“Measuring ESG adoption in investment funds: Evidence from the Portuguese asset management sector”

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MEASURING ESG ADOPTION IN INVESTMENT FUNDS: EVIDENCE FROM THE PORTUGUESE ASSET MANAGEMENT SECTOR

Abstract

The article observes the evolution of ESG adoption in Portuguese investment funds during the period 2021–2024 in the context of the strengthening of the European Union's regulatory framework. The objective was to measure the degree of adoption of the principles, the institutional asymmetries, and the temporal dynamics induced by regulation. The study focused on four fund management companies, representing a total of 259 active funds, and employed a composite indicator on a discrete scale [0.3], defined on the basis of five ESG sub-dimensions. A structured content analysis and descriptive statistics were conducted, allowing an assessment of the mean, median, absolute and relative dispersion, skewness, and kurtosis of the distributions. The results suggest a continuous growth of the average indicator, from 0.75 in 2021 to 2.20 in 2024, accompanied by an increase in the median from 0.80 to 2.70. The standard deviation increased from 0.36 to 0.93, reflecting a greater absolute heterogeneity, while the coefficient of variation decreased from 0.48 to 0.32 between 2021 and 2022 and normalized around 0.41-0.42. The distributions exhibit persistent negative skewness (between −0.27 and −0.73) and negative kurtosis (between −1.85 and −1.70), which suggests an absence of full convergence and persistence of structural asymmetries. The subdimensions showed higher average values compared to those associated with quantitative measurement and the principle of double materiality. The analysis concludes that the inclusion of the metrics has evolved significantly, but asymmetries persist, which attests to the validity of the indicator as an appropriate tool for conducting ESG analyses.

Keywords asset management, composite index, ESG integration, European financial regulation, investment funds, non-financial reporting, sustainable finance

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INTRODUCTION

The adoption of ESG (environmental, social, and governance) principles in financial markets represents a structural shift in the mechanisms of intermediation, risk assessment, and the efficient allocation of capital, particularly within the European Union, where the strengthening of the regulatory framework introduces heightened requirements for transparency, standardization, and comparability in non-financial reporting. It is within this framework that investment funds assume a systemic role as instruments for implementing regulatory guidelines and allocating resources to investments in assets aligned with sustainability objectives and are therefore fundamental to the operationalization of sustainable finance policies.

Despite the growing institutionalization of ESG metrics, a methodological deficit still persists regarding the measurement of adoption levels, particularly with regard to longitudinal assessment and performance comparisons. The multiplicity of disclosure practices, the

predominantly qualitative nature of the reported information, and the absence of standardized analytical benchmarks limit the robustness of analyses and compromise comparability. This situation limits the assessment of the effectiveness of the regulatory framework and the extent to which ESG risks and impacts are incorporated into investment processes.

The research problem stems from the need to quantify the levels of adoption of ESG metrics in investment funds from a comparative and longitudinal perspective.

1. LITERATURE REVIEW AND HYPOTHESES

The specialized literature has increasingly observed the role of ESG metrics in redefining the relationship between risk, return, and long-term value creation. The traditional perspective of finance, focused exclusively on maximizing risk-adjusted return (Fama & French, 1992), has been progressively integrated with approaches that attest to the relevance of non-financial risks (Friede et al., 2015), socio-environmental externalities (Bolton et al., 2021), and corporate actors in performance assessments (Eccles et al., 2014) within a broader context of sustainability-orientated economic transformation (Eelager et al., 2025).

The doctrine has shown that most empirical studies identify a positive or statistically insignificant relationship between ESG performance and financial performance (Velte, 2017). This situation has contradicted the hypothesis of a structural trade-off between sustainability and profitability (Khan et al., 2016). Other studies argue that the adoption of more robust ESG metrics leads to lower capital costs (Ghoul et al., 2011), higher levels of efficiency (Porter & Kramer, 2011), and resilience in periods of financial instability (Lins et al., 2017), which, in principle, reflect more effective risk management and stronger governance (Giese et al., 2019). More recent evidence further suggests that ESG-orientated investment strategies contributed to portfolio diversification and improved risk management during periods of uncertainty (Ameur et al., 2025).

In the context of investment funds, the literature suggests an expansion in the supply of products classified as sustainable (Riedl & Smeets, 2017), followed by a significant increase in demand from investors (Bollen, 2007), reflecting the growing relevance of ESG considerations in investment decision-making processes (McCluskey, 2012). This trend is particularly pronounced in Europe, where the strengthening of the regulatory framework has acted as a catalyst for the integration of ESG principles into investment processes (Martini, 2021) and the reinforcement of non-financial reporting (Hummel & Schlick, 2016). Investment funds have also been increasingly recognized as key actors in directing capital flows toward sustainable economic activities and influencing the broader sustainability transition (Fichtner et al., 2025). Furthermore, diversification strategies have continued to play a central role in the efficiency of the investment allocation process (Askarzadeh et al., 2025).

The concept of materiality is, in fact, a key element in assessing the relevance of information disclosed by financial agents (Avi, 2022). Initially associated with financial materiality, the concept has evolved to include environmental and social impact dimensions, reflecting a more inclusive view of value creation (Dunfjäll, 2025). In the European context, the evolution of the concept is embodied in the establishment of the principle of double materiality (Baumüller & Sopp, 2022), which requires a two-dimensional assessment of ESG metrics: on the one hand, the financial impacts of ESG risks and opportunities on entities (Panfilo et al., 2025) and, on the other hand, the impacts of economic activities on the environment and society (Bebbington et al., 2008). This approach differs from other international benchmarks, which tend to focus almost exclusively on financial materiality (Amel-Zadeh & Serafeim, 2018) or impact materiality (Adams, 2017).

The literature identifies serious challenges in the operationalization of double materiality (Macuda & Kobiela-Pionnier, 2025), especially in the financial sector (Menicucci, 2025), where the indirect impacts of investment decisions are complex, diffuse, and difficult to quantify (Heeb et al., 2022). These difficulties thus contribute to asymmetric reporting practices (Agapova et al., 2025), which

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limit and reduce the comparability of information disclosed between funds and management companies (Weichao et al., 2019). The difficulty of obtaining consistent and decision-useful ESG information has also been identified as a significant barrier to the effective incorporation of sustainability considerations into investment decisions (Jonsdottir et al., 2022).

The measurement of ESG metrics adoption has often been carried out through ESG ratings designed by international institutions (Louche et al., 2022). However, the most recent studies show that there are methodological differences between ratings (Chen et al., 2025), resulting from methodological differences (Lukács & Molnár, 2025), divergent indicator choices and weighting systems (Shi & Yao, 2025), which compromise the reliability and comparability of the results (Billio et al., 2020).

The excessive reliance on external metrics and the prevalence of declarative disclosures reinforces the risk of greenwashing practices (Janik & Ryszko, 2025) and hinder empirical analysis of ESG metric adoption (Michelon et al., 2015). In this context, the literature highlights the need to develop alternative indicators (Gibson et al., 2021), based on verifiable information (Simnett et al., 2009) and aligned with the new regulatory framework (Cochran et al., 2025), which allows for the measurement and observation, in a structured and replicable manner, of the degree of adoption of the ESG methodology (Cunha et al., 2025).

The growing relevance of ESG metrics is also associated with the increasing role of institutional investors in promoting corporate sustainability and green innovation through capital allocation and engagement mechanisms (Wang, 2025). Likewise, the integration of environmental, social, and governance considerations into the investment decision-making process has become increasingly associated with broader sustainable investment frameworks aimed at optimizing economic, environmental, and social outcomes (Baffo et al., 2024).

