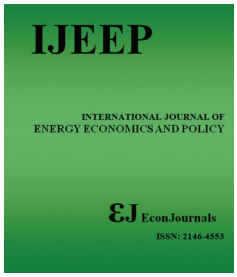

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Environmental Accountability or Symbolic Compliance? A Critical Review of ESG Ratings, Greenwashing, and Indirect Emissions in the Global Insurance Sector

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ABSTRACT

The increasing visibility of the Environmental, Social, and Governance (ESG) models has altered the demands of corporate sustainability, which makes ESG ratings one of the primary instruments that investors, regulators, and other stakeholders can use to evaluate environmental responsibility in any industry, the insurance sector being one of them. Peer-reviewed journals, working papers, regulatory reports, and NGO/industry publications were carefully chosen as sources of information to represent different academic, regulatory and practical views on the issue in question, covering 2010-2024. Through the analysis, the ESG theory, greenwashing theory, and institutional theory are combined to uncover the methodology inconsistencies, gaps in Scope 3 emissions reporting, and the predominance of hollow compliance. The analysis highlights the gap between declared sustainability performance and reality, especially in the area of indirect emissions of underwriting and investment activities, and greenwashing trends in the industry. The results indicate that ESG ratings often exaggerate the environmental responsibility of the insurers and include disclosure and governance rather than action in climate over substantive action of environmental accountability in financial intermediaries, and require a more stringent and comprehensive set of approaches to assessing environmental accountability of financial intermediaries.

Keywords: ESG Ratings, Insurance Sustainability, Greenwashing and Indirect Emissions
JEL Classifications: Z0, G3, Q5

1. INTRODUCTION

In the last 20 years, the environmental, social, and governance (ESG) models have been the focus of how financial markets operate around the world. ESG ratings are becoming important in terms of measuring corporate responsibility, managing risks associated with climate change, and distributing capital toward more sustainable economic activities, by investors, regulators, and civil society (Ahmed et al., 2022; Armour et al., 2021; Ben Mahjoub, 2025). In this scenario, the insurance industry has been standing in a very commanding position. Being risk managers, institutional investors, and key participants in the economic action, the insurers are in the unique position of influence over the environmental outcomes where they are in control of which activities are insured, the pricing of risks and the investment of the premiums (Ben Mahjoub, 2025; Chang, 2024; Cho et al., 2022). In turn, ESG evaluations of insurers are of substantial importance not only in indicating the sustainability performance of firms but also in affecting the overall shifts to low-carbon and climate-resilient economies (Chen et al., 2023).

Although this is significant, it has come with a paradox in the ESG assessment of insurers. Most of the large insurance companies are repeatedly rated with a comparatively high ESG rating, especially on the environmental dimensions, despite the fact that their business models are highly dependent on the carbon intense businesses (Dai et al., 2023; Mooneeapen et al., 2022). The insurance companies are unlikely to record high direct operational

emission levels, unlike manufacturing or energy companies because their offices, data centers, and the travel of their employees have relatively small carbon footprints. The more common approaches to ESG rating include focused attention to these direct emissions and in-house policies, including energy efficiency programs or commitments to climate disclosure (Dai et al., 2023; Ding et al.). Consequently, the insurers can present themselves as environmental responsible when evaluated using the traditional ESG perspectives (Senadheera et al., 2022). This positive image, however, is in stark contrast with the emerging evidence that the indirect environmental effects of insurers the subsidization of fossil fuel projects, insuring high-emission industries, and investing the premium income in carbon-intensive assets may be significant, and in some cases, much larger than the emission of the insurers themselves (Hatalis, 2024; Šević et al., 2024).

This lack of connection calls into serious doubt the validity and efficacy of ESG ratings in reflecting the veritable environmental responsibility of insurance companies. There is a wide range of scores between providers because of the wide range of methodologies that are employed by ESG rating agencies that are characterized as being rather opaque (Hatalis, 2024; Hidayah et al., 2025; In and Schumacher, 2021; Khan et al., 2021). Such discrepancies are especially significant to the insurance industry where the indirect emissions related to underwriting and investment portfolios can be hard to quantify and are often omitted in environmental analysis. In most instances, insurers have been rewarded on climate-related policies, voluntary undertakings, and disclosure of practices instead of showing the actual reduction of their financed or insured emissions (Kholmi, 2023). The methodological decisions taken in this way threaten to establish a kind of symbolic compliance where the firms look sustainable on paper and still carry on with their practices that lead to environmental degradation in the real world.

