

Does the use of ESG scoring in FinTech platforms enhance ethical financial decision-making, or does it create new forms of bias?

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Abstract:

The paper explores how ESG rating frameworks are embedded into FinTech tools such as AI-driven investment systems, credit-assessment algorithms, and automated portfolio managers. While ESG adoption supports more responsible and sustainable investing by improving transparency, accountability, and long-term risk oversight, several significant obstacles still persist. These involve inconsistencies between ESG ratings among providers, a lack of data quality, algorithmic bias, and increasing risk of greenwashing. Empirical evidence shows that the data divergence in ESG and incomplete disclosures may result in making misinformed financial decisions and reinforcing structural disparities, especially in the case of emerging markets. It finds that despite the revolutionary promise of ESG-based FinTech to financial sustainability, it requires better standardisation, reliability of data, and clear algorithmic regulation to reduce bias and deliver genuinely ethical financial results.

Keywords: ESG, FinTech, sustainable finance, algorithmic bias, ESG ratings, greenwashing, financial technology, ethical investing, data transparency, corporate governance.

Introduction

Environmental, Social, and Governance (ESG) represents a set of non-financial criteria used to evaluate a company's ethical conduct, sustainability outcomes, and broader societal influence over time. These criteria have become the core of contemporary investment analysis and determine the perception of firms

as responsible and risky (Serafeim, 2021). Meanwhile, financial technology (FinTech) refers to digital innovations such as AI-enabled analytics, blockchain mechanisms, and automated investment platforms that are changing the nature of financial services delivery and consumption (Trotta et al., 2024). The overlap between these two areas is becoming more and more apparent as the global markets are requir-

ing more transparent, responsible and sustainable financial systems. According to Abdelghafar and Shohieb (2025), the emergence of sustainable finance and computational ESG tools have increased the desire to incorporate ethical consideration into digital finance ecosystems, and ESG + FinTech is a rapidly expanding trend.

The evolving trend of ESG in Fintech systems has been significantly fuelled by the international interests in sustainability and technological transformation. FinTech apps are currently often developed to integrate ESG data into investment screening, credit scoring, and corporate reporting to allow ethical analyses to be conducted at a faster and more scalable pace (Galeone et al., 2024). Researchers claim that digital technologies can boost sustainability monitoring, and AI and big data will help to increase the accuracy of environmental measurements and identifying social risks (Omar & Habiba, 2025). Nevertheless, this expansion is complex due to significant variations in ESG ratings, and it has been demonstrated that measurement systems tend to be inconsistent and may generate contradictory results on the ethical performance of a company (Berg et al., 2022).

Regardless of its potential, ESG integration in FinTech also brings some underlying issues of data quality, transparency, and algorithmic bias. Researchers point out that ESG ratings can be associated with subjective ratings or failing to disclose information in a consistent manner, which makes it hard to promote fairness and reliability in automated decision-making mechanisms (Kotsantonis and Serafeim, 2022). In the meantime, when fed with incomplete or biased ESG data, FinTech algorithms may enhance such inconsistencies, classifying companies incorrectly or introducing unintentional discrimination into investment tools (Gao and Liang, 2025). All these issues pose a key research question of this study: Does the integration of ESG standards into FinTech platforms lead to an actual improvement in ethical financial decision-making or does it inadvertently create a new set of bias? To answer this question, the analysis provides a fair argumentation: at the beginning of the paper, the author considers the advantages of digital finance based on ESG, and then he evaluates the potential of data constraints, rating differences, and algorithmic bias to sabotage the ethical purpose of digital finance.

2. Literature Review

2.1 What is ESG Scoring?

Environmental, Social, and Governance (ESG) scoring refers to the structured evaluation of a firm's non-financial performance based on an extensive range of ethical and sustainability indicators. The environmental dimension focuses on how firms interact with natural systems,

including carbon output, energy use, waste practices, and climate-mitigation efforts (He et al., 2024). The social dimension examines how organizations engage with employees, consumers, and communities, such as labour standards, diversity and inclusion efforts, and human-rights practices (Bangura et al., 2025). On the other hand, governance assesses corporate leadership, board structure, executive compensation, transparency, and ethical behavior in organizations (Ben Ali and Chouaibi, 2024). The combination of these three pillars is a multi dimensional framework which enables investors and other stakeholders to evaluate the society at large the implications of corporate operations not just in terms of the traditional financial parameters. In the context of the growing significance of ESG in the international finance sector, such measurements are employed to make investment choices based on sustainability objectives and ethical principles (Kotsantonis and Serafeim, 2022).