The study aims to develop an indicator that will enable a multidimensional assessment of this phenomenon and facilitate comparative and longitudinal analyses of the degree of ESG integration within the asset management sector in Portugal.

These hypotheses arise directly from the literature review, the regulatory context, and the conceptual structure of the indicator. To this end, the research hypotheses are as follows:

H1: The ESG indicator significantly discriminates between levels of adoption of ESG principles among investment fund management companies.

H2: The ESG sub-indicators show positive internal consistency and reflect a solid structure for the adoption of the ESG methodology among investment funds.

H3: Funds that, under the SFDR, report on environmental and social impacts (Article 8) or the pursuit of sustainable investment objectives (Article 9) have higher levels of ESG adoption than funds that do not integrate sustainability factors into their investment processes (Article 6).

H4: The sub-indicators related to the integration and reporting of ESG principles show higher average values than the sub-indicators associated with the quantitative measurement of impacts and double materiality.

H5: The indicator shows temporal variations consistent with the evolution of the regulatory framework and ESG reporting practices of investment funds.

The research hypotheses thus aim to demonstrate the indicator's ability to reflect, in a consistent and comparable manner, the degree of implementation of ESG metrics in Portuguese investment funds.

2. METHODS

The model adopted aims to operationalize the measurement of the extent to which ESG metrics are adopted by investment funds by defining an indicator (ESGindex). The indicator was developed to standardize the various qualitative data disclosed in the reports of management companies and funds into quantitative metrics that enable time-series and comparative analyses between market participants.

The approach is based on structured content analysis, using a discrete scoring system, in line with the current regulatory context and sustainable finance doctrine. The indicator consists of five sub-indicators that reflect the dimensions of ESG methodology adoption:

(i) ESG integration in investment policies and processes;

(ii) compliance with SFDR;

(iii) adoption of the double materiality principle;

(iv) use of ESG quantitative metrics and indicators; and

(v) governance, transparency, and quality of ESG reporting.

The methodology focused on four investment fund management entities, selected to reflect different institutional structures: one publicly owned (Entity A), two privately owned (Entities B and C), and one mutual (Entity D). This diversity enables the identification of potential structural asymmetries associated with the entities' capital origins and organizational models.

To carry out the analysis, various documentary sources were systematically collected and analyzed, including annual reports, corporate governance reports, sustainability reports, investment prospectuses, and sustainability indicators published by the entities between 2021 and 2024. The documents are available on the funds' institutional websites.

The sub-indicators were assessed on a discrete scale of 0 to 3, where higher values reflect greater maturity in the implementation of ESG principles. The indicator is defined as the simple arithmetic mean of the five sub-indicators:

$$ESGindex_{i,t} = \frac{1}{n}\sum_{j=1}^{n} SI_{i,j,t}, \quad (1)$$

to

$$SI_{i,j,t} \in \{0,1,..,n\}. \quad (2)$$

Given that each sub-indicator is limited to the range [0,3], the indicator's domain is limited to:

$$ESGindex_{i,t}\,[0,3], \quad (3)$$

where $SI_{i,j,t}$ corresponds to the value of sub-indicator j assigned to entity i, in period t; j = 1, 2, ..., n represents each of the ESG analysis dimensions; while the factor $1/n$ reflects the normalization of the indicators. That is:

$$ESGindex_{i,t} = \frac{1}{n}\begin{pmatrix} InESG_{i,t} + ReSFDR_{i,t} \\ +DM_{i,t} + MET_{i,t} \\ +GTQRnF_{i,t} \end{pmatrix}, \quad (4)$$

where $InESG_{i,t}$ corresponds to the level of inclusion of ESG criteria in investment policies and processes; $ReSFDR_{i,t}$ indicates the level of compliance with SFDR requirements; $DM_{i,t}$ indicates the degree of application of the double materiality principle; $MET_{i,t}$ represents the levels of adoption of ESG quantitative metrics and indicators; and $GTRnF_{i,t}$ accommodates the levels of governance quality, transparency, and non-financial reporting.

The adoption of equal weightings signals support for the theory of neutral weights and the methodological option aimed at achieving simplicity, transparency, and comparability (Münstermann, 2015).

The application of the indicator follows a sequential method that includes sample definition, document collection, content analysis, scoring, indicator calculation, comparative analysis, and validation testing of results.

The proposed methodology purposes to ensure levels of transparency and replication, although it is possible to identify, as a limitation, that excessive dependence on report disclosures may (or may not) fully capture the effective adoption of ESG principles.

3. RESULTS

The analysis is based on a descriptive statistical approach and covers trends, absolute and relative dispersion, asymmetries, and kurtosis, to indicate

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the temporal evolution, distributive structure, and degree of institutional heterogeneity linked to the levels of adoption of ESG principles.

The adoption of various statistical models makes it possible not only to assess the average level of inclusion of the metrics but also to understand how the level is distributed among entities, the persistence of structural asymmetries, and the degree of convergence induced by the European regulatory framework.

The results suggest the existence of a continuous and monotonic trajectory of the indicator over the periods under review, suggesting a progressive inclusion of ESG principles in companies' investment, governance, and reporting processes.

The average results suggest an increase in the adoption of principles from 0.75 (in 2021) to 1.35 (in 2022) and from 2.05 (in 2023) to 2.20 (in 2024). This situation reflects a deepening of ESG principles adoption, particularly between 2022 and 2023 (Figure 1). The pattern is solid, with the gradual consolidation of the obligations imposed by the SFDR and the anticipation of the requirements presented by the CSRD, particularly regarding transparency, classification of financial products, and disclosure of sustainability risks.

The evolution of the median follows the evolution of the average, rising from 0.80 (in 2021) to 1.60 (in 2022) and from 2.50 (in 2023) to 2.70 (in 2024). The relative proximity between the mean and the median, especially in recent years, suggests a reduction in asymmetry and greater relative uniformity in ESG adoption levels, although this does not necessarily imply full convergence between entities. In the early years (2021–2022), the median is higher than the average, indicating that the presence of lower values of the indicator has a downward drag effect on the average (Figure 1). The pattern confirms the evidence that ESG adoption does not take place uniformly, being conditioned by institutional and strategic differences between management companies.

An analysis of absolute dispersion, measured by standard deviation, reveals a progressive increase in the variability of indicator values. The standard deviation increases from 0.36 (in 2021) to 0.43 (in 2022) and from 0.84 (in 2023) to 0.93 (in 2024). The increase reflects the fact that, as the average level of ESG implementation increases, the absolute differences between entities also tend to increase, particularly when management companies tend to adopt the principles more quickly (Figure 2).

The analysis of relative dispersion, using the coefficient of variation, provided a more detailed reading of the phenomenon. The coefficient of variation decreases from 0.48 (in 2021) to 0.32 (in 2022), suggesting a period of relative convergence associated with the cross-cutting implementation of the SFDR minimum requirements. The decrease in dispersion indicates that, at first, the regulatory framework acts as a harmonization mechanism, softening the relative differences between entities (Figure 2).

In subsequent years, the coefficient of variation normalizes around 0.41 and 0.42, suggesting that, although initial convergence remains, there is persistent structural heterogeneity associated with different strategies for implementing ESG principles, levels of investment in measurement systems, and distinct organizational capacities. The results indicate that the disciplining effect of regulation is indispensable but insufficient to ensure full uniformity in ESG adoption.

