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Analysis of Challenges in Collecting and Harmonizing Sustainability Data Within Multinational Groups: An Accounting Perspective under the CSRD/ESRS Framework

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Abstract: This study examines the technical challenges involved in collecting and consolidating ESG data to ensure an “accurate representation.” The project is vital because harmonizing information from subsidiaries is essential to provide investors with comparable and relevant data on group risks and opportunities, in accordance with IFRS S1 and ESRS standards. The study is based on the concept of “linked information” between financial and sustainability reporting. It refers to recent studies confirming that ESG aspects can be directly tracked in financial statements as Key Audit Matters (KAMs), demonstrating the need to transform the CFO’s role into that of a guarantor of non-financial data quality. A comparative case study was conducted on the consolidated sustainability reports for the year 2024. The analysis focused on methods for estimating value chain data (Scope 3) and their integration into ERP systems to ensure verifiability. The study highlights major gaps in data quality and the complexity of reporting for counterparties outside the consolidation perimeter. The results demonstrate that the success of harmonisation depends on the standardization of calculations and the non-financial chart of accounts. Implications: The paper provides researchers with a model for analyzing financial materiality, and group administrators with a strategy for aligning internal controls with a view to certifying reporting by auditors. The originality lies in the technical-accounting approach to the harmonisation process under the OMF regime no. 85/2024, demonstrating how group structures transform heterogeneous data into audited financial information, essential for decisions on the allocation of external resources.

Keywords: ESG; financial reporting; IFRS S1; non-financial information

JEL Classification: M41, M48, Q56, G21, G32

1. Introduction

The adoption of Directive (EU) 2022/2464 (CSRD) and the publication of IFRS S1/S2 by the ISSB (International Sustainability Standards Board) (2023) have shifted ESG information from the voluntary sphere into the realm of legal obligations subject to external audit. In Romania, transposition was achieved through OMF No. 85/2024 (Official Gazette No. 75/2024), which amended both OMFP 2.844/2016 (IFRS) and OMFP 1.802/2014. The new framework introduces specific technical requirements: sustainability reporting must make explicit reference to the figures in the financial statements (the principle of linked information), the scope of ESG (Environmental, Social and

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Governance) consolidation should be linked to the financial scope, and material indicators should be verifiable by an external auditor.

This represents a technical and organisational challenge in the history of corporate reporting, unprecedented in its complexity when it comes to implementation. ESG data comes from a variety of information systems – SCADA meters, human resources systems (HRIS), supplier management systems, external ESG assessment databases – which are not, as a rule, integrated with the enterprise's financial enterprise resource planning (ERP) systems. Estimating value chain emissions (Scope 3) involves assumptions and conversion factors that are highly uncertain, and aggregating data from subsidiaries in non-EU jurisdictions presents a legal and operational challenge

The scale of these challenges has been demonstrated by a series of recent empirical studies. The CIPS Sustainable Procurement Barometer (2024) indicates that between 40% and 50% of organisations do not integrate ESG data into their processes, either manually or digitally. The Deloitte Sustainability Action Report (2024) reported that more than half (87%) of the executives interviewed consider data quality to be the main ESG challenge. Based on these sources, the current study adopts a difficulty rate of approximately 42%, which is the CIPS average, to assess the scale of the problem at sector level.

This paper analyses these challenges through a comparative case study of the consolidated sustainability reports for the 2024 and 2025 financial years of the SNTGN Transgaz SA Group, Banca Comercială Română (BCR/Erste Group) and Intesa Sanpaolo Bank Romania. The three companies have different structural profiles — a listed Romanian group with non-EU subsidiaries, an active subsidiary of an Austrian banking group and an exempt subsidiary of an Italian group — allowing for a comparative analysis of ESG harmonisation models and the technical and accounting solutions adopted.

2. Theoretical framework and specialist literature

2.1. Related information: Convergence of IFRS S1 and ESRS

IFRS S1 (para. 1) requires the disclosure of ESG risks and opportunities relevant to capital allocation decisions. ESRS 1 broadens the perspective through dual materiality: inside-out (the entity's impact on the environment/society) and outside-in (the impact of ESG factors on financial performance). Both frameworks require alignment of reporting scopes and consistency with financial statements (IFRS S1 para. 21; ESRS 1 para. 119). OMF No. 85/2024, point 492¹¹ para. (2), codifies this requirement into Romanian law.