The issue is also exacerbated by the fact that the so-called greenwashing in financial markets is becoming increasingly common. Greenwashing is the practices by which companies choose to present, interpret, or highlight information in a manner that leads to a false impression of environmental acceptability (In and Schumacher, 2021; Khan et al., 2021; Kholmi, 2023). The greenwashing in the insurance business can be subtle and institutionally approved, including the emphasis on net-zero commitments, sustainability reports, or involvement in global climate programs, and at the same time being exposed to environmentally damaging operations through underwriting and investment practices (Kholmi, 2023; Laine et al., 2021; Li et al., 2022). Where ESG ratings score such symbolic measures more highly than actual environmental impacts, they have the effect of greenwashing instead of reporting it. This does not only destabilize the credibility of the ESG structures, but also misrepresents the market indicators, which may end up diverting money towards practices that are truly sustainable (Laine et al., 2021; Li et al., 2022; Liu et al., 2025; Luan, 2024).

It is against this background that this research paper aims at critically analyzing the question of whether ESG ratings in the global insurance industry depict real environmental responsibility or are just mere window dressing (Luu et al., 2025). However, instead of perceiving ESG scores as the objective measurements of sustainability performance, this review challenges the assumptions, methodology and theoretical underpinnings used to evaluate ESG performance of insurers. Special emphasis is placed on how indirect emissions in connection with underwriting operations and investment portfolio are treated or not: this is the most important medium by which insurers affect the environment (Luu et al., 2025; Mohammed, 2023; Poiriazi et al., 2025). With these analyzing these less obvious aspects of environmental impact, the study aims to uncover structural blindness across established ESG frameworks.

The study contributes to the existing body of research in a number of ways by answering these questions. It provides a Theory-based and synthesized critique of ESG rating mechanisms based upon the perspectives of greenwashing theory, institutional theory, and political economy perspective of sustainable finance. By so doing, it goes beyond the descriptive comparisons of ESG scores to question the power practices and incentives of rating practices. The research also offers conceptual clarity of the place of the indirect emissions in the insurance sector with a focus on the weaknesses of operational metrics of carbon and the necessity of more holistic means of environmental accountability. Last but not the least, by linking the abstract argument about ESG measurements to the tangible insurance operations, the review has been added to a better comprehension of how claims sustainability are being made, tested, and possibly falsified in one of the most powerful branches of the global financial system. The research question which this study addresses are as:

1. How accurately do ESG ratings capture insurers' indirect environmental impact?
2. What methodological weaknesses enable greenwashing in the sector?
3. How do regulatory and institutional frameworks address these gaps?

2. CONCEPTUAL FRAMEWORK

The below section represents the theoretical developments in conceptual framework, as illustrated in Figure 1. The ESG rating framework, greenwashing mechanism, insurance-related emissions are described below.

2.1. ESG Rating Frameworks

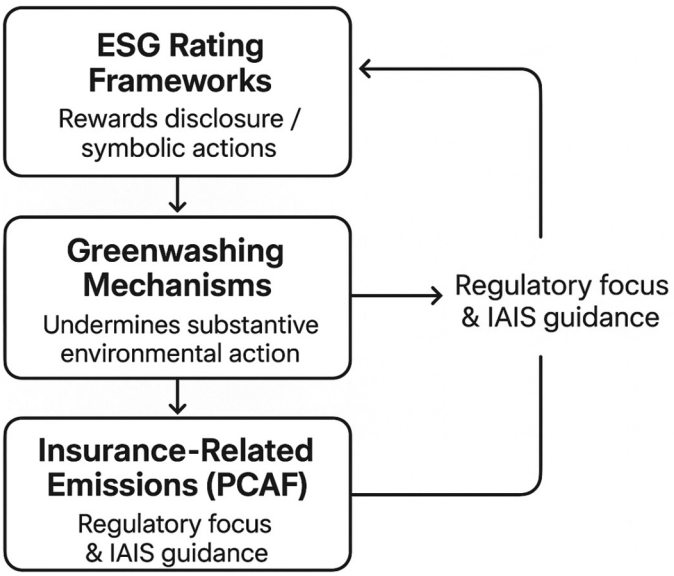
The ESGR systems are created to convert complex details of sustainability into similar scores that direct investors and other stakeholders to make decisions. In the insurance industry, such frameworks are usually the combination of announced policies, governance schemes, risk management frameworks, and environmental measures. Scopes 1 (direct operational emissions), Scope 2 (indirect emissions due to the use of purchased energy) and to a growing but sporadic degree, Scope 3 emissions are often organized into environmental measurement (Poiriazi et al., 2025; Rosario, 2024). To insurers, Scope 3 emissions, especially those related to underwriting and investment operations, are the most significant environmental impact, but it is also not well represented in ESG ratings (Mohammed, 2023). The various rating agencies

use different indicators, weights, and sources of data that result in low correlations of ESG ratings of the same company. Such a divergence causes what has been termed as aggregate confusion where the composite ESG scores blur the underlying environmental risks and diminish comparability (Poiriazi et al., 2025; Rosario, 2024; Sasaki, 2025). As such, insurers can be rated highly in case they are very exposed to carbon-intensive operations, which undermines the effectiveness of ESG measurement.