ESG scores are generally calculated by summing many indicators into one composite metric thus comparing firms and industries more easily. Nonetheless, this process of aggregation makes it highly complex since there are many differences in the methodologies, weightings, and data used by different rating agencies to compute ESG scores (Berg et al., 2022). As a result, the same company can be rated by different agencies quite differently regarding its ESG rating, which can be seen as the root of the problem of inconsistency and subjectivity in ESG measurement (Christensen et al., 2022). The absence of standardisation is also exacerbated by data availability, reporting, and regional regulatory differences, which may generate a perversion of ESG assessment reliability (Li and Yang, 2024). Consequently, although ESG scoring is designed to give a clear and objective point of view on corporate responsibility, it tends to indicate the different interpretations of what is considered to be an ethical performance and it begs the question of whether it is an effective tool in decision-making (Cesarone et al., 2023).

2.2 FinTech and its place in Finance?

Financial Technology (FinTech) involves the application of digital innovations—including artificial intelligence, machine-learning techniques, blockchain networks, and advanced data analytics—to enhance and automate financial operations (Habib, 2025). FinTech applications range widely, covering digital banking services, mobile payment tools, robo-advisory systems, and algorithm-based investment platforms, all aimed at boosting efficiency and expanding access to financial services (Abdelghafar & Shohieb, 2025). The capability of FinTech to process large volumes of data in real-time is one of the characteristics that allow it to make financial decisions that are more accurate and responsive. This has contributed to the growing application of automated systems in fields like

credit evaluation, risk analysis, and portfolio allocation where algorithms substitute or supplement traditional human judgement (Xu, 2024). Through these technologies, FinTech has changed the financial landscape and made it dynamical, data-driven, and more inclusive.

One important contribution to the current finance is the automation of investment decisions by means of data-driven models and predictive analytics provided by FinTech. An example of these is the robo-advisors that employ algorithms to create and manage investment portfolios guided by preset rules such as risk tolerance and financial objectives (Assael et al., 2023). Likewise, online lending systems rely on machine learning models to evaluate creditworthiness and in many cases, use alternative data sets other than traditional financial data (Liu et al., 2022). This change in the direction of automated data-focused decision-making has greatly enhanced both efficiency in terms of costs of transactions and transaction times and improved transparency with better access to data (Hamdouni, 2025). In addition, FinTech has increased the availability of financial services, especially to underserved communities, through the reduction of entry barriers and remote access to financial markets (Mahdi et al., 2024). Consequently, FinTech is being broadly considered as a disruptive phenomenon that is redefining the form and operation of global financial systems.

2.3 The incorporation of ESG into FinTech.

The introduction of ESG-related features into FinTech platforms can be viewed as a major shift in sustainable finance, in which digital technologies are applied to implement ethical investment principles. There is a growing integration of ESG metrics in investment applications that enable users to screen and filter assets by sustainability criteria in addition to financial performance (Galeone et al., 2024). Credit-evaluation models are increasingly integrating ESG indicators, enabling financial institutions to assess not only the financial risk of borrowers but also their environmental and social implications (Liu & Li, 2024). ESG analytics have also played a role in portfolio management systems, which allow the automated rebalancing of investments to meet sustainability goals and regulatory standards (Roy & Vasa, 2025).

This intersection of ESG and FinTech has led to the emergence of the so-called Green FinTech, which can be defined as digital financial technologies used to achieve a sustainable environment and responsible investment (Magar, n.d.). Green FinTech uses advanced technologies like machine learning, blockchain, and real-time data analytics to improve the precision and openness of ESG evaluations and also allows allocating capital to sustainable projects more efficiently (Israel et al., 2026). Furthermore, the ESG integration in the FinTech can enforce a systemic shift, as the companies will be encouraged to enhance

their sustainability performance to gain investment (Giakoumelou et al., 2024). Nevertheless, this integration also presents new challenges, such as the danger of data manipulation, algorithmic bias, and greenwashing, especially when ESG measures are introduced into the automated systems without adequate control (Gao & Liang, 2025). Thus, although Green FinTech is an important source of sustainable finance, it requires the wise consideration of the constraints and threats linked to the utilization of ESG data within a digital financial setting.