2.2. ESG as a Key Audit Matter (KAM)

Aranda et al. (2024) demonstrate that auditors are increasingly incorporating ESG factors into Key Audit Matters (KAMs), with a focus on the governance dimension — thereby raising the standard of verifiability for non-financial data to the level of conventional financial auditing. Wolters Kluwer (2024) identifies a structural problem: ESG data collection systems are often informal (spreadsheets), lacking adequate quality controls, which makes the transition from limited assurance to reasonable assurance an architectural transformation, not merely a procedural one.

2.3. The Role of the CFO and the Non-Financial Chart of Accounts

The Thomson Reuters Institute (2025) and Verdantix (2024) identify the CFO as the central architect of ESG data quality, driven by the finance function's expertise in rigorous, auditable processes. PwC (2024) states: without a non-financial chart of accounts — a structured system for coding, collecting and tracking ESG indicators, as rigorous as the financial chart of accounts — group ESG consolidation remains heterogeneous and impossible to certify with reasonable assurance.

2.4. Scope 3 Methodology and the Limits of Estimation

ESRS E1 (Climate Change) requires the reporting of greenhouse gas emissions across three categories: Scope 1 (direct emissions from own sources), Scope 2 (indirect emissions from purchased energy) and Scope 3 (all other indirect emissions across the value chain, both upstream and downstream). Scope 3 (70–80% of the average carbon footprint) is the most difficult to quantify. The GHG Protocol Corporate Value-Chain standard sets out a data quality hierarchy: primary data (from partners) > secondary data (sectoral factors) > tertiary data (input-output models). In practice, the first CSRD cycle is dominated by secondary and tertiary data, with considerable uncertainties. Deloitte (2024) notes that only 15% of companies actually report Scope 3 emissions.

3. Methodological Framework

This study adopts a qualitative-interpretative research paradigm and employs a multiple comparative case study design, established in the literature by Yin's (2018) seminal work. The choice of this design is justified by the nature of the phenomenon under investigation: the harmonisation of ESG data in multinational groups is a complex, contextual and multidimensional organisational process that does not lend itself to systematic statistical quantification in the absence of standardised data sets.

Case selection was carried out through purposive sampling, aiming to maximise the structural diversity of the sample in relation to the ESG harmonisation model adopted:

- Transgaz (Type A — consolidated group with non-EU subsidiaries): listed on the Bucharest Stock Exchange (TGN), IFRS/OMFP 2.844/2016; scope: Transgaz SA + Eurotransgaz (100%) + Vestmoldtransgaz (75%), both in the Republic of Moldova. Sources: Report 2024 (Mar. 2025), Annual Report 2025 (Apr. 2026), H1 2025 Report (Aug. 2025);
- BCR/Erste Group (Type B — active subsidiary with dual reporting): the largest bank in Romania, a subsidiary of Erste Group AG Austria; own CSRD/ESRS report published 24 June 2025;
- Intesa Sanpaolo Bank Romania (Type C — exempt subsidiary): benefits from the CSRD exemption as a subsidiary included in the Intesa Sanpaolo Group's Consolidated Sustainability Statement (first ESRS report, replacing GRI, 2025);

The documentary analysis focused on five areas of investigation, systematically applied to each case: (i) alignment of the ESG consolidation scope with the financial scope; (ii) explicit methodology for calculating Scope 3 emissions; (iii) the degree of integration of ESG data into ERP or equivalent systems; (iv) the recognition and quantification of methodological uncertainties; (v) the concrete implementation of information connectivity with financial statements, in accordance with OMF No. 85/2024.

4. Comparative Case Study

4.1. SNTGN Transgaz SA Group

4.1.1. Scope Alignment — A Deliberate Adjustment

The 2024 financial year brought about a structural change: for the first time, the scope of sustainability coincided with that of financial consolidation, encompassing all three entities (Section 2.4, Sustainability Summary, 2024 Report). In 2023, the subsidiaries had been excluded as immaterial (H1 2024 Report, p. 12), illustrating the tension between financial significance and ESG materiality. The inclusion of Vestmoldtransgaz — a non-EU entity with no direct ESRS obligations — necessitated standardisation efforts that were not formally documented in 2024. Subsequently, in response to EY's recommendations (limited assurance), Transgaz developed an ESG Operational Procedure in H1 2025 (H1 2025 Report, p. 15).

4.1.2. Scope 3 — The Specific Nature of a Gas Transmission Operator

Scope 1: fugitive methane emissions; Scope 2: electricity for compressor stations; Scope 3: predominantly Category 11 — gas combustion at end-user premises. The calculation uses IPCC emission factors applied to SCADA volumes (high accuracy), but becomes an estimate for the user mix and the efficiency of their equipment. EY has issued limited assurance for the 2024 quantitative data, without explicitly quantifying the Scope 3 uncertainty ranges. The 2025 annual report confirms that the scopes remain aligned and comply with Chapter V of OMF 85/2024.