2.2. Greenwashing Mechanisms

The mechanisms of greenwashing work under the condition of the organizations focusing on the symbolic form of sustainability actions and significantly ignoring the real environmental effects. This difference is frequently presented in terms of symbolic and substantive ESG conduct in the context of ESG (Tan et al., 2024; Tao et al., 2024). The symbolic measures are sustainability policies, making the public commitments to net-zero, becoming members of voluntary programs, and widely reporting on the ESG. Substantive actions, in their turn, are those that quantify business practices, including insured emission reduction, high-carbon asset divestiture, or underwriting requirements. ESG ratings often favor disclosure-based measures more than performance-based results, and thus encourage companies to concentrate on communication as opposed to change. In the case of insurers, it may lead to sustainability discourses that emphasize climate governance frameworks and understated the idea of continued promotion of activities that are harmful to the environment (Poiriazi et al., 2025; Rosario, 2024; Sasaki, 2025). The visibility and compliance rewarded by such disclosure-based evaluation can justify greenwashing by undermining accountability mechanisms in sustainable finance by rewarding visibility and compliance, but not real-life environmental results.

Figure 1: Conceptual framework



2.3. Insurance-related Emissions (PCAF Framework)

Insurance-related emissions imply the indirect negative effects that are produced as part of the underwriting and investment process of the insurers. Partnership for Carbon Accounting Financials (PCAF) framework is an accountability method designed to measure the emissions that are financed and insured by stating the accountability over an operational scope (Rosario, 2024; Sasaki, 2025; Tan et al., 2024; Tao et al., 2024). In this context, insurers are seen as large carbon middlemen because their underwriting patterns allow high-carbon projects and their portfolio investments direct capital towards certain industries. These underwriting and investment channels are very important carbon pathways between insurers and emissions generated throughout the real economy (Tao et al., 2024; Treepongkaruna et al., 2024). Their relevance notwithstanding, insurances-related emissions are yet to be included in ESG ratings in a systematic way. The regulatory bodies, including the International Association of Insurance Supervisors (IAIS), are placing a rising focus on climate risk management and climate risk disclosure, which is one of the indicators of a transition to the view of indirect environmental responsibility (Tao et al., 2024; Treepongkaruna et al., 2024; Wang and Lyu, 2025; Zeng et al., 2022). Nonetheless, there are still no standardized measurement and enforcement tools that can ensure successful incorporation into ESG evaluations.

3. METHODOLOGY

3.1. Research Design

The current research is designed following the approach of a qualitative critical literature review in order to explore the conceptual, methodological, and institutional premises of ESG ratings in the international insurance market. The selection of a critical review is based on the fact that the aim is not to organize empirical evidence and evaluate the effects of actions, but to challenge assumptions, the hegemony, and normative propositions that are hidden by the ESG assessment practices. The ESG ratings are not the objective measurement instruments;

Table 1: Source selection strategy

Database	Core keywords	Boolean operators/search strings
Scopus	ESG ratings; insurance sustainability; greenwashing; indirect emissions; sustainable finance	(“ESG rating” OR “ESG score”) AND (insurance OR insurer) AND (sustainable OR “environmental performance”)
Web of Science	ESG assessment; insurance sector; climate risk; underwriting emissions	(“ESG assessment” OR “sustainability rating”) AND (“insurance sector” OR insurer) AND (“indirect emission” OR “financed emission”)
SSRN	ESG methodology; green finance; insurance investments; regulatory ESG	(“ESG methodolog” OR “ESG framework”) AND (insurance OR “financial institution”) AND (greenwashing OR “symbolic compliance”)
Regulatory Reports	Climate disclosure; insurance regulation; ESG supervision	(“insurance regulation” AND ESG) OR (“climate disclosure” AND insurer)
NGO/Industry Reports	Net-zero insurance; fossil fuel underwriting; ESG transparency	(“net zero” AND insurance) OR (“fossil fuel” AND underwriting) AND ESG

they are the socially constructed instruments influenced by the market incentives, regulatory pressure, and institutional norms. The critical approach will make it possible to assess the way these tools conceptualize environmental responsibility, especially concerning indirect emissions and greenwashing. The design allows one to interpret theoretically, thus, integrating ESG theory, greenwashing theory, and the institutional theory will help to reveal blind spots and inconsistencies in the available frameworks. The research design is suitable to answer the questions related to the symbolic compliance and environmental accountability in a complex and dynamic sustainability environment by focusing on depth of analysis and conceptual synthesis to cover all parts of the environment instead of focusing on all parts of the environment.

