistent analysis. ESG data differs from financial data, as there are no consistent binding disclosure requirements. As a result, most data is reported on a voluntary basis. It is also noteworthy that returns disregard the professional investors' concerns about ESG investing, although this may simply reflect how the absence of quality data makes returns unquantifiable. Capital Group (2024) highlights that the consistency and reliability of ESG data is one of the biggest challenges, and investors are turning to artificial intelligence (AI) for solutions, demonstrating that while 10% currently (in 2024) use AI for ESG data analysis, over half intend to do so. The study also points out the ESG risks introduced by AI such as data privacy.

As well as, investors indicate that ESG metrics are not homogeneously applied across equities, bonds and other investments, which create gaps in comparability across portfolios. According to GSIA (2022, pp.11-13) this can be explained by the changes in methodology across regions.

Conflicting ESG ratings (28% in 2021 vs 27% in 2019) is also a part of

the problem. Diverse ESG rating agencies often produce differing assessments of the same company. This may deteriorate investors' confidence in ESG scores. According to survey conducted by P. Raghavendra & Yu (2023), the disagreement among the providers affects empirical results, comparability and the credibility of ESG investing. Yet, ineffective data for scenario analysis is decreasing (22% in 2019 vs. 7% in 2021). This decline proposes some improvement in scenario data environment. However, many investors still find inadequacy in ESG data for strong forward-looking risk analysis.

Figure4 highlights the progress has been achieved in scenario analysis, while other areas such as data quality, inconsistency, and conflicting ESG ratings remain dominant obstacles to effective ESG integration. In addition to that, Statistics concerning global ESG assets differ from one source to another highlight a core challenge in SI analysis: the lack of a standardized definition of what constitutes a SI. Divergent methodologies across data sources complicate comparability and hinder the aggregation of reliable global statistics (Jonsdottir, Sigurjonsson, Johannsdottir, & Wendt, 2022; Statista, 2024). This stresses the continuing debate on the necessity of harmonized ESG disclosure standards.

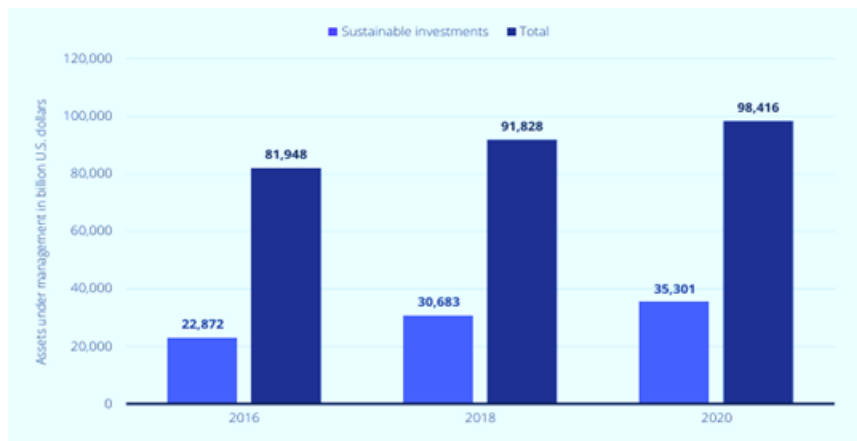
IV. ESG Global practices and trends

This section tends to enlighten and prove how ESG principles are being applied worldwide and the key directions they are taking over time.

VI.1 Global growth of sustainable investments vs total assets under management

Figure 5 shows that both the aggregate volume AUM (which represent all managed assets, including both sustainable and non-sustainable) and SI AUM have been expanded over the past few years. By 2020, ESG oriented assets reached approximately USD 35.3 billion, constituting about 36 % of global AUM (which reached 98,416 billion). This signifies a remarkable increase compared to 2016, when SI comprised less than 30 % of the total AUM.