The asymmetry of the indicator distributions assumes, based on the Fisher–Pearson coefficient, negative values in all periods, ranging from –0.270 (2021) to around –0.73 (from 2022 to 2024) (Figure 3). In 2021, the asymmetry is negatively moderate, suggesting an almost symmetrical distribution, albeit slightly skewed towards lower values of the indicator. This pattern is consistent with the initial stage of ESG adoption, in which entities with incipient levels of adoption coexist with others that are slightly more advanced.

From 2022 onwards, there is a noticeable intensification of the negative asymmetry, which remains stable until 2024. This behavior indicates the formation of a persistent left tail, associated with management companies that remain at relatively low levels of ESG metric adoption, despite being part of a context of generalized increase in the average indicator. The evidence suggests that the evolution of the average indicator is driven mainly

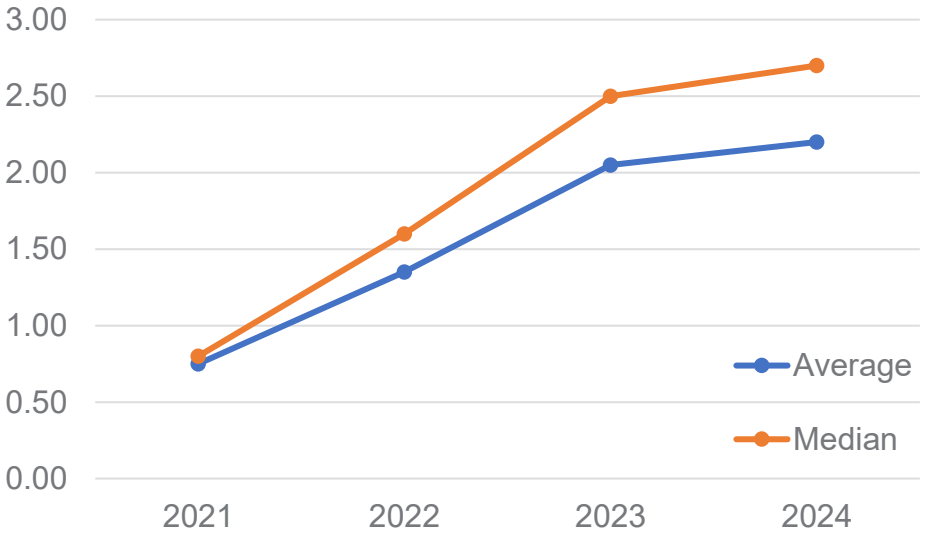

Figure 1. Temporal evolution of the Average and Median of the Indicator (2021–2024)

by the entities that are most advanced in the inclusion of ESG metrics, while a set of the sample shows slower and more limited progress. The result is, in fact, consistent, since the literature identifies an asymmetric adoption of ESG principles, especially with regard to the operationalization of double materiality and the quantification of impacts, elements that require organizational maturity and investment in information systems.

The kurtosis (excess) analysis shows negative values throughout the periods, ranging from –1.85 (in 2021) to –1.70 (in 2024) (Figure 3). The values characterize platykurtic distributions, i.e., relatively flat, with a lower concentration of observations around the mean and greater dispersion of values throughout the observation interval. Kurtosis is strongly negative in 2021, reflecting a particularly dispersed distribution, typical of a context where there is not yet a predominant pattern of ESG adoption. In subsequent periods, despite a slight approximation of the kurtosis values to zero, the distribution remains structurally flat, indicating that the average improvement in the in-

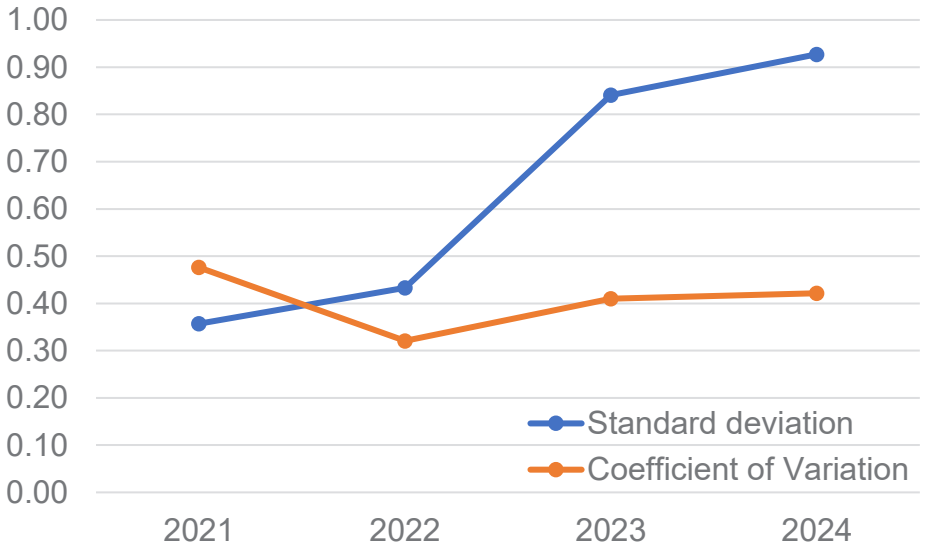

Figure 2. Temporal evolution of the Standard Deviation and Coefficient of Variation of the Indicator (2021–2024)

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dicator does not translate into a significant concentration of entities around a common level of ESG maturity.

The adoption pattern suggests that the regulatory harmonization provided for by the SFDR and, more recently, by the CSRD, has contributed to an increase in the average degree of inclusion of ESG metrics but does not eliminate disparities in the way management companies adopt, operationalize, and report on ESG principles.

The matrix of sub-indicators enabled the operationalization of the indicator through a structured assessment based solely on explicit documentary evidence contained in the official reports of asset management companies. The analysis focused on the sub-dimensions and was conducted longitudinally (2021–2024). The analysis identified possible patterns of temporal evolution, institutional asymmetries, and structural differences in the levels of adoption of ESG principles in each of the entities analyzed.

Regarding the InESG dimension, the results suggest a path of progressive deepening of the integration of ESG factors into investment decision-making processes, albeit marked by significant heterogeneity among the entities analyzed (Table A3, Appendix).

In 2021, financial funds generally display generic and declarative references to sustainability, without effectively demonstrating the operational integration of the principles into their asset analysis or selection models. Between 2022 and 2024, a progressive distinction between entities is noted.

Entities A and B show a gradual transition from a mainly declarative approach to a more explicit and operationalized incorporation of ESG factors, reflected in the adoption of sector exclusion criteria and the adoption of ESG factors in risk analysis and management processes, as well as in reference to internal control and monitoring mechanisms. Evidence also suggests that integration remains, in many cases, more normative than fully operationalized.

With regard to Entity C, it can be noted that, since the initial stages, it has demonstrated structured integration of the principles, as it benefits from the group's ESG policies in a consolidated and formalized manner, with clear coordination between strategic guidelines and local processes. The maximum scores awarded in 2023 and 2024 reflect the existence of formal and explicit mechanisms for ESG adoption throughout the investment cycle. Conversely, Entity D exhibits low levels, marked by generic references to institutional sustainability, without presenting evidence attesting to the effective adoption of ESG criteria in investment decision-making or monitoring processes. The asymmetry between funds C and D attests that the mere existence of strategic statements is not sufficient to ensure the effective integration of the principles.