3.2. Source Selection Strategy

The selection of sources (Table 1) was done according to an organized but adaptable approach to ensure that academic, regulatory, and industry views on the matter of ESG ratings and insurance sustainability are represented. Peer-reviewed articles and working papers were found in major academic databases, such as Scopus, Web of Science, and SSRN.

Further, the regulatory documents (e.g., issued by the insurance supervisors and international standard-setters) were also incorporated to indicate the actual practice and policy discussions. The review includes the years 2010-2024, which can be attributed to the increase and institutionalization of ESG framework in the financial market.

3.3. Inclusion and Exclusion Criteria

Inclusion criteria of this study were the literature that was directly related to ESG measurement, insurance sustainability, greenwashing, indirect emissions and sustainable finance. The sources were chosen on the basis of academic, regulatory, and non-governmental publications in order to have both conceptual and practical relevance, and sources that focus solely on technical analysis of actuaries and blogs that represent an opinion are omitted since they are not as pertinent in the context of ESG assessment. Published sources in the year 2010-2024 were taken into account in the review because this is the time frame during which ESG frameworks have become institutionalized in financial markets. English-language sources were also considered to make sure that the sources were consistent and analytically sound. Articles on unrelated topics of finance that were not related to sustainability or insurance were filtered to ensure that there was thematic coherence and relevance.

3.4. Analytical Procedure

The analysis was conducted in a thematic coding and theory-based synthesis. To begin with, a series of texts were read multiple times and coded with the open coding to find the repeated concepts including indirect emissions, ESG methodology, disclosure practices, and greenwashing indicators. These first codes were further classified into higher order themes according to the research questions. The second stage involved the interpretation of themes in terms of the previously known theoretical frameworks,

Table 2: Results table

Dimension	Observations/Findings	Implications/Issues	Examples/Evidence	Studies
Operational emissions (scope 1 and 2)	Low emissions from offices, IT infrastructure, and travel. ESG ratings often reward efficiency gains, paperless operations, and renewable energy acquisition.	Creates perception of environmental responsibility; hides larger indirect impact.	Office-based emissions small relative to energy-intensive sectors.	(Khan et al., 2021; Kholmi, 2023)
Insurance-associated emissions (scope 3)	Indirect emissions from underwriting and investment portfolios are large. Includes fossil fuel, aviation, shipping, and heavy industry exposures.	Substantive environmental impact is understated; ESG ratings often ignore these emissions.	Swiss Re, Munich Re show rising climate-related claims; insurers continue financing carbon-intensive sectors.	(Laine et al., 2021; Li et al., 2022)
ESG rating system weaknesses	Low consistency across agencies due to different indicators, weights, and methodologies; excessive focus on disclosure-based metrics.	Inflated ESG ratings; misleading investors; weak link between rating and actual environmental performance.	KPMG, NBER studies highlight gaps in Scope 3 emissions accounting.	(Liu et al., 2025; Mohammed, 2023)
Greenwashing dynamics	Emphasis on symbolic sustainability (paperless offices, marketing campaigns) over substantive action (underwriting/investment changes). Asymmetric information facilitates selective disclosure.	Mispricing climate risk; undermines trust in ESG frameworks; flows of capital may support "greenwashed" companies.	ESG disclosure favored over meaningful portfolio divestment; minor operational changes over large-scale impact.	(Tan et al., 2024; Treepongkaruna et al., 2024; Wang and Lyu, 2025)
Institutional and regulatory responses	Initiatives like PCAF, TCFD, ISSB, IAIS, EU SFDR, NAIC, PRA promote reporting and governance. NGOs benchmark fossil fuel exposure.	Enhances transparency but limited enforcement; may encourage symbolic compliance rather than substantive change.	ShareAction, Insure Our Future campaigns; voluntary participation limits real impact.	(Senadheera et al., 2022; Šević et al., 2024)
Innovation and low-carbon initiatives	Some insurers invest in renewable energy insurance, hydrogen, CCS projects.	Positive but small-scale impact compared to continued high-carbon underwriting. May serve as reputational buffer rather than systemic change.	Low-carbon project insurance is minor relative to coal, oil, and fossil fuel portfolios.	(Mooneeapen et al., 2022; Poiriazi et al., 2025; Senadheera et al., 2022)

namely the ESG theory (to evaluate the logic of measurement), the greenwashing theory (to evaluate the symbolic versus the substantive actions), and the institutional theory (to explain the convergence and legitimacy-seeking actions among insurers). Triangulation was used in order to increase the rigor of the analysis to compare the insights of academic sources, regulatory frameworks, or industry or NGO reports. This method assisted in revealing the differences between official ESG promises and actual application, which increased the validity of the results because of not having to refer to a specific category of source or opinion.