Fig.5: The value of sustainable AUM and total AUM worldwide (2016-2020)



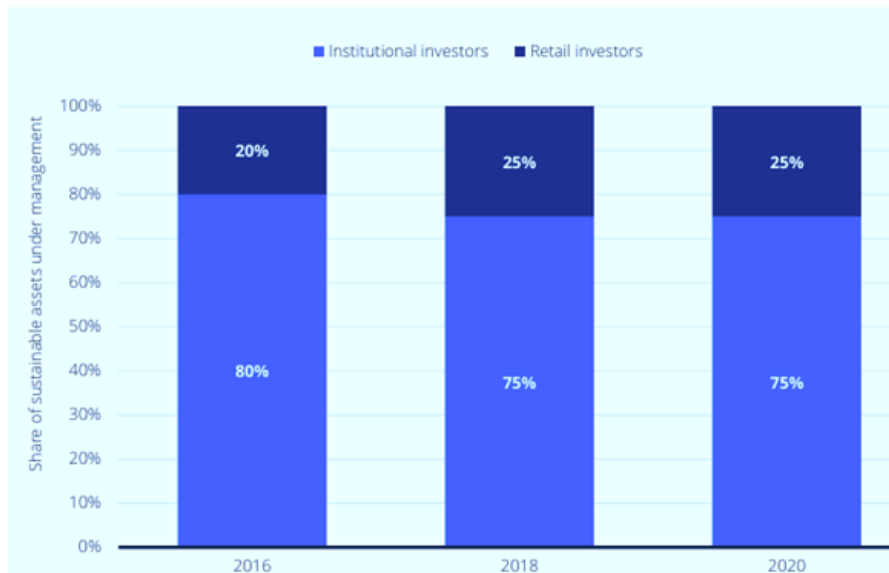
Source: (Statista, 2024, p.8)

The data shows the fast growing of SI compared to overall AUM, indicating a global trend toward integrating ESG criteria into asset management, and proving a paradigm shift in global finance.

VI.2 ESG assets under management by investor type

Figure 6 illustrates the distribution of sustainable assets under management (AUM) by investor type—specifically institutional and retail investors—over the period 2016 to 2020.

Fig.6: The share of sustainable AUM and total AUM worldwide (2016-2020) by investor type



Source: (Statista, 2024, p.6)

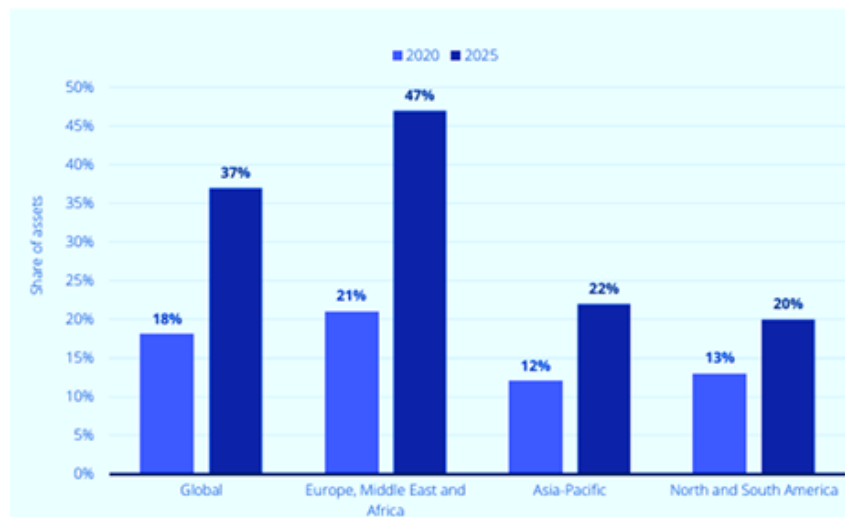
In 2016, institutional investors managed 80% of sustainable assets. Nevertheless, by 2018 and 2020, this share slightly declined to 75%, but they remained dominant. Whereas retail investors (individuals investing for personal

gain) increased their share from 20% in 2016 to 25% in both 2018 and 2020. It is important to note that the actual share of retail investors may be somewhat higher, since assets bought through online trading platforms by individual investors are not accounted for—only those acquired through professional investment channels are included (Statista, 2024, p.6). This data indicates a gradual but notable shift in the composition of SI ownership. The increase in retail investors' share reflects a rising public interest in sustainability driven finance.

VI.3 Growth of ESG assets by region

The figure below illustrates that SI in 2020 represented 18% of global assets, which will be more than 37%, reflecting the rapid mainstreaming of ESG considerations.

Fig.7: Share of SI assets among investors in 2020 and a forecast for 2025 by region



Source: (Statista, 2024, p.9)

The chart also depicts regional differences, showing that Europe, Middle East, and Africa were the global leader in 2020, with 21% of assets invested sustainably. The percentage is expected to surge to 47 % by 2025, emphasizing strong regulatory framework in Europe, and increasing interest in sustainable finance across Africa and the Middle East.