With regard to the ReSFDR dimension, the results suggest a different behavior from the other dimensions, as they reflect the impact of the European regulatory framework on the reformulation of investment fund reporting and classification practices (Table A3).

In 2021, all entities are in an initial phase of adaptation, with incomplete disclosures and still incipient classifications of funds under Articles 6, 8, and 9 of the SFDR.

From 2022 onwards, a significant and relatively uniform increase in scores can be observed, particularly in entities A, B, and C. This structural leap stems from the formal inclusion of SFDR formalities, including the regulatory classification of funds, disclosure of standardized information, and alignment with applicable RTS. The reduction in relative dispersion in this dimension suggests that the SFDR acts as a mechanism for minimum harmonization of reporting practices. With regard to Entity D, although it shows some progress, it remains largely associated with minimum disclosures, concentrated on products classified under Article 6 and without the necessary substantive depth of ESG content. The results show that regulatory compliance does not necessarily imply qualitative maturity in ESG integration.

The analysis of the DM dimension is particularly illuminating and constitutes the main factor of structural differentiation between management companies (Table A3).

In 2021, there is no evidence of the express adoption of the double materiality principle in any of the entities, which is consistent with the current regulatory framework. Between 2022 and 2024, a gradual and uneven evolution can be observed.

Entities A and B adopt structured ESG risk assessments, gradually integrating the financial materiality perspective, with brief references to impact materiality. However, analysis of the reports suggests that the assessments remain primarily focused on financial risks and do not fully apply the concept of double materiality. Entity C consistently includes the principle, albeit aggregated at the group level, which limits the granularity of fund information. In contrast, Entity D shows no documentary evidence of applying the double materiality principle in any of the reporting periods.

According to the results, the principle of double materiality represents a particularly demanding dimension in methodological and analytical terms and remains the main element in the adoption of ESG principles.

With regard to the MET dimension, it is possible to observe the existence of a persistent structural asymmetry throughout the entire period analyzed (Table 3). In 2021, the absence of quantitative ESG metrics is common to most entities, with reporting being mainly limited to qualitative descriptions, without any support from measurable or systematized indicators.

In 2022, Entities A, B, and C report, in an incipient but gradually more structured manner, quantitative ESG indicators, including Key Performance Indicators (KPIs) associated with emissions, sector exposure, and application of exclusion criteria. In 2023 and 2024, some consolidation of ESG metrics can be observed, with greater detail and, in specific cases, partial integration into time series. However, even in the best-performing entities, the documentary analysis reveals significant limitations, such as the absence of explicit quantitative targets, weak temporal consistency, and an unclear link between the metrics disclosed and actual investment decisions. Entity D, in turn, does not present quantitative ESG metrics in any of the periods, which reflects a very low level of maturity in this dimension.

In relation to the GTQRnF dimension, it consistently scores higher than the others, especially from 2022 onwards (Table 3). Entities A, B, and C demonstrate formal ESG governance structures, with clear allocation of responsibilities, the existence of dedicated committees or functions, and consistency between the different institutional reports.

Entity C stands out for its high level of documentary consistency and alignment between group policies and financial reporting. Entity D, although it makes some institutional references to sustainability, does not validate the existence of formal ESG governance structures and systematic reporting processes integrated into asset management.

The results point to a gradual monotonic trajectory of the dimensions (Table A1). The situation attests to a progressive process of inclusion of the principles by fund management companies (Figure 4). Regarding the dimensions of ESG integration in investment processes (InESG), regulatory compliance with the SFDR (ReSFDR) and governance, transparency, and quality of ESG reporting (GTQRnF), higher average levels have been noted since the first period, with marked growth between 2021 and 2023 and stabilization around values close to the upper limit of the scale in 2024. The pattern points to consolidation in the inclusion of regulatory and non-financial reporting practices. In contrast, the dimensions of adoption of the double materiality principle (DM) and use of quantitative ESG metrics and indicators (MET) show significantly lower initial values and a more gradual evolution over the series. Despite the growth observed from 2022 onwards, the DM and MET dimensions will remain at lower average levels in 2024. This situation attests to the presence of constant structural asymmetries in the analytical and quantitative operationalization of the metrics. The results illustrate a phased adoption of sustainability principles, in which the dimensions of strategic integration and reporting precede the strengthening of impact measurement and assessment practices.

Regarding the average interdimensional profile of the indicator, in 2021, the graph (Figure 3) suggests asymmetric ESG adoption, with the dimensions of governance, transparency, and quality of reporting (GTQRnF) and ESG integration in

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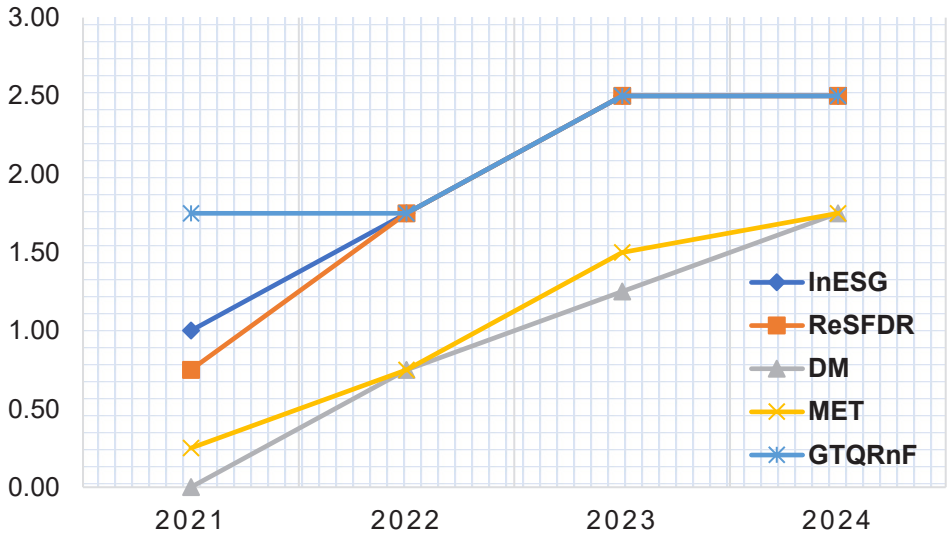

Figure 3. Temporal evolution of average ESG values (2021–2024)