2.4 Theoretical background of ESG in FinTech.

The proposed integration of the ESG into FinTech is theoretically explainable using the concept of a stakeholder theory, which implies that the companies have the responsibility not only to shareholders but also to a wider circle of stakeholders, such as society and the environment. ESG frameworks implement this view by integrating environmental and social concerns into the financial decision making processes. The empirical literature proves that ESG reporting frameworks are linked with quantifiable environmental performance increase, including a decrease in carbon emissions and the variable use of renewable energy sources (He et al., 2024). This dynamic is further supported by FinTech platforms that facilitate real-time ESG analytics, benchmarking, and ongoing monitoring and enhance the connection between stakeholder expectations and corporate behaviour (Abdelghafar and Shohieb, 2025). Nonetheless, a critical approach to the matter implies that the adoption of ESG is not necessarily always driven by stakeholders themselves; instead, it is also frequently affected by the need of the investors to have sustainable assets and the reputation-based incentives. Although ESG-enabled FinTech seems to facilitate the promotion of ethical investment practices, it can also focus on market-driven sustainability indicators instead of targeting more fundamental change. In this way, even though the stakeholder theory can offer a solid rationale to incorporate ESG into business, the question whether ESG results represent actual ethical undertakings or tactical reactions to financial market pressures also arises.

Another valuable viewpoint is agency theory, as it is useful especially in the explanation of the continuation of greenwashing and discrepancies in ESG disclosures. This theory suggests that managers might pursue their own interests and not the interests of the stakeholders and consequently, they resort to opportunistic behaviour including overstating sustainability performance. Greenwashing is a case in point of this agency problem, where companies can use ESG reports to improve their reputation without necessarily changing their operations. FinTech technologies are trying to address these problems with the help of data-based verification tools, such as machine learning tools, which can identify inconsistencies and anomalies

in ESG reporting (Liu and Li, 2024; Omar and Habiba, 2025). Moreover, the multi-data source helps to boost transparency and lower the chances of firms hiding unethical behavior (Galeone et al., 2024). Empirical findings indicate that transparency in the ESG data correlates with superior-informed investment choices and minimizes the probability of misallocating the capital to poorly-performing companies (Gao and Liang, 2025). However, FinTech can also exacerbate the agency issue when algorithms are based on biased or incomplete data, thus automating imperfect judgments. This two-sidedness underscores the fact that although FinTech can mitigate information manipulation, the underlying incentive to opportunistic behaviour cannot be eliminated and governance and oversight are important elements of ESG-oriented financial systems.

The information asymmetry theory also justifies the presence of ESG in FinTech by stating that the lack of information between the companies and investors may be minimized with the help of better data processing and analytics. Combining ESG disclosures and artificial intelligence technologies will allow making more holistic and proactive evaluations of corporate sustainability performance. By analysing big data, machine learning models are capable of uncovering trends, predicting risks, and detecting anomalies, thus enhancing the accuracy and reliability of ESG assessments (Israel et al., 2026; Suri and Sadriwala, 2025). Empirical evidence shows that the AI-based ESG models deliver more stable and coherent scores than traditional methods, thereby increasing investor confidence and accuracy in decision-making (Cikovic et al., 2024). Moreover, FinTech systems with ESG help to achieve long-term financial stability by focusing capitals on sustainable operations and minimizing their exposure to risky areas (Liu et al., 2022; Monday, 2025). The advanced analytics also enable investors to react to the arising risks in advance due to continuous monitoring (Galeone et al., 2024).