In Asia-Pacific and in North and South America, the SI was modest in 2020 (12% and 13% respectively). It is projected to grow to 22% and 20% respectively by 2025. This growth reflects the rapid adoption of green finance in China, Japan, and emerging Asian economies, and the increasing regulatory attention and investor demand in both North and South America, though at a slower pace compared to Europe. The chart exhibits that SI is becoming a global trend. However, when placed alongside historical data, a more complex picture emerges. Evidence from GSIA (2022, p.11) discloses noteworthy variation

across regions between 2014 and 2022.

Statistics drawn by GSIA (2022), demonstrated in Figure 8, reveals that Japan exhibited a remarkable growth in the share of SI relative to total AUM, rising from 24% to 34%. On the contrary, both the United State and Canada reported a reduced share of SI between 2020 and 2022. This decline is due to considerable methodological revisions in data collection and reporting (GSIA, 2022, p.11). In Europe, the share declined from 42% to 38%, because of the tightening of regulatory frameworks and the adoption of more stringent fund classification and disclosure practices under the European Union’s Sustainable Finance Action Plan. Meanwhile, the markets of Australia and New Zealand recorded a modest increase in SI penetration, climbing from 38% to 43%, following a notable contraction in 2020 that was primarily driven by a methodological adjustment.

Fig.8: The share of SI assets relative to total managed assets across major regions (2014-2022)



Source: (GSIA, 2022, p.11)

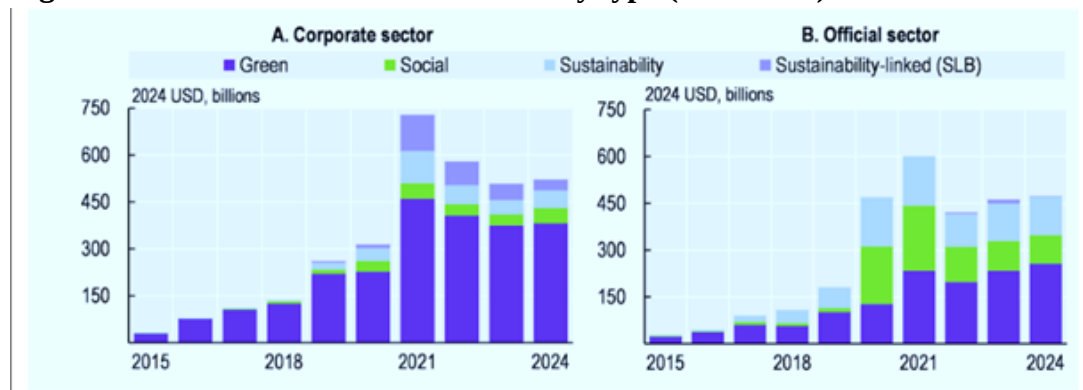
The inconsistencies between forecasted optimism (Figure 7) and historical volatility (Figure 8) highlights a frequent issue in ESG measurement. They largely stem from differences in how SI are defined, classified, and reported. For instance, methodological revisions in 2020 and 2022 significantly altered the way regions such as the United States and Canada reported their ESG-related assets, leading to apparent declines that may not necessarily reflect actual disinvestment (GSIA, 2022). Nevertheless, the overall growth of ESG investing represents a significant and unmistakable trend in global financial markets. The above statistics reveal a clear path of growth in SI across regions, with varying dynamics shaped by local regulatory frameworks, market practices, and methodological approaches.

VI.4 Growth of sustainable bonds

Figure 9 shows that corporate green bonds represented approximately all

sustainable bonds issuance before 2020. They remain the dominant category of sustainable bonds issued in 2024, both in corporate sector with USD 382 billion and in the official sector with USD 257 billion (OECD, 2025). Yet, between the years 2019 and 2024 the composition of sustainable bonds expanded to include sustainability-linked bonds (SLBs) which were introduced in 2019 and have accounted for around 10% of total sustainable issuance between 2020 and 2024 (OECD, 2025).

Fig.9: Global sustainable bond issuance by type (2015-2024)



Source: (OECD, 2025, p.104)

In 2024, corporate sustainable bond issuance was primarily divided among green, social, sustainability, and sustainability-linked bonds, though the latter saw a notable decline compared to their peak in 2021. After reaching record issuance levels earlier in the decade, sustainability-linked bonds have since played a more limited role in the market.