4. RESULTS

Table 2 below shows the results of study from comprehensive literature review. Insurance environmental impact stretches way beyond its direct operational emissions, which are not very huge as compared to those of other industries. The biggest impact on the environment comes in the form of indirect emissions created by the processes of underwriting and investments, but these emissions are still poorly reflected in ESG ratings. The results obtained indicate a serious lack of connection between reported sustainability performance and real environmental impact in the insurance industry.

4.1. Environmental Footprint of Insurers: Other than Operational Emissions

The environmental impact of insurance companies has been underestimated because of the limited attention based on the direct operational emissions. The Scope 1 and Scope 2 emissions of insurers mainly occur in terms of office buildings, information technology infrastructure, data centers and business travel (Treepongkaruna et al., 2024; Wang and Lyu, 2025; Zeng et al., 2022). These emissions are relatively low, by comparison to other energy-intensive industries like energy, mining, or manufacturing, which strengthens the image of insurers as environmentally friendly. These metrics of operations are often prioritized by ESG ratings, with insurers rewarded on efficiency gains, paperless operations, and the acquisition of renewable energy. Nonetheless, these comparisons only hide the actual magnitude of environmental impact of insurers (Tan et al., 2024; Tao et al., 2024).

Insurance-associated emissions are the largest emissions that the insurance firms make, which are also indirect and usually called insurance underwriting and insurance investment. Through underwriting of fossil fuel mining, power generation, aviation, shipping and heavy industries, insurers provide high-emission economic activities that would otherwise be limited to more restrictive financial and operational consideration (Chang, 2024; Cho et al., 2022). Simultaneously, the portfolio of investments maintained by insurers, consisting, in most cases, of equities, bonds, and infrastructure, deploys capital in carbon-intensive sectors, which results in large amounts of financed emissions (Ahmed et al., 2022; Armour et al., 2021). Reinsurance companies increase this impact by diversifying and evenly distributing risk associated with climate changes in international markets, which indirectly contributes to the continued exposure to environmentally harmful practices.

Indirect emissions are the most important as insurance companies can be considered financial intermediaries, having the ability to shape the rate and the trend of the global decarbonization (Ben Mahjoub, 2025; Chang, 2024; Cho et al., 2022). Their decision to underwrite the projects they select influences what gets constructed and their investment policy influences the distribution of capital in the economy. Further, climate risks initiated in insured areas are also passed to insurers by increasing claims, asset depreciation, and systemic financial risks (Cho et al., 2022; Dai et al., 2023; Ghouse et al., 2025). The exclusion of indirect emissions thus inequitably not only portrays the insurers as being irresponsible in terms of environmental matters, but also puts their exposure to the financial risks associated with climate changes into the perspective of being material.

4.2. Weak Methodologies of the ESG Rating Systems

One of the key conclusions in the literature is that there is a great difference among the ESG rating agencies in their rating insurance firms. Various providers use inconsistent scoring models, choice of indicators, and weighting models, which lead to low correlations between the ESG scores of the same company (Khan et al., 2021; Kholmi, 2023; Laine et al., 2021). This deviation is especially high, among the dimensions of the environment where comparability and verification are constrained by the dependence on self-rewarded data and qualitative releases. One agency may therefore give high ESG ratings to insurers and other agencies may give low ratings to the same insurers, making it a confusing situation to investors and regulators (Laine et al., 2021; Li et al., 2022; Liu et al., 2025).

Among the most considerable weaknesses that are outlined is the excessive focus on disclosure-based metrics. In many cases, ESG rating systems do not recognize a sustainable environment but prefer the size, format and complexity of the sustainability reporting (Luan, 2024). This disclosure premium encourages insurers to invest in reporting infrastructure, policy structure and narrative conformity to global standards and substantive changes in underwriting or investment behavior attract little attention. Consequently, well communicating firms might be more successful than firms that do more meaningful yet less visible environmental activities (Ben Mahjoub, 2025).