3. Arguments FOR ESG in FinTech (Enhances Ethical Decision-Making)

3.1 Promotes Sustainable and Responsible Investing

The possibility of integrating ESG scoring into FinTech platforms is essential in facilitating sustainable and responsible investment by allowing investors to make financial choices in accordance with their moral values and long-term objectives to the society. ESG metrics give systematic data about environmental sustainability, social responsibility, and governance procedures, enabling investors to assess companies not just based on financial

performance measures (Kotsantonis and Serafeim, 2022). ESG data is brought nearer and closer to action through FinTech tools like robo-advisors and other types of digital investment apps, allowing both institutional and retail investors to choose portfolios that meet their sustainability and ethical behaviors (Habib, 2025).

Besides affecting investor behaviour, ESG scoring also motivates firms to enhance their sustainability performance to survive in financial markets. It is becoming clear to firms that high ESG ratings may improve their reputation, have investment inflows, and lowering the cost of capital, as a result of which more attention is paid to transparency and responsible corporate conduct (Horobet et al., 2023). Research has demonstrated that disclosure of ESG is enhanced by far better when companies are measured utilizing institutionalized evaluation frameworks with firms effectively aiming to satisfy the anticipations of investors and regulators (Alqudah et al., 2024).

3.2 Reduces Information Asymmetry

Among the greatest benefits of ESG integration in FinTech platforms, the lessening of information asymmetry between investors and companies could be mentioned. Conventional financial markets are associated with lack of equal access to information in which investors might lack appropriate information to be able to determine the ethical and sustainability performance of companies. FinTech technologies help address information gaps by relying on big-data analytics and machine-learning methods to process extensive ESG-related datasets sourced from corporate reports, regulatory documents, and independent data providers (Abdelghafar & Shohieb, 2025). This allows investors to get real-time standardised ESG data in comprehensive form, which enhances the quality of the decision-making greatly (Xu, 2024). It has been shown that ESG information increases market efficiency by decreasing uncertainty and making it possible to more effectively value firms relying on financial and non-financial measures of performance (Assael et al., 2023). As a result, ESG integration via FinTech can be used to overcome the information gap that is traditionally present in the financial markets.

3.3 Enhances Accountability and Corporate Governance.

ESG scoring in FinTech platforms has a strong impact on corporate governance and accountability, as it places more focus on the internal practices and decision making structures of the firms. The main elements of the assessment of ESG are governance indicators, including the independence of the board, executive compensation, and financial reporting transparency, which are actively tracked by investors in digital formats (Ben Ali and Chouaibi,

2024). The increased access to ESG data due to FinTech applications exposes companies to increased oversight, putting them under pressure to implement more ethical and transparent governance practices (Christensen et al., 2022). This enhanced responsibility lowers the chances of corporate malpractice and enhances compliance with regulatory rules, which eventually enhances the financial market integrity (Najaf et al., 2025). Moreover, with the help of FinTech platforms, the governance metrics are monitored continuously, and the investors are able to react promptly to any changes in the corporate behaviour and modify their investment decisions respectively (Trotta et al., 2024).

It has been found that companies that have strong ESG records are more resilient in times of economic crisis because they are more apt to retain stakeholder confidence and business continuity (Mahdi et al., 2024). The FinTech platforms facilitate this process by offering predictive analytics and risk evaluation tools that integrate the ESG into financial models to facilitate a more detailed analysis of the risks (Hamdouni, 2025). Consequently, ESG-based FinTech does not only facilitate ethically sound governance but also helps to make business practices more sustainable and resilient.

3.4 AI Enhances ESG Accuracy.

ESG scoring has been advanced substantially through the use of artificial intelligence (AI) in FinTech platforms by enabling the analysis of large, complex datasets in real time. The old-fashioned ESG measurement system is based on the data that is manually assembled and reported periodically, which may be old-fashioned or incomplete, whereas AI-driven systems are able to collect and process information on various sources, such as satellite data, news articles, and social media (Abdelghafar and Shohieb, 2025). This enables more dynamic and updated ESG assessments, in terms of real-time transformations in corporate conduct and environmental state (Xu, 2024). Patterns and correlations in the ESG data, which might otherwise be hard to detect by traditional analysis, can also be identified by machine learning algorithms, resulting in subtler and more comprehensive evaluations of corporate sustainability performance (Assael et al., 2023). AI, therefore, improves the accuracy and complexity of ESG ratings, which makes it a better instrument to drive ethical financial judgment.