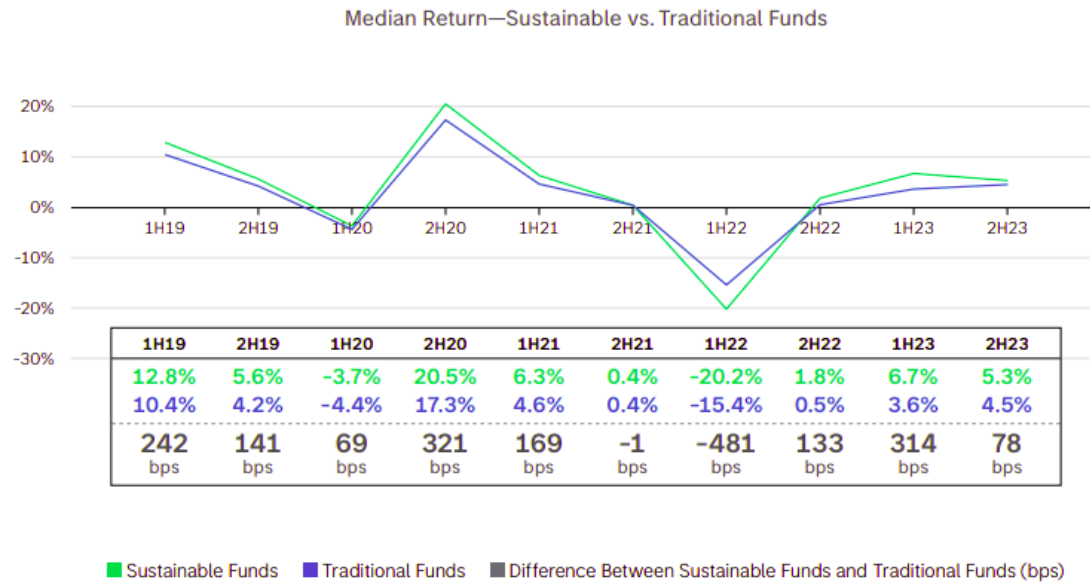
In the official sector, the dominance of green bonds declined between 2022 and 2024, as governments and multilateral institutions increasingly turned to social and sustainability bonds. Sustainability-linked bonds, by contrast, only entered the official sector in 2022 and have remained marginal since then.

Generally, the data highlights a maturing and diversifying sustainable bond market, where issuers are looking for broader thematic orientation with environmental and social goals, while investors appear to be reconsidering the effectiveness and credibility of different sustainable instruments. The ING report (ING, 2025) shows that green bonds remain dominant instrument worldwide, with sustainability and green loans expanding in some regions, though transition and sustainability-linked format have weakened. The report finds that while global SF issuance reached nearly US\$1 trillion in the first seven months of 2025, growth is irregular across regions. To illustrate, Asia Pacific and Eastern Europe are driving momentum, supported by government engagement and strong corporate issuance, whereas, the US and much of EMEA deteriorate as a consequence of policy reversals and diminishing incentives.

VI.5 Growth of Sustainable Funds

Sustainable funds or ESG funds can take different forms- including mutual funds, ETFs (Exchange Traded Funds), or index funds.

Figure 10: Global Sustainable Funds and Traditional Funds (2019-2023)



Source: (Morgan Stanley Institute for Sustainable Investing, 2024, p.3)

Figure 10 illustrates that sustainable funds (often labeled ESG, or SRI) outperformed traditional funds (non-ESG funds) in 2023, revealing that sustainable funds delivered strong median returns over the full year (12.6% versus 8.6% for traditional funds). This outperformance was spread across both the equity and fixed-income funds asset classes. The results suggest that combining ESG concerns can boost financial performance rather than constrain it. This performance advantage, observed in both equity and fixed-income segments, underscores the growing competitiveness and resilience of ESG-oriented investment strategies within mainstream markets.

VII. Discussion

In practice, ESG investing overlaps with broader sustainable finance and responsible investment concepts such as SRI and green finance and is often treated as an umbrella term for strategies that integrate ESG factors alongside financial criteria in portfolio decisions (Raghavendra & Yu, 2023; OECD, 2025). Academic and institutional sources identify several ESG approaches—including exclusionary and norms-based screening, ESG integration, thematic investing, ESG tilts, and impact investing—which may coexist within a single portfolio (GSIA, 2022; CFA, 2020). While early ESG practices emphasized negative screening, the literature converges on ESG integration as the dominant and most widely adopted strategy since the 2000s, particularly among institutional

investors (GSIA, 2022; OECD, 2022; Lopez de Silanes et al., 2022; Kumar, 2023).