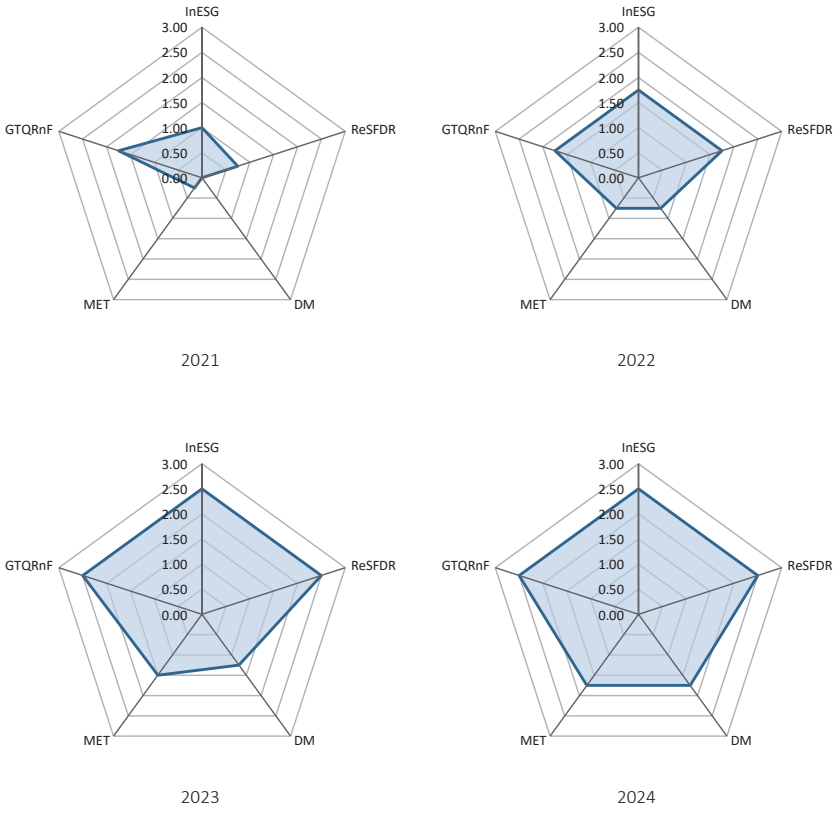

Figure 4. Average interdimensional profile of the ESG indicator (2021–2024)

investment processes (InESG) exhibiting higher average levels. This situation reflects greater institutional maturity and alignment with European regulations. Conversely, the dimensions of quantitative ESG measurement (MET) and adoption of the double materiality principle (DM) show notably lower average values.

The values point to limitations in analytical operationalization and quantification of impacts. The

ReSFDR dimension, in turn, occupies an intermediate position. That is, the values point to limitations in analytical operationalization and quantification of impacts. The values reveal limitations in analytical operationalization and impact quantification. The ReSFDR dimension, in turn, occupies an intermediate position. That is, the values point to a disciplining effect of European regulation, although it is insufficient to ensure effective ESG integration (Figure 4).

The indicator's average interdimensional profile radar for 2022 shows a significant and balanced expansion in the adoption of ESG principles. This situation reflects relatively remarkable progress compared to the 2021 period. The dimensions of ESG integration in investment processes (InESG), legal compliance with the SFDR (ReSFDR), and governance, transparency, and quality of reporting (GTQRnF) converge towards a similar average value. Non-financial reporting by funds signals a simultaneous consolidation of institutional practices, greater regulatory alignment, and improved reporting quality. At the same time, there has been material progress in adopting the double materiality (DM) principle and implementing quantitative ESG metrics and indicators (MET). Although below the other dimensions, the results attest to a transition from predominantly declarative reporting approaches to more structured analytical practices, particularly in the identification of impacts and the inclusion of measurable indicators (Figure 4).

In 2023, the average interdimensional profile of the indicator suggests an asymmetrical structure, but one that is clearly more mature than in previous years. The dimensions of ESG integration in investment processes (InESG), SFDR compliance (ReSFDR), and governance, transparency, and reporting quality (GTQRnF) show high average values, generating a balanced core on the radar. The pattern suggests an advanced degree of institutionalization of practices, strongly based on European regulatory requirements and formal governance and reporting mechanisms. In contrast, the dimension of the double materiality (DM) principle remains below the others, confirming that the analytical operationalization of the dual financial and impact perspective continues to represent the main methodological constraint. The MET dimension occupies an intermediate position, reflecting progress in the disclosure of quantitative ESG metrics, albeit with limitations in terms of temporal consistency and integration into decision-making processes (Figure 4).

The average interdimensional profile of the indicator in 2024 suggests that there is an advanced stage of adoption of the principles, but that it is structurally asymmetrical. The dimensions of ESG integration in investment processes (InESG), regulatory compliance (ReSFDR), and governance, transparency, and quality of ESG reporting (GTQRnF) show high average values close to the upper limit of the scale. This situation reflects high levels of institutional maturity, robust governance mechanisms, and alignment with the European regulatory framework, especially with regard to transparency and classification requirements for financial products. The dimensions of the principle of double materiality (DM) and inclusion of quantitative metrics and indicators (MET), despite slight advances, still show relatively low levels. This situation reflects persistent difficulties in the analytical operationalization of impacts. The result indicates that the integration of the principles remains predominantly oriented towards regulatory compliance and reporting, to the detriment of the systematic and quantitatively consistent measurement of environmental and social risks and impacts (Figure 4).

The standard attests that the dimensions associated with reporting and governance tend to show higher levels of maturity than those related to operationalization and measurement, a phenomenon widely documented in the academic literature on ESG.

The empirical evidence supports all five research hypotheses. Accordingly, H1, H2, H3, H4 and H5 are accepted, as the ESGindex reveals discriminatory capacity, internal consistency, regulatory sensitivity, interdimensional differentiation and temporal variation consistent with the evolution of ESG reporting practices.

4. DISCUSSION

The upward trajectory of the ESG indicator between 2021 and 2024 appears to corroborate the trend documented in the literature regarding the

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progressive incorporation of ESG factors into financial markets (Friede et al., 2015; Eccles et al., 2014). In fact, a more rigorous analysis of the results suggests that this evolution does not necessarily entail a structural transformation of decision-making processes, but rather a strengthening of non-financial reporting practices and legal compliance. The results thus introduce a significant degree of disagreement with the literature that directly links ESG adoption to a substantive reconfiguration of the financial model.

In line with Michelon et al. (2015) and Christensen et al. (2019), the data suggest that the observed growth may partly reflect the dynamics of institutional legitimization of European regulations, in which ESG reporting assumes a symbolic rather than an operational function.

The validation of hypothesis *H1* confirms the discriminatory power of the indicator but, more importantly, highlights the persistence of structural heterogeneity within the sector. The results are thus in line with Berg et al. (2022), who identify significant divergences in ESG adoption among financial institutions, as well as with Eccles et al. (2014) and Giese et al. (2019), who focus on the role of institutional factors in the adoption of these practices. However, unlike some of the literature suggesting a trend towards convergence driven by market forces and sector regulation, the results indicate that convergence is only partial. The existence of asymmetries suggests that the diffusion of ESG metrics follows an uneven pattern, whereby fund management companies with greater organizational capacity and integration adopt the practices more rapidly, whilst others remain in the early stages of implementation.

With regard to Hypothesis *H2*, the internal consistency of the indicator confirms its methodological robustness but at the same time reveals a structural asymmetry between dimensions. Empirical evidence shows that the components associated with governance, transparency, and reporting (GTQRnF) and formal integration (InESG) exhibit higher levels of maturity, whereas quantitative measurement (MET) and dual materiality (DM) remain clearly less developed. The pattern observed is consistent with the arguments of Gibson et al. (2021) and Michelon et al. (2015), who highlight the predominance of disclosure practices over effective integration. The results suggest that ESG adoption occurs in phases; that is, the process begins with the more normative dimensions and evolves, slowly and incompletely, towards the analytical and quantitative dimensions.

The evidence regarding Hypothesis *H3* confirms the role of the European regulatory framework, particularly the SFDR, as a catalyst for ESG adoption, in line with Hummel and Schlick (2016) and Martini (2021). Funds classified under Articles 8 and 9 exhibit higher levels of adoption, suggesting that regulation acts as an incentive and signaling mechanism. However, the results also corroborate the criticism of Christensen et al. (2021) by showing that regulatory compliance does not automatically translate into substantive integration. Regulatory classification can therefore be analyzed as an imperfect proxy for ESG maturity, reflecting the ability to adapt to the regulatory framework rather than the effective internalization of the principles.