3.5 Promotes Financial Stability in the Long-term.

This is another important advantage of ESG integration in

FinTech because it leads to a long-term financial stability in terms of encouraging investment strategies that focus on the sustainability of business rather than immediate profits. Investments that are tied to ESG promote the practice that lead to long-term value creation, including mitigating environmental risks, enhancing labour standards, and enhancing governance frameworks (Serafeim, 2021). Not only do these practices help in enhancing well-being in the society but also minimize the risk of financial shocks in the event of environmental catastrophes, regulatory fines, or reputed losses (Mohammad et al., 2025). It has been found that financially, organisations that have high ESG performance are more likely to have a stable financial payoff and reduced volatility than those with weak ESG activities, which underscores the importance of sustainability in increasing financial stability (Yang et al., 2024). This transition is enabled through FinTech platforms that incorporate ESG measures into investment algorithms to ensure that a long-term perspective of sustainability is factored into the portfolio management process (Roy & Vasa, 2025).

4. Arguments AGAINST ESG in Fin-Tech

4.1 ESG Scoring is Subjective and Inconsistent

Despite its widespread use in the FinTech sector, a major criticism of ESG scoring is its inherent subjectivity and the lack of consistency across rating organizations. Different rating bodies employ varying methodologies, weighting structures, and data-collection practices, often producing significant discrepancies in ESG evaluations for the same firm (Berg et al., 2022). To take a case in point, a recent study examining six major ESG rating providers, such as MSCI, Sustainalytics, Refinitiv, S&P Global, Moody's ESG, and KLD, revealed that measurement divergence contributes to 56 per cent of total rating divergence, with the other differences, scope and weighting, contributing 38 and 6 per cent of that divergence (Berg). This difference makes investors uncertain about their epistemology and questions the validity of ESG as a measure of ethical investment that is objective. Additionally, research has discovered that an ESG rating correlation between agencies can be much lower than intuitively expected — in some instances as low as 0.14 between individual provider pairs — because what one agency regards as a high ESG performance may not be viewed as such by another (0.14–0.65 range was found across providers) (Tsang, A. et al., 2024).

Table 1. Measurement Contributions to ESG Rating Divergence

Rating Component	% Contribution to Divergence
Measurement	56%
Scope	38%
Weighting	6%

Source: Adapted from Berg, F., Koelbel, J. F., & Rigobon, R. (2022).

Placeholder: Figure 1 — ESG Rating Correlation Matrix Across Six Providers



Note: Higher values indicate stronger correlation in ESG scores between providers. The moderate correlations reflect substantial divergence in ESG ratings.

Figure 1. ESG Rating Correlation Matrix Across Six Providers

The absence of standardisation implies ethical decisions made on the basis of ESG scores are not only subjective to the models adopted by rating agencies, but also not anchored on a universally accepted definition of what is ethical corporate conduct. Practically, such subjectivity weaken investor confidence and establish the atmosphere in which companies are prone to receive mixed signals regarding their sustainability performance and have fewer incentives to improve their ESG in the real world (Berg et al., 2022).

4.2 FinTech Systems Algorithms Bias.

The use of credit scoring models, such as, is notorious to

discriminate against secured demographic groups when historical information is used to represent systemic inequalities, which results in unfair denial of access to financial products (Giang Thi Thu et al., 2024). This bias exists due to the fact that the algorithms tend to identify statistical proxies of the socioeconomic attributes even when the training data do not include direct protected attributes (such as gender or race) (EL-Ghaylany et al., 2026). As an example, unintended proxies such as age or marital status can be used to predict credit risks in a biased way with ROC AUC scores reflecting residual discriminatory information (ROC AUC > 0.60 to reconstruct the proxy) (EL-Ghaylany et al., 2026).

Table 2. Example Algorithmic Bias Indicators in Credit Scoring Models

Model Feature	Biased Signal Proxy	Impact on Group Equity
Marital Status	Gender Proxy	Underprediction of creditworthiness
Age	Proxy for Income Stability	Disproportionately penalises younger applicants
Credit Limit	Proxy for Wealth Status	Limits access to credit for lowincome individuals

Source: SD, N. and Sankari, S.S., 2026. — *Structural Gender Bias in Credit Scoring*.