Multiple drivers have accelerated ESG adoption. Over time, the drivers diverge, reflecting evolving investor priorities. Brand and reputation emerged as the most substantial motivator in 2021, indicating growing investor concerns for corporate image and public perception. External stakeholder requirements also gained importance, signaling stronger pressure from regulators, clients, and partners to adopt ESG practices. Improved long-term return while declined is still significant. Decreased investment risk is also an important driver. Institutional investors tend to focus more on financial returns and risk reduction, whereas retail investors prioritize moral and ethical considerations. Regulatory compliance, risk management, and climate-related goals (e.g., net-zero targets) also act as important motivators, highlighting the multidimensional nature of ESG adoption. The findings align with broader academic and policy perspectives, which view ESG as a balance between social objectives and financial returns (Statista, 2024; Boffo, 2020; P. Raghavendra & Yu, 2023).

However, ESG investing faces serious and well-documented challenges. Data quality and consistency constitute the most significant concern for investors in ESG investing. The lack of binding and harmonized disclosure requirements explains why ESG reporting varies substantially across firms, sectors and regions, causing inconsistent analyses and limited comparability (Jonsdottir, Sigurjonsson, Johannsdottir, & Wendt, 2022). Unlike financial data, which are governed by well established accounting and reporting standard, ESG data remain largely voluntary, contributing to fragmentation and measurement uncertainty (Statista, 2024; GSIA, 2022 ; Raghavendra & Yu, 2023). Persistent challenge also include inconsistent ESG metrics across asset classes and conflicting ESG ratings, which undermine investor confidence and the credibility of ESG scores (GSIA, 2022; Raghavendra & Yu, 2023). While improvements have been observed in ESG scenario analysis data, deficiencies in data quality and harmonization remain dominant obstacle.

Perspectives on ESG investing vary across regions worldwide; however, ESG practices are widely adopted across Europe, North America, South America, Africa, The Middle EAST, Asia, and Australia (Kumar, 2023). Growth of ESG assets has been heterogeneous across regions and instrument types: Europe historically held the largest proportion of AUM reported as sustainable, the U.S. and Europe together accounted for a large share of reported sustainable assets, while Asia (ex-Japan) has shown increasing inflows more recently. Investor segmentation shows a split between large institutional asset owners (pension funds, insurance companies, sovereign wealth funds) that pursue integration and stewardship, and retail channels that drive fund and ETF products (GSIA, 2022).

The findings reveal regional divergence:

- Europe: Leading the way in ESG adoption — and as the home of most sustainable assets. A robust regulatory framework (EU Sustainable Finance Disclosure Regulation, EU Taxonomy) and established disclosure practices have incentivized both institutional as well as retail investors to incorporate ESG. Social parameters and the people's demand for sustainability also contribute to adoption (Boffo, 2020; GSIA, 2022).
- North America (US & Canada): Fast growth, but more market-based and voluntary. Institutional investors, including pension funds and asset managers, are frequently at the forefront of ESG embrace as they have financial performance incentives along with reputational considerations regarding their client base. There are fewer rules than in Europe (Boffo, 2020; GSIA, 2022).
- Asia-Pacific: Emerging but expanding fast, especially in Japan, Australia and increasingly China. It is typically driven by institutional investors and government projects. Regulatory push (such as stewardship codes and ESG disclosure rules), corporate governance reforms and the green bond markets are all critical drivers (Boffo, 2020).
- Latin America, Africa and the Middle East: ESG integration is limited but growing. The vast majority of early adopters are large corporations and financial entities; legal frameworks are still pending. Market awareness and capacity building are still issues.

The variance in adoption of ESG between these regions is influenced by region-specific regulatory system (Kumar, 2023) and the level of maturity of financial markets, societal values and investors, as well as corporate readiness. Europe's mandatory disclosure requirements, and higher public awareness of ESG issues there and in Japan, contrast with other regions where such rules tend to be more voluntary, as well as differences in available infrastructure. Differences in the retail/ institutional investor mix and corporate ESG preparedness level also contribute to regional ESG practices (Boffo, 2020; CFA, 2020; GSIA, 2022).