Half-baked carbon accounting also diminishes ESG measurements. The scope 3 emissions, especially those associated with underwriting and investment portfolios are frequently omitted, frequently estimated, or omitted overall. There is extensive research by consulting firms, academic and institutions (KPMG and the NBER) which point to systematic underestimation of the impact of climate on financial institutions (Hatalis, 2024). In the case of the insurance industry, such gaps in methodology will result in inflated ESG ratings, regulatory arbitrage and a discrepancy between ESG performance and real environmental risk exposure.

4.3. Empirical View to Insurance Industry Sustainability

The evidence that is being provided by empirical research is questioning the optimistic sustainability discourses of the insurance sector. Statistics of large reinsurers Swiss Re and Munich Re show that the number of climate-related losses is steadily

increasing based on extreme weather patterns, natural disasters, and climatic changes over the long term (Armour et al., 2021; Ben Mahjoub, 2025; Chang, 2024). Such losses have a direct impact on the underwriting profitability and capital adequacy of insurers, which is an example of the material financial impact of climate change. Even with this increased exposure, most insurers are still underwriting and investing in high emitting sectors.

Civil society and other non-governmental organizations have reported endemic fossil fuel underwriting and investment practices by major insurers, including Lloyds, Generali, AIG, and Zurich, in this case, under the name Insure Our Future document. Although there have been a few companies that have shown coal or tar sands exclusionary, the same have usually been selective, regionally specific, or lagging (Dai et al., 2023; Ghouse et al., 2025). At the same time, net-zero commitments made by insurers with high profiles are not well aligned with their underwriting and investment activities, appear to expose a disconnect between declared aspirations and reality.

Simultaneously, insurers have already created new low-carbon insurance policies, including insurance of hydrogen projects, carbon capture and storage as well as renewable energy infrastructure. Although such efforts form significant milestones towards facilitating the energy transformation, they have only a small size when compared to sustained exposure to carbon-rich sectors (Ben Mahjoub, 2025). The literature warns that innovation might serve as a reputational buffer and cover larger sustainability inefficiencies and strengthen greenwashing relationships unless it is embedded with radical shifts in core business operations.

4.4. The Dynamics of Greenwashing in the Insurance Industry

The symbolic sustainability approaches that are practiced by greenwashing in the insurance sector usually focus on the visible, rather than the effective. Examples of these include paperless office, energy efficient buildings and marketing based ESG campaigns that focus on making minor operational modifications (Cho et al., 2022). Although these measures do produce some impact on emissions, they are often reported in sustainability reports and ESG disclosure, and they produce a disproportionate effect of environmental responsibility.

These forces are supported by structural drivers. Greater pressure is mounting on insurers to prove their alignment with ESG by investors, regulators, and rating agencies and at the same time cope with reputational risk in a highly competitive market. Asymmetric information between the insurers and ESG rating agencies also facilitates the greenwashing because intricate underwriting and investment exposures are challenging to detect, scrutinize and estimate (Ben Mahjoub, 2025). This imbalance enables companies to only release positive news and hide activities that harm the environment.

Greenwashing has more implications than reputation issues. Losing the true picture of sustainability performance causes mispricing of the climate risk, misleading the investor decision-making process, and causing the lack of trust in ESG frameworks (In and Schumacher, 2021). False signals may also be conveyed to policyholders and regulators on how resilient the insurers are to changes of climates. Finally, greenwashing undermines the efficacy of sustainable finance, as it enables the emergence of the flows of capital to companies that can be deemed as sustainable without having any significant positive effects on the environment.

4.5. Institutional and Regulatory Responsiveness

Spanning across the increasing worries regarding the credibility of ESG, various institutional and regulatory measures have developed. The global regulations like PCAF, TCFD, ISSB, UNEP FI, and IAIS guidelines are expected to enhance consistency, transparency, and comparability of climate-related disclosure and carbon accounting (Poiriazi et al., 2025; Rosario, 2024; Sasaki, 2025; Tan et al., 2024). These frameworks are putting more stress on financed and insured emissions, and this shift is an indication of the need to ensure that there is some indirect environmental responsibility in the financial institutions.

On the national and regional levels, the national and regional regulatory agencies, including the European Union (under the Sustainable Finance Disclosure Regulation) and the US National Association of Insurance Commissioners, as well as the UK Prudential Regulation Authority, have established standards on climate risk reporting and supervisory expectations on insurers (Tao et al., 2024; Treepongkaruna et al., 2024; Wang and Lyu, 2025). These measures enhance disclosure policies and promote governance and risk management policies that entail integration of climate risks.