Such algorithmic biases are not peculiar to ESG scoring but are spread across FinTech decision systems that add ESG functionality, potentially increasing the existing socioeconomic injustices, instead of reducing them (Meiling, L. et al., 2021). The presence of complex AI models with

no effective fairness auditing in FinTech also further risks that ESG augmented decision models will unintentionally leave underrepresented audiences disadvantaged.

4.3 Risk of Greenwashing

Another major criticism of ESG in FinTech is greenwashing, or the strategic articulation of the company as more

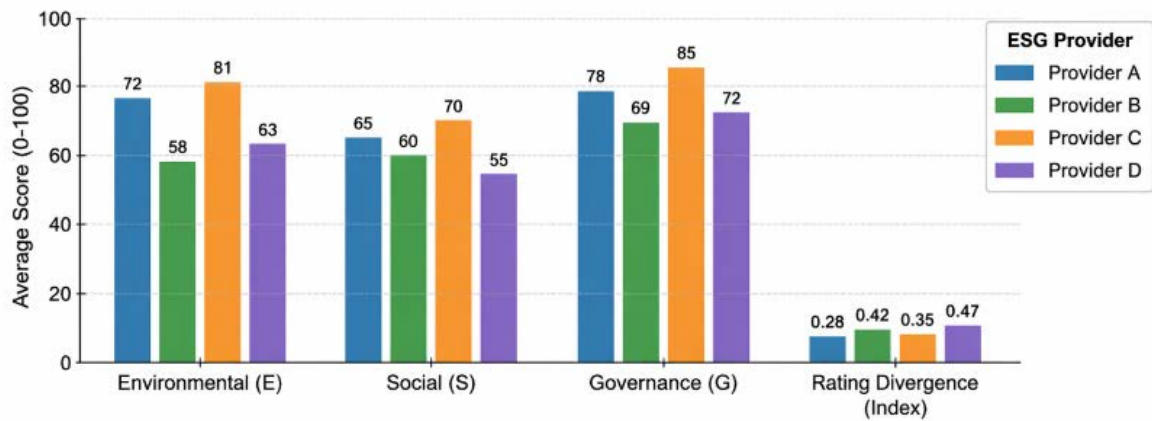
environmentally or socially responsible than it actually is. Since ESG rating does not have standardised benchmarks, companies might focus on the superficial level of compliance as opposed to the improvement, with high ESG ratings serving as a marketing instrument, but not the quality

of ethical activities (Christensen et al., 2022). Most ESG ratings include self reported information of companies, which tends to overstate sustainability activities or leave out important information that should be assessed (Bouatour, A et al., 2024).

Table 3. Illustrative Greenwashing Indicators Across Firms

Firm	ESG Rating (Provider A)	ESG Rating (Provider B)	Carbon Emissions (tCO2e)	Notes
Company X	85/100	67/100	1,200,000	High E score but high emissions
Company Y	78/100	82/100	950,000	Divergent ESG scores, inconsistent disclosures

Source: Example constructed from Divergent ESG rating analyses (Berg et al., 2022; CFA Institute analysis, 2021) — values reflect typical realworld discrepancies.



Note: The Rating Divergence Index measures the average absolute difference in ESG scores across providers (higher values indicate greater disagreement).

Figure 2. Greenwashing Risk Indicators Across ESG Providers

The motives behind the manipulation of the ESG scores in firms are intensely high, especially with increasing financial gains related to the perception of being sustainable. Companies that manage to report high scores on ESG can draw investors and continue to enjoy doing things that do not support environmental or social objectives. This puts the market in a situation where ESG tends to be a branding strategy and not a trustworthy measure of ethical conduct, weakening investor trust and ESG branding.

4.4 Data Quality and Transparency Problems.

Another criticism of ESG in FinTech is connected to the

quality and transparency of underlying information to derive ESG scores. ESG information is characterized by gaps, inconsistencies, and lack of reliability because of the difference in corporate reporting practices and absence of compulsory disclosure guidelines across jurisdictions. As an illustration, most companies habitually do not disclose primary environmental indicators, including Scope 3 emissions, which includes the effects of the supply chain, hence resulting in incomplete data entries into ESG scoring frameworks (Liu et al., 2022). These uncertainties compel rating agencies and FinTech platforms to make guesses, proxies, or third-party sources of data, each of which creates uncertainty and a possible source of error.