As for ESG instruments, the sustainable bond market has grown both in size and complexity between 2015-2024. Although green bonds still represent the largest share of instruments in corporate and official sectors this market has become more diversified with sustainability-linked bonds emerging and an increasing proportion of social and sustainability bonds, particularly in the official sector. All in all, the direction of travel points to a maturing market where issuers are further targeting more overarching environmental and social funding goals.

The trend points to a maturing sustainable debt market, with issuers broadening the range of projects they use green bonds to fund into wider

environmental and social goals, while investors are demanding more accountability and impact. In regional terms, growth is uneven with the strength of good performance being centered on the Asia Pacific and Eastern Europe issuance flows, while in the US and parts off EMEA a weakening in policy direction and support energies their strengths (Boffo, 2020).

From their part, Sustainable funds — which include traditional mutual funds, exchange-traded funds and index funds that have added various types of environmental, social and governance (ESG) screens — have outperformed their conventional counterparts in recent years. This is true in both the equity and fixed-income markets, suggesting that integrating ESG can improve returns without adding portfolio concentration risk.

Overall, the sustainable finance market is expanding beyond green bonds to include a variety of instruments and sustainable funds even continue to outperform their purely financial counterparts. While there is uneven growth across regions due to regulatory and institutional variations, investors are increasingly focusing on impact, credibility and performance – signaling a move of ESG finance from a niche strategy to mainstream investment.

VIII. Conclusion

ESG investing has progressively emerged as a foundational component of sustainable finance, stressing the increasing merging between financial performance and sustainability requirements. By incorporating environmental, social and governance concerns into investment evaluation and decision making, ESG contributes to a functional reorientation of global capital allocation.

ESG investing operates in conceptual and practical associations with complementary sustainability concepts such as green finance, and sustainable development. Besides, it has evolved through several approaches ranging from exclusionary screening to active ownership, and impact investing. ESG integration remains the most dominant strategy, reflecting both moral and financial motivations.

Globally, the expansion of incorporating sustainability-oriented investment has been driven by a range of factors, particularly the establishment of regulatory frameworks, growing investor emphasis on long-term value creation and corporate reputation. Along with the rising societal demand for ethical and transparent financial practices. Nonetheless, significant challenges and obstacles reduce this investment effectiveness, among them inconsistencies in ESG rating methodologies, shortages in data quality, the absence of universally accepted standards.

Despite the challenges, worldwide practices illustrate a dynamic and expanding landscape. For instance, Sustainable investments under management have grown rapidly, marking the evolution of ESG principles into a central

model of present investing. Sustainable bonds, principally green, social and sustainability-linked instruments, have become vital tools for finance. Likewise, sustainable funds have steadily outperformed traditional counterparts in recent years. Regionally, Europe remains the global leader in ESG adoption, while North America and the Asia-Pacific region are gradually advancing in this domain.

Drawing upon the strategic orientations of main institutional bodies a number of recommendations are formulated. First it is crucial to establish standardized ESG reporting and disclosure frameworks to boost transparency and comparability. Second, ESG metrics should be systematically combined into risk management systems. As a final point, it is urgent to develop and harmonize the green taxonomies.

IX. References:

- Billio, M., Murgia, M., & Vismara, S. (2024). *Sustainable and Climate Finance: An Integrative Framework from Corporates to Markets and Society*. *Review of Corporate Finance*, 1-16. <http://dx.doi.org/10.1561/114.00000058>.
- CFA. (2020). *Future of sustainability in investment management: from ideas to reality*. CFA institute.
- Das, T., Bora, P., & Das, J. (2025). *Corporate Sustainability, ESG, and the Triple Bottom Line: A Review of Key Challenges*. (I. R. Marketing, Ed.) 15(5), 345-355. doi:DOI: 10.32479/irmm.19768
- ESG Centre of Excellence. (2024). *Environmental, Social and Governance (ESG) 101 Guide*. British Columbia. Retrieved from https://www.esghc.ca/app/uploads/sites/907/2024/02/ESG-101-Guide_Feb2024.pdf
- GSIA. (2022). *Global Sustainable Investment Review*. The Global Sustainable Investment Alliance. Retrieved from <https://www.gsi-alliance.org/wp-content/uploads/2023/12/GSIA-Report-2022.pdf>
- Kräussl, R., Oladiran, T., & Stefanova, D. (2023). *A review on ESG investing: Investors' expectations, beliefs and perceptions*. *Journal of Economic Surveys*, 476-502. doi:<https://doi.org/10.1111/joes.12599>
- Lopez de Silanes, F., McCahery, J., & Pudschedl, P. (2022). *Institutional Investors and ESG Preferences*. Working Paper N° 631/2022. ECGI Working Paper Series in Law.
- Martini, A. (2021). *Socially responsible investing: from the ethical origins to the sustainable development framework of the European Union*. *Environment, Development and Sustainability*, 23, 16874–16890.
- Townsend, B. (2020). *From SRI to ESG: The Origins of Socially Responsible and Sustainable Investing*. *The journal of impact and ESG investing*, 1(1). Retrieved from <https://www.bailard.com/wp-content/uploads/2020/09/History-Socially-Responsible-Investing-and-ESG-Investing.pdf>
- Agapova, A., Filatova, U., & Yuk, I. (2025). *Positive versus negative ESG portfolio screening and investors' preferences*. *The European journal of finance*. Retrieved from <https://www.tandfonline.com/doi/epdf/10.1080/1351847X.2025.2585967?needAccess=true>