The validation of Hypothesis *H4* constitutes one of the study's most significant contributions, as it highlights the difficulties involved in operationalizing ESG metrics. The systematic inferiority of the MET and DM dimensions confirms the limitations identified by Heeb et al. (2022) and Menicucci (2025), particularly within the financial sector, where impacts are indirect and difficult to quantify. The results reinforce the view that dual materiality, despite being widely promoted in the European context (Baumüller & Sopp, 2022), remains a concept that is difficult to apply empirically. Furthermore, the results are also in line with Jørgensen et al. (2021), in that they show that the measurement of ESG impacts remains one of the main constraints to the effective integration of these metrics into non-financial reporting.

From a strictly temporal perspective, the results of Hypothesis *H5* suggest that the tightening of regulation contributed to an initial convergence of practices but did not eliminate the structural differences between entities. The evidence is consistent with Bolton et al. (2021) and Agapova et al. (2025), who argue that regulation is a necessary but not sufficient condition for change in the financial system. The stabilization of the coefficient

of variation, following an initial period of decline, suggests that, after the implementation of minimum requirements, the trajectories of institutions diverge depending on the capabilities and strategies of each entity.

Analysis of the indicator's distributions adds an important critical dimension. The persistence of negative skewness and platykurtic distributions suggests that the sector's average performance is driven by a subset of more advanced entities, whilst others remain consistently below the average level. This pattern is consistent with the literature on greenwashing (Janik & Ryszko, 2025), which argues that ESG integration can take various forms, ranging from substantive adoption to merely declarative practices. The evidence thus supports the concerns of Billio et al. (2020) and Chen et al. (2025) regarding the comparability and reliability of ESG metrics.

From a methodological perspective, the evidence attests to the value of the indicator in relation to current ESG models by addressing criticisms regarding methodological opacity and the low agreement between assessments (Louche et al., 2022; Billio et al., 2020). However, the results also reveal a fundamental limitation: the reliance on information disclosed by the entities themselves. In line with Simnett et al. (2009), this reliance may introduce potential reporting biases and thus limit the indicator's ability to measure levels of effective adoption.

The results do not fully support the optimistic view found in the literature, which links the expansion of ESG metrics to structural transformation in the financial sector. On the contrary, they suggest a process that is incomplete, asymmetrical, and shaped by institutional and regulatory factors. The main contribution, therefore, lies in highlighting the distinction between regulatory compliance, reporting quality, and substantive integration, thereby reinforcing the need to define more robust metrics and verification mechanisms that enable the current limitations of ESG analysis to be overcome.

In terms of implications, the results suggest that deepening the European regulatory framework must be accompanied by the definition of clear methodological guidelines, particularly regarding the operationalization of double materiality and the standardization of quantitative ESG metrics. However, there remains a risk that funds will adopt a markedly formalistic approach to reporting, which limits the potential of ESG principles as a tool for risk management, long-term value creation and efficient capital allocation, as argued by Porter and Kramer (2011) and Khan et al. (2016).

Empirically, the indicator demonstrates discriminatory power and internal consistency, which supports its use in comparative analyses. The integration of the indicator into panel data models also enables the analysis of the temporal dynamics of metric adoption, as well as the investigation of potential causal relationships between the degree of ESG incorporation, financial performance, and the risk profile of investment funds, opening up avenues for further research.

Future research may thus extend the use of the indicator to other institutional contexts, explore the relationship between the adoption of ESG principles and financial performance or fund risk in greater depth, and incorporate microeconomic data and additional control variables, thereby strengthening the robustness and validity of the generalization of the results.

CONCLUSION

The study aimed to define an indicator capable of quantifying, in a comparable and longitudinal manner, the degree of adoption of ESG metrics in Portuguese investment funds. The results indicate a progressive and consistent evolution in the average level of ESG adoption between 2021 and 2024 and reflect a gradual deepening of the integration of these principles into investment processes and non-financial reporting. However, an initial reduction in relative dispersion followed by stabilization can be observed, as well as the persistence of structural asymmetries among financial institutions. At the same time, the dimensions associated with governance, transparency, and regulatory compliance show higher levels of

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implementation, compared with the quantitative measurement and operationalization of double materiality, which remain in their initial stages. Finally, it can be concluded that the adoption of ESG metrics in the asset management sector in Portugal has made significant progress but remains uneven and incomplete. The situation highlights the predominance of practices focused on regulatory compliance and reporting, to the detriment of analytical and substantive integration. The results indicate that the European regulatory framework is a key factor in the uptake of ESG, although it is insufficient to ensure full convergence and the maturity of measurement models. The effective integration of ESG practices depends on the definition of robust models, the effective adoption of the principle of double materiality, and further improvements in the quality and verifiability of non-financial information.

AUTHOR CONTRIBUTIONS

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APPENDIX A

Table A1. Scoring matrix for ESG principles adoption dimensions and ESG Index calculation by management company (2021–2024)

Reporting Period	Sub-indicators	Dimensions	Management Companies			
			Entity A	Entity B	Entity C	Entity D
2021	InESG	ESG Integration in Investment Policies and Processes	1	1	2	0
	ReSFDR	Compliance with the SFDR	1	1	1	0
	DM	Adoption of the Principle of Double Materiality	0	0	0	0
	MET	Use of ESG metrics and quantitative indicators	0	0	1	0
	GTQRnF	Governance, Transparency and Quality of ESG reporting	2	2	2	1
2022	InESG	ESG Integration in Investment Policies and Processes	2	2	2	1
	ReSFDR	Compliance with the SFDR	2	2	2	1
	DM	Adoption of the Principle of Double Materiality	1	1	1	0
	MET	Use of ESG metrics and quantitative indicators	1	1	1	0
	GTQRnF	Governance, Transparency, and Quality of ESG reporting	2	2	2	1
2023	InESG	ESG Integration in Investment Policies and Processes	3	3	3	1
	ReSFDR	Compliance with the SFDR	3	3	3	1
	DM	Adoption of the Principle of Double Materiality	2	2	1	0
	MET	Use of ESG metrics and quantitative indicators	2	2	2	0
	GTQRnF	Governance, Transparency, and Quality of ESG reporting	3	3	3	1
2024	InESG	ESG Integration in Investment Policies and Processes	3	3	3	1
	ReSFDR	Compliance with the SFDR	3	3	3	1
	DM	Adoption of the Principle of Double Materiality	3	2	2	0
	MET	Use of ESG metrics and quantitative indicators	2	3	2	0
	GTQRnF	Governance, Transparency, and Quality of ESG reporting	3	3	3	1
		ESGindex 2021	0,8	0,8	1,2	0,2
		ESGindex 2022	1,6	1,6	1,6	0,6
		ESGindex 2023	2,6	2,6	2,4	0,6
		ESGindex 2024	2,0	2,8	2,6	0,6

Table A2. Statistical characterization of the distributive properties, asymmetry, and kurtosis of the ESGindex (2021–2024)

Variable	Average	Median	Minimum	Maximum	Standard deviation	Coefficient of Variation	Fisher–Pearson asymmetry	Kurtosis (Risk)
2021	0,7500	0,8000	0,2000	1,2000	0,3571	0,4761	–0,2675	–1,8536
2022	1,3500	1,6000	0,6000	1,6000	0,4330	0,3208	–0,7500	–1,6875
2023	2,0500	2,5000	0,6000	2,6000	0,8411	0,4103	–0,7294	–1,7025
2024	2,2000	2,7000	0,6000	2,8000	0,9274	0,4215	–0,7330	–1,6998