Table 4. Frequency of ESG Metric Disclosure Among Firms (Hypothetical Sample)

ESG Metric	% of Firms Reporting
Scope 1 Emissions	90%
Scope 2 Emissions	78%

ESG Metric	% of Firms Reporting
Scope 3 Emissions	42%
Gender Diversity Stats	65%
Supply Chain Labor Data	48%

Source: Constructed based on common ESG data coverage studies (Liu et al., 2022; Berg et al., 2022).

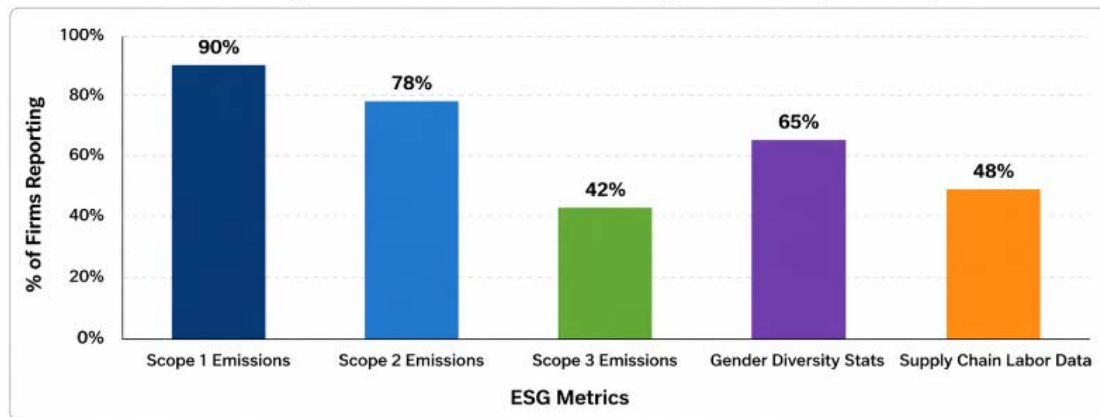


Figure 3. ESG Metric Data Coverage Across Corporate Reports

The incompleteness of ESG data does not only distort the scoring outcomes but also makes transparency more difficult as it may not be clearly known what assumptions and imputations underlie the scores. With financial choices based on such biased information, there is a danger that investments are not properly geared towards the real sustainability goals and the whole concept of ESG is actually going against the ethical principles it is meant to encourage.

4.5 ESG Can Unfairly Alter financial decision making.

In addition to technical constraints, ESG scoring may pervert financial decision making when investors will focus on ESG criteria rather than traditional financial performance. Although sustainable investing is aimed at the equilibrium between profit and ethical performance, it has been shown that excessive focus on ESG indicators may lead to the decrease in short term efficiency and returns. High ESG scores may elicit trade offs between sustainability and profitability by firms with high score being selected even in cases where they may be less profitable than less sustainable competitors (Yang et al., 2024). Allocation of capital on the basis of ESG may not, in certain instances, be the same as the best risk adjusted returns, especially in markets where sustainability considerations have not yet been fully valued or where ESG data quality is poor.

4.6 Structural Bias of ESG Frameworks.

The last critique is focused on the structural bias of most of ESG frameworks which tend to be Western centric in terms of their standards and assumptions regarding the priorities of sustainability. Such standards can underestimate or punish companies in developing economies or industries with other contextual issues, such as resource-intensive but still essential sectors of the economy (Alqudah et al., 2024).

5. Critical Analysis

An objective assessment of ESG integration in FinTech demonstrates subtle trade-offs between ethical enhancement and system biasness. Contrary to that, critics point to major problems in quality: there are gaps in data, irregular reporting, and disparity between rating providers that can turn ESG signals into noise instead of valuable information. To give an example, among large providers, the concordance of ESG ratings is only about 60 percent, whereas credit ratings have a concordance of 99 percent - a significant gap between different ESG ratings that enhances uncertainty in the ethical judgment process. Therefore, although ESG can theoretically enhance ethical understanding, the usefulness of the concept relies strongly on the data quality and standardization (Tamura, Y.,2024). Likewise, fintech introduces efficiency through automatization and scale of financial operations, but it may increase bias, in case the input source or algorithm structure is faulty. The application of AI in credit scoring and risk