- Berg, F., Koelbel, J., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *European Finance Review*. 26(6), 1315–1344. Retrieved from <https://doi.org/10.1093/rof/rfac034>
- Boffo, R. a. (2020). *ESG Investing: Practices, Progress and Challenges*. Paris: OECD. Retrieved from www.oecd.org/finance/ESG-Investing-Practices-Progress-and-Challenges.pdf
- Bouyé, E., Klingebiel, D., & Ruiz, M. (2021). *Environmental, social, and governance investing*. The World Bank.
- Capital Group. (2024). *ESG Global Study 2024*. Retrieved from <https://www.buildingbridges.org/app/uploads/esg-global-study-2024-en.pdf>
- ING. (2025). *Global sustainable finance 2025: mixed results highlight regional differences*. ING Think. Retrieved from <https://think.ing.com/downloads/pdf/article/global-sustainable-finance-2025-mixed-results-highlight-regional-differences>
- Jonsdottir, B., Sigurjonsson, T., Johannsdottir, L., & Wendt, S. (2022). Barriers to Using ESG Data for Investment Decisions. *Sustainability*, 14, 5157. Retrieved from <https://www.mdpi.com/2071-1050/14/9/5157>
- Kumar, S. (2023). A review of esg integration & return of financial instruments in various market segment and societies. *Academy of Marketing Studies Journal*, 27(3). Retrieved from <https://www.abacademies.org/articles/a-review-of-esg-integration--return-of-financial-instruments-in-various-market-segment-and-societies.pdf>
- Mangram, M. (2013). A simplified perspective of the Markowitz portfolio theory. *GLOBAL JOURNAL OF BUSINESS RESEARCH*, 7(1), 59-70.
- Morgan Stanley Institute for Sustainable Investing. (2024). *Sustainable Reality*. Morgan Stanley & Co. LLC and Morgan Stanley Smith Barney LLC. Members SIPC. Retrieved from <https://www.morganstanley.com/content/dam/msdotcom/en/assets/pdfs/MSInstituteForSustainableInvesting-SustainableRealityFY2023-Final.pdf>
- Natixis. (2021). *2021 ESG Investor Insights Report*. Natixis Center For Investor Insight.
- OECD. (2022). *Trends in ESG Investing and Quality Infrastructure Investment in Asia-Pacific*. Retrieved from https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/01/trends-in-esg-investing-and-quality-infrastructure-investment-in-asia-pacific_022d1fc8/86d154c1-en.pdf
- OECD. (2025). *Asia Capital Markets Report*. Paris: OECD Capital Market Series, OECD Publishing. Retrieved from <https://doi.org/10.1787/02172cdc-en>
- P. Raghavendra , R., & Yu, T. (2023). A survey on ESG: investors, institutions and firms. *China Finance Review International*. doi:DOI: 10.1108/CFRI-12-2022-0260
- Roncalli, T. (2024). *Handbook of Sustainable Finance*. Hal. Retrieved from <https://hal.science/hal-04370824v6/file/HSF.pdf>
- Statista. (2024). *Sustainable investing: a statista dossierplus on sustainable investing and the obstacles to its wider implementation*.
- Sun, Y., Davey, H., Arunachalam, M., & Cao, Y. (2022, 9 6). Towards a theoretical framework for the innovation in sustainability reporting: An integrated reporting perspective. (F. i. Science, Ed.) 10. doi:<https://doi.org/10.3389/fenvs.2022.935899>