Civil society and NGOs, such as ShareAction, Insure Our Future, and Forourclimate, are complementary in that they benchmark insurers and reveal fossil fuel exposure as well as imposing reputational pressure. Although such reforms are a significant achievement, the literature indicates that they are not adequate (Wang and Lyu, 2025; Zeng et al., 2022; Zervoudi et al., 2025). Efforts to regulate underwriting emissions are still limited due to weak enforcement, voluntary participation, and limited integration. Regulatory momentum, operating independently of compulsory, standardized reporting of insurance related emissions, is likely to support symbolic compliance instead of actually leading to the change of environmental conditions.

5. DISCUSSION

5.1. Synthesis of Findings

This critical review indicates that ESG ratings have a systematic overstatement of the environmental sustainability of insurance firms by giving more weight to operational indicators, quality of disclosure, and governance frameworks, rather than the actual environmental effects. The comparatively low Scope 1 and Scope 2 emissions by insurers give a false benchmark that inflates environmental rating compared to those sectors with high carbon emissions. Nonetheless, this does not give due consideration to the fundamental role of the sector as a financial intermediary, whereby underwriting and investment processes facilitate and maintain high-emission economic processes. Consequently, ESG ratings are commonly indicative of the quality of insurers reporting sustainability as opposed to their sustainability in reality.

One key lesson that can be gleaned out of the literature is that indirect emissions are the missing capstone of insurer environmental responsibility. The emissions connected to insurers, which arise as a result of underwriting fossil fuels, aviation, shipping, and heavy industry, and those arising as a result of investment portfolios are far more voluminous and systemic than the operational emissions. However, such emissions are only intermittently measured, disclosed or not included in ESG ratings. This exclusion does not only misrepresent sustainability calculates but also hides the exposure of the insurers to financial risks associated with climate change, such as underwriting losses, asset stranding, and systemic instability due to climate change.

The analysis also reveals that methodological opaque nature in ESG rating systems promotes greenwashing. Methods and opaque weighting systems and the use of self-reported data form an atmosphere where superficial sustainability actions are being compensated. Even under conditions of limited substantive alterations in underwriting and investment practices, insurers can improve ESG scores by making policy commitments, engaging in voluntary initiatives, and engaging in extensive reporting. The interaction strengthens a feedback cycle where positive investor perceptions about companies due to good ESG ratings limit outside pressure on companies to initiate transformative change. All these results, in retrospect, suggest that ESG ratings as they are currently formulated are prone to encouraging more symbolic than substantial environmental responsibility in the insurance industry.

5.2. Reconciling Conflicting Evidence

Although the prevailing trend is toward symbolic compliance, there are also instances in the literature that show instances of real sustainability enhancements on the part of insurers, especially partial fossil fuel bans, stronger climate risk management, and specific investment in low-carbon technologies (Tao et al., 2024; Treepongkaruna et al., 2024). These are usually done when the physical risk being exposed to is increased, when it is being closely monitored by the regulators, or it is being repositioned strategically in case of long-term risks of climate transition. Where this is the case, incremental improvements can to some extent be captured in ESG ratings implying that ESG frameworks are not totally isolated of actual performance.

Nevertheless, ESG divergence still exists since these substantive actions are disproportionate, voluntary as well as immeasurable. There are variations in the interpretation of exclusions, net-zero commitment and transition plans by rating agencies resulting in different scoring results. Furthermore, there can be penalties to those who release finer data earlier than the market participants, whereas the disadvantaged parties can enjoy reduced transparency (Wang and Lyu, 2025; Zeng et al., 2022). This paradox increases divergence and undermines any incentives to make meaningful disclosure. Therefore, it is precisely the clash of evidence, rather than the disagreement in terms of the sustainability goals, that is caused by the structural constraints of ESG measurement that crosses the boundaries between symbolic and substantive change.

5.3. Theoretical Implications

The results have significant theoretical implications towards the interpretation of ESG ratings in the context of the larger governance and organizational frameworks. Regarding the institutional theory view, ESG ratings are legitimacy-providing institutions, which facilitate conformity and not radical change. As a reaction to both normative and coercive pressure, insurers adopt the dominant ESG norms, with many opting to comply formally, provide standardized disclosures and make symbolic commitments instead of making substantive underwriting and investment behavior changes. The signaling theory also describes the reason as to why disclosure intensive strategies dominate in the insurance industry. In the environment of information asymmetry, ESG reports, net-zero commitments, and involvement in sustainability activities is used by insurers to convey environmental responsibility to investors and regulators, no matter the actual environmental impact. Lastly, the results have issues with existing sustainability governance theories in the sense that they show how the private ESG rating systems may blindly undermine the objectives of the public policy. ESG frameworks will weaken climate governance and not strengthen it when indirect emissions and insurance-related environmental effects are poorly treated or omitted. Collectively, these theoretical recommendations imply that ESG ratings need to be re-conceptualized as governance devices that influence organizational behavior, and not neutral or technical tools.