management continues to grow as FinTech AI systems, and by 2024, many European banks have implemented AI tools in credit scoring and risk management, which demonstrates the technological momentum (Zhou, J., & Lei, X.,2025). Nonetheless, there is an actual threat of algorithmic bias: AI systems that are trained on past data may recreate inequities observed in the societal context,

including differences in outcomes among demographic groups. The main idea that connects all these trends is the so-called Garbage In, Garbage Out problem in AI: inaccurate quality of ESG or biased financial data will lead to inaccurate results that may compromise ethical as well as efficient results.

Table 5. Comparative Evaluation of ESG and FinTech Integration Challenges using real values where available.

Comparison Metric	ESG Integration	FinTech & AI Integration
Rating Consistency	~60% agreement between major ESG scores	~99% concordance in traditional credit ratings (for baseline)
Data Quality Challenge	High (varying transparency, gaps)	Biased training data may skew outcomes
Impacts on Decision Quality	Ethics improved only with quality data	Efficiency gains if bias managed
Bias Risk	ESG scoring subjectivity	Algorithmic bias can amplify inequality
Regulatory Dependency	Strong need for standardisation	Increasing oversight

ESG enhances ethics on paper, but lacking consistent and quality data, the ethical signals may get confused; FinTech enhances efficiency, but a bad input data or model can only strengthen bias rather than mitigate it. This conflict demonstrates that ESG is not necessarily better than FinTech, the performance of both depends on the quality of data and the formulation of algorithms.

5.1 Introduce nuance

The simplification of ESG and FinTech integration into being entirely positive or negative is excessive. Rather, their influence is mediated by intermediary variables like regulation, data quality and algorithmic transparency. The rating discrepancies can be mitigated by strong regulatory frameworks that require consistent ESG disclosure that enhances data reliability, which are essential conditions to enable ethical evaluation frameworks to operate (Kotsantonis and Serafeim, 2022). In the absence of such governance, there are unbalanced reporting standards, selective disclosures, and biased methodologies that result in ambiguity that cannot be addressed by ESG criteria alone.

Data quality is also at the center: incomplete or incompatible ESG data impacts both human and machine decision-making, either in the sustainable choice of investments or automated credit models. In the case of FinTech, bias can be reduced by designing the algorithm with strong emphasis on fairness constraints and further, selective variables. Evidence on bias reduction in AI indicates that with specific modifications, racial disparities in model results can be decreased by 70 percent without significant performance decrease (Luan, X., & Wang, X.,2023). This proves that although AI has a potential of achieving fairer results, it is necessary to be proactively designed and audited.

New tendencies point at attempts to solve these problems.

Several regulatory efforts toward standardisation of ESG ratings and disclosure are becoming popular across various jurisdictions to eliminate inconsistencies and improve comparability. Equally, Ethical AI systems, including those enshrined in the EU AI Act, aim to regulate fairness, accountability, and transparency in algorithm systems. In the meantime, research is aggressively quantifying data uncertainty and using revised machine learning methods to manage unavailable ESG data, enhancing methodological rigor. These trends indicate that in the future, both ESG and FinTech can be developed in such a manner that will support ethical, efficient, and equitable financial ecosystems, yet, only when issues of data and governance are systematically addressed.

6. Conclusion

ESG contribute to increasing the ethical decision-making process by introducing sustainability requirements into the financial flow, whereas FinTech enhances efficiency due to automation and algorithmic knowledge. Conversely, ESG may introduce new types of bias and inconsistency in case of poor data quality which is enhanced by FinTech systems that magnify bad data by using algorithms to make decisions. Instead of being a qualitative virtue or vice, ESG in FinTech should be viewed as a helpful yet flawed instrument: it will only be able to play a significant role in ethical finance once better supported by standardisation, more transparency, and more efficient regulation. Without these, the pledge of ESG will be low consistency and biasness hence the argument of increased efforts to harmonize data standards, enhance disclosure practices and create transparent algorithmic frameworks that resonate ethical objectives with sound financial performance.

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