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Table A3. ESGindex assessment matrix: objective scoring criteria, justifications, and entity-level results (2021–2024)

Dimensions		Score	Objective criteria	2021	Justification for scores	2022	Justification for scores	2023	Justification for scores	2024	Justification for scores
Entity A											
InESG	ESG Integration in Investment Policies and Processes	0	No reference to ESG in the investment policy	1	Recognizes the relevance of ESG factors. No formal mechanisms or procedures are identified to ensure the systematic integration of ESG criteria into the investment analysis, selection or monitoring processes.	2	The report recognizes the relevance of ESG factors. Integration is described at a macro level, without operational detail regarding systematic incorporation into asset analysis, selection, and monitoring processes.	3	Incorporation of ESG criteria into investment processes, with reference to exclusion mechanisms, and integration of ESG factors into financial analysis and management practices. The information goes beyond declarative statements and reveals operational integration.	3	Explicit and cross-cutting integration of ESG criteria into investment policy, including sector exclusions, incorporation of ESG factors into the asset selection process, and reference to management practices and commitment.
		1	Generic reference to ESG, with no impact on the decision-making process								
		2	Partial ESG integration (exclusions, basic screening, reference to scoring)								
		3	Systematic integration (ESG incorporated into selection, monitoring, and stewardship)								
ReSFDR	Compliance with the SFDR	0	Absence of SFDR disclosure	1	Voluntary disclosure of responsible investment principles, prior to the SFDR becoming mandatory. The information presented is essentially institutional in nature and does not yet constitute strict regulatory compliance.	2	Formal compliance with SFDR requirements is observed, with explicit classification of funds and provision of minimum regulatory information. Disclosure of the main adverse impacts is aggregated and not fully operationalized.	3	Full compliance with transparency obligations under the SFDR is verified, including the classification of funds in Articles 8 and 9 and the disclosure of PAI in accordance with the applicable RTS in 2023.	3	Formal classification of funds under Articles 8 and 9 of the SFDR, with disclosure of Principal Adverse Impacts (PAI) and alignment with Regulatory Technical Standards (RTS).
		1	Minimum disclosure (Article 6)								
		2	Classification Article 8, without detailed PAI								
		3	Articles 8/9 with Principal Adverse Impacts, Regulatory Technical Standards, and full disclosures								
DM	Adoption of the Principle of Double Materiality	0	Absence of the concept	0	No explicit reference is made to the concept of double materiality or equivalent exercises of two-dimensional assessment of ESG risks and impacts.	1	The concept of materiality is referred to in general terms in the group's sustainability report, with no evidence of a structured double materiality methodology applied to fund management activities.	2	The report identifies the financial risks associated with ESG factors in a structured manner. The assessment of environmental and social impacts is present, but not yet systematized in a fully bidirectional logic.	3	Explicit identification of financial risks related to ESG factors and assessment of the environmental and social impacts associated with investment activities, with methodological reference to the materiality process.
		1	Generic reference to materiality								
		2	ESG financial risk assessment								
		3	Two-way assessment (impacts + financial risks)								
MET	Use of ESG metrics and quantitative indicators	0	Absence of metrics	0	Absence of quantitative ESG indicators applied to investment funds or measurable impact metrics.	1	There are occasional references to ESG indicators, mostly of an external nature, without temporal consistency or direct integration into the financial report.	2	Relevant quantitative ESG indicators are disclosed; however, the absence of formalized targets and consistent time series limits the maturity of measurement.	2	Disclosure of quantitative ESG (environmental and social) indicators, even without consolidated quantitative targets or complete time series for all indicators.
		1	Qualitative or specific indicators								
		2	Quantitative ESG KPIs								
		3	KPIs + targets + time series								

Table A3 (cont.). ESGindex assessment matrix: objective scoring criteria, justifications, and entity-level results (2021–2024)

Dimensions		Score	Objective criteria	2021	Justification for scores	2022	Justification for scores	2023	Justification for scores	2024	Justification for scores
Entity A											
GTQRnF	Governance, Transparency and Quality of ESG reporting	0	Absence of ESG framework	2	There is a formal ESG governance structure, with assigned responsibilities and defined oversight mechanisms. Reporting is consistent, although not very disaggregated at the asset management activity level.	2	There is a formal ESG governance architecture in place, with defined oversight mechanisms. However, the reporting lacks granularity at the individual fund level.	3	The report highlights a formal ESG governance structure, with clearly assigned responsibilities and high internal consistency between documents.	3	Existence of a formal ESG governance structure, with clearly assigned responsibilities, defined internal policies, and structured and consistent non-financial reporting.
		1	Diffuse responsibilities								
		2	Formal ESG structure								
		3	ESG governance + structured and auditable reporting								
ESG Index				0,80		1,60		2,60		2,80	
Entity B											
InESG	ESG Integration in Investment Policies and Processes	0	No reference to ESG in the investment policy	1	The report mentions the consideration of ESG factors, but without explaining the methodology for their effective incorporation into investment decision-making processes.	2	The investment policy explicitly incorporates ESG factors. The description remains largely declarative, with no clear evidence of systematic integration into decision-making models.	3	Explicit integration of ESG criteria into investment processes, with exclusion policies and monitoring mechanisms described in a consistent manner.	3	Formal integration of ESG criteria into investment analysis, selection, and monitoring processes, with reference to exclusion policies and incorporation of ESG factors into portfolio management.
		1	Generic reference to ESG, with no impact on the decision-making process								
		2	Partial ESG integration (exclusions, basic screening, reference to scoring)								
		3	Systematic integration (ESG incorporated into selection, monitoring, and stewardship)								
ReSFDR	Compliance with the SFDR	0	Absence of SFDR disclosure	1	Voluntary disclosure of ESG commitments and adherence to international principles (e.g., PRI), without specific regulatory framework applicable to funds.	2	Consistent compliance with SFDR obligations, with clear categorization of funds, mostly under Article 8. The approach remains essentially regulatory.	3	Compliance with SFDR transparency obligations, with classification of funds under Article 8 and appropriate regulatory disclosure for the period.	3	Classification of funds under Article 8 of the SFDR, with structured disclosure of regulatory information and reference to PAI.
		1	Minimum disclosure (Article 6)								
		2	Classification Article 8, without detailed PAI								
		3	Articles 8/9 with Principal Adverse Impacts, Regulatory Technical Standards and full disclosures								
DM	Adoption of the Principle of Double Materiality	0	Absence of the concept	0	No explicit reference to the concept of materiality of impact or double materiality.	1	The report acknowledges the relevance of materiality, but does not present an explicit methodology for assessing double materiality applied to the funds.	2	Structured assessment of ESG financial risks; environmental and social impacts are still addressed in a partial and predominantly qualitative manner.	2	Explicit assessment of financial risks associated with ESG factors, without systematic evidence of measuring environmental and social impacts in a bidirectional manner.
		1	Generic reference to materiality								
		2	ESG financial risk assessment								
		3	Two-way assessment (impacts + financial risks)								
MET	Use of ESG metrics and quantitative indicators	0	Absence of metrics	0	No quantitative ESG metrics applied to fund management are reported.	1	Incipient use of quantitative ESG metrics, with dependence on external ratings and absence of own reported metrics.	2	Disclosure of quantitative ESG KPIs, with less granularity and temporal consistency when compared to subsequent financial years.	3	Consistent use of quantitative ESG KPIs, with methodological detail and integration into periodic reporting.
		1	Qualitative or specific indicators								
		2	Quantitative ESG KPIs								
		3	KPIs + targets + time series								