5.4. Practical Implications

The applied results of the study are of considerable importance to the insurers, regulators, and investors. The results, in the view of insurers, point to the strategic and financial exposures to operate based on tokenistic ESG compliance and still underwrite activities, and invest in carbon-intensive ones. This kind of misalignment brings about more exposure to climate related losses, reputational destruction, and future regulatory action. The primary recommendation that regulators can make is to develop compulsory and standardized systems of accounting insurance-related emissions, both underwriting and investment-related, to minimize the chances of greenwashing. To investors, the findings highlight the drawbacks of aggregate ESG ratings and the importance of examining the portfolios and underwriting practices of insurance companies in more detail. Improved capital allocation should be made in line with actual environmental performance and effective climate risk management by shifting past headline ESG scores to impact-driven analysis.

6. CONCLUSION

This research aimed at critically analyzing whether or not ESG rating in the global insurance industry is a symbol of environmental responsibility or a tool of symbolic compliance. As illustrated in the review, the current ESG rating systems provide a systematic overstatement of insurers sustainability by concentrating on direct operational emissions, governance framework and the quality of disclosure, but pay little attention to the environmental impact of underwriting and investment operations. Without the detailed coverage of the Scope 3 and insurance-related emissions, ESG scores are at risk of being more of a cosmetic feature that indicates the depth of reporting and not the actual global impact on the environment. The results also show that insurers are central to the decarbonization patterns in the world, as their risk selection and capital allocation choices determine the future. Unless carbon

accounting frameworks are rigorous, transparent and verifiable to capture these indirect impacts, ESG ratings do not reflect actual exposure of insurers to climate and their environmental responsibility. Despite the regulatory and institutional reforms, including PCAF, TCFD-compliant disclosures, and emerging supervisory guidance, there has been a mixed progress so far, which is a voluntary one. In this regard, the insurance industry is in the process of ESG reform that is partially complete. Significant progress will require changing the models of ESG frameworks as more of a symbolic and disclosed model to an impact-based one that puts the insurers into the aspect of responsibility of their entire environmental footprint.

7. FUTURE RESEARCH DIRECTIONS

The future studies need to extend on the findings and to develop empirical and methodological solutions to the sustainability of insurance sectors. Among the avenues, there is the quantitative analysis of insurance-related emissions, especially underwriting and reinsurance, to enhance the estimation of insurers in the indirect effects of climate and risk exposure. These models would contribute to comparability within firms and enable more effective ESG evaluations. Another potential avenue is the cross-country comparative research of ESG rating practices because regulatory frameworks, disclosure standards, and market structure can differ widely across jurisdictions. The comparison might help demonstrate the role of institutional contexts in ESG rating deviation and the popularity of greenwashing. Lastly, the impact of mandatory climate and sustainability disclosure regimes on ESG rating accuracy and convergence needs to be investigated in the future. It would be beneficial in measuring the indirect emissions and lessen the need to rely on symbolic indicators to assess whether the standardized reporting enhances the measurement capacity of these indicators by policymakers and market players who aim to ensure that the ESG frameworks are credible.

8. LIMITATIONS OF THE STUDY

There are a number of limitations to this study which need to be noted when drawing conclusions on the findings. To begin with, the study relies on qualitative critical literature review and thus, it is solely founded on secondary data. Although this method makes it possible to engage in general conceptual synthesis and theoretical understanding, it does not permit testing the actual underwriting and investment-related emissions of the insurers empirically. The conclusions are thus interpretive and not predictive and causal. Second, the research is prone to the publication bias in the literature on ESG and sustainable finance. In academic and industry sources, it is the case that a positive sustainability story, voluntary pledges, and best practices are focused on and thus do not reflect as much critical or negative evidence on greenwashing and ongoing fossil fuel exposure. Consequently, certain environmental effects can be underreported or not reported at all. Third, there is much inconsistency between the ESG rating agencies, limiting comparability and synthesis. The fact that different rating systems employ different methodologies, different indicators and weighting schemes complicates generalization of the findings. Also, there is very little transparency in rating methodologies which limit more methodological critique. Lastly, the quantitative analysis on a firm level and interviews with stakeholders are not included into the study, which would have given more profound insights of internal decision-making processes. These limitations need to be overcome in future studies through the mixed and empirical methods.

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