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Table A3 (cont.). ESGindex assessment matrix: objective scoring criteria, justifications, and entity-level results (2021–2024)

Dimensions		Score	Objective criteria	2021	Justification for scores	2022	Justification for scores	2023	Justification for scores	2024	Justification for scores
GTQRnF	Governance, Transparency, and Quality of ESG reporting	0	Absence of ESG framework	2	Structured institutional reporting, with consolidated sustainability policies at the group level, but with limited operational translation at the asset management level.	2	Institutionally consistent and transparent reporting, although little differentiation in terms of effective fund management.	3	Formalized ESG governance structure, ensuring consistency between corporate governance and sustainability.	3	Formalized ESG governance structure, with transparent reporting and clear coordination between corporate governance and sustainability.
		1	Diffuse responsibilities								
		2	Formal ESG structure								
		3	ESG governance + structured and auditable reporting								
ESG Index				0,80		1,60		2,60		2,80	
Entity C											
InESG	ESG Integration in Investment Policies and Processes	0	No reference to ESG in the investment policy	2	Formal integration of ESG principles described consistently. The report highlights the incorporation of ESG criteria into investment processes, albeit in a standardized manner that is not particularly specific to the national context.	2	Formal integration of ESG principles. Specific application to the Portuguese market takes a standardized form.	3	Cross-cutting integration of ESG criteria, reflected in investment processes.	3	Integration of ESG criteria across investment processes, aligned with group policies and responsible management practices.
		1	Generic reference to ESG, with no impact on the decision-making process								
		2	Partial ESG integration (exclusions, basic screening, reference to scoring)								
		3	Systematic integration (ESG incorporated into selection, monitoring and stewardship)								
ReSFDR	Compliance with the SFDR	0	Absence of SFDR disclosure	1	Voluntary and structured disclosure of ESG practices, prior to the mandatory application of the SFDR. The focus remains institutional.	2	High degree of formal compliance with the SFDR, with clear and complete regulatory disclosure at the level required in 2022.	3	Classification of funds under Articles 8 and 9 of the SFDR, with regulatory disclosures consistent with the then applicable RTS.	3	Clear classification of funds under Articles 8 and 9 of the SFDR, with full regulatory disclosures.
		1	Minimum disclosure (Article 6)								
		2	Classification Article 8, without detailed PAI								
		3	Articles 8/9 with Principal Adverse Impacts, Regulatory Technical Standards and full disclosures								
DM	Adoption of the Principle of Double Materiality	0	Absence of the concept	0	The approach to sustainability focuses predominantly on the financial perspective, without explicit assessment of the environmental and social impacts of investment decisions.	1	Implicit approach to materiality, predominantly from a financial perspective, without explicit operationalization of the impact dimension.	1	Generic reference to materiality and ESG risks, without an explicit methodology for bidirectional assessment of impacts and risks.	2	Identification and analysis of ESG financial risks, with limited reference to the assessment of environmental and social impacts.
		1	Generic reference to materiality								
		2	ESG financial risk assessment								
		3	Two-way assessment (impacts + financial risks)								
MET	Use of ESG metrics and quantitative indicators	0	Absence of metrics	1	Reference to the group's internal ESG ratings and metrics, still without systematic and verifiable reporting at the level of individual funds.	1	Quantitative ESG indicators used in a limited and non-systematic manner in fund reports.	2	Disclosure of quantitative ESG metrics, still without formal targets or systematic integration into time series.	2	Disclosure of quantitative ESG indicators, even without formal targets or complete time series.
		1	Qualitative or specific indicators								
		2	Quantitative ESG KPIs								
		3	KPIs + targets + time series								

Table A3 (cont.). ESGindex assessment matrix: objective scoring criteria, justifications, and entity-level results (2021–2024)

Dimensions		Score	Objective criteria	2021	Justification for scores	2022	Justification for scores	2023	Justification for scores	2024	Justification for scores
GTQRnF	Governance, Transparency and Quality of ESG reporting	0	Absence of ESG framework	2	Robust and formalized ESG governance architecture at the international group level, with consistent and structured reporting.	2	Solid ESG governance structure at the group level, with consistent but poorly disaggregated reporting.	3	Consolidated ESG governance structure, with clear reporting aligned with group practices.	3	Consolidated ESG governance structure, with formal policies, defined responsibilities and a high level of transparency in reporting.
		1	Diffuse responsibilities								
		2	Formal ESG structure								
		3	ESG governance + structured and auditable reporting								
ESG Index				1,20		1,60		2,40		2,60	
Entity D											
InESG	ESG Integration in Investment Policies and Processes	0	No reference to ESG in the investment policy	0	No explicit reference is made to the integration of ESG criteria into the funds' investment processes.	1	The report highlights an initial phase of recognition of ESG principles, without formal integration into investment processes.	1	The report contains generic references to sustainability, without evidence of effective integration of ESG criteria in investment processes.	1	Generic reference to the consideration of ESG factors, without evidence of operational integration in investment processes.
		1	Generic reference to ESG, with no impact on the decision-making process								
		2	Partial ESG integration (exclusions, basic screening, reference to scoring)								
		3	Systematic integration (ESG incorporated into selection, monitoring, and stewardship)								
ReSFDR	Compliance with the SFDR	0	Absence of SFDR disclosure	0	Absence of structured disclosures regarding sustainable investment or ESG practices in asset management.	1	Minimum compliance with SFDR, with a prevalence of funds classified under Article 6.	1	Minimum disclosure under Article 6 of the SFDR, limited to formal compliance with regulatory requirements.	1	Classification of funds under Article 6 of the SFDR, with minimum required disclosure.
		1	Minimum disclosure (Article 6)								
		2	Classification Article 8, without detailed PAI								
		3	Articles 8/9 with Principal Adverse Impacts, Regulatory Technical Standards, and full disclosures								
DM	Adoption of the Principle of Double Materiality	0	Absence of the concept	0	Not reported.	0	No explicit reference to the application of the principle of double materiality was identified.	0	No explicit reference to the concept or application of the principle of double materiality was identified.	0	Absence of explicit reference to the concept or application of the principle of double materiality.
		1	Generic reference to materiality								
		2	ESG financial risk assessment								
		3	Two-way assessment (impacts + financial risks)								
MET	Use of ESG metrics and quantitative indicators	0	Absence of metrics	0	Not reported.	0	Absence of reported quantitative ESG metrics.	0	Absence of quantitative ESG metrics in the analyzed report.	0	No quantitative ESG metrics were identified in the analyzed report.
		1	Qualitative or specific indicators								
		2	Quantitative ESG KPIs								
		3	KPIs + targets + time series								
GTQRnF	Governance, Transparency and Quality of ESG reporting	0	Absence of ESG framework	1	Generic references to corporate social responsibility, without formal framing in ESG governance applied to asset management.	1	Incipient ESG governance structure and underdeveloped reporting.	1	Existence of generic institutional references, without a formal ESG governance structure or systematic reporting.	1	Existence of institutional references to sustainability, without a formal ESG governance structure or systematic reporting.
		1	Diffuse responsibilities								
		2	Formal ESG structure								
		3	ESG governance + structured and auditable reporting								
ESG Index				0,20		0,60		0,60		0,60	

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