4.1.3. Connectivity and Non-Financial Chart of Accounts — Early Stage

The collection of ESG data in 2024 took place without a formalised non-financial chart of accounts. Connectivity with the financial statements is partially implemented (common scope, references to consolidated financial statements), but detailed reconciliations between ESG indicators and off-balance-sheet items are missing from the 2024 report. Refinement is planned for future cycles.

4.2. BCR/Erste Group

4.2.1. Dual Architecture and Balance Sheet Connectivity

BCR contributes data to Erste AG's group reporting and simultaneously publishes its own CSRD/ESRS report. The most concrete example of information connectivity among the three cases: green financing for 2024 (over 2.75 billion lei in corporate financing, of which 1.1 billion lei in renewable energy and ~790 million lei in green property) are quantified both in the sustainability statement and in the consolidated balance sheet through the classification of the loan portfolio (11.3% corporate green financing; 20.1% sustainable retail mortgage loans).

4.2.2. Financed Emissions (Scope 3, Cat. 15) — The Structural Banking Challenge

The dominant category for banks is PCAF Category 15 (financed issues). BCR/Erste uses PCAF Levels 4–5 (data from external sources: MSCI, Refinitiv, CDP) for the vast majority of exposures, introducing aggregate uncertainties potentially >50% compared to a scenario using primary data, which are not explicitly quantified in the report. By contrast, own operational emissions (Scope 1+2) fell by 71% compared to 2017 (21% electric fleet; 100% target by 2030), illustrating the difference in methodological maturity.

4.2.3. Integration of ESG into Lending — The Most Advanced Non-Financial Chart of Accounts

The ESG scoring of corporate clients — based on data from external agencies and internal questionnaires — influences the green portfolio classification, financing terms and the Green Asset Ratio (GAR), as required by the EU Green Taxonomy (Reg. 2020/852). This transforms the counterparty's ESG indicators from soft data into variables with a direct impact on financial statements (asset classification, provisions, GAR) — the scenario anticipated by IFRS S1.

4.3. Intesa Sanpaolo Bank Romania

4.3.1. CSRD Exemption and Local Connectivity Gap

ISPB Romania benefits from the CSRD exemption, covered by the Group Sustainability Report (the first under ESRS, 2025). Specific technical-accounting issue: ISPB Romania's financial statements are Romanian documents in lei (IFRS-audited, filed with the ASF/MFP), whilst the ESG statement is prepared at group level in euros, without a breakdown by subsidiary. The requirement of OMF 85/2024 to refer to the amounts in the financial statements is difficult to implement locally.

4.3.2. Scope 3 Mechanisms at Group Level

The Intesa Sanpaolo Group has implemented a Supplier Portal with 86% ESG coverage (the questionnaire is a tender requirement) and a sector-specific methodology for financed emissions (net-zero by 2050; SBTi-validated 2030 targets, Jan. 2025) across high-carbon sectors. The ESG credit framework (sectoral/counterparty/transaction) functions simultaneously as a credit risk tool and a source of Scope 3 data. Structural limitation: group-level granularity does not allow for the reconstruction of ISPB Romania's specific ESG performance.

5. Comparative Analysis

5.1. Comparative Matrix of the Three Patterns

A systematic analysis of the five dimensions of investigation applied to each case leads to the identification of three distinct structural patterns of ESG alignment, summarised in the table below:

Table 1. Comparative Analysis of ESG Harmonisation Patterns across the Three Groups Investigated

Dimension analysed	Transgaz (Pattern A) Unified group	BCR/Erste (Pattern B) Active subsidiary	Intesa SP Ro (Pattern C) Subsidiary exemption
Alignment of ESG and financial scope	Identical from 2024; change from 2023 when MD subsidiaries were excluded	Partially aligned: local report + contribution to the Erste Group	Structural gap: Italian group report, Romanian legal entity
Dominant Scope 3 methodology	GHG Protocol factors (Cat. 11 — end-user gas consumption)	PCAF Levels 4–5 for financed emissions (Cat. 15); customer ESG scoring	Sectoral PCAF validated by SBTi; Supplier Portal (86% coverage)
Non-financial chart of accounts	Under development: Formalised post-audit ESG Operational Procedure 2024	Advanced: integrated into credit scoring; green portfolio classification	Group Supplier Portal; Risk and Sustainability Committee

Dimension analysed	Transgaz (Pattern A) Unified group	BCR/Erste (Pattern B) Active subsidiary	Intesa SP Ro (Pattern C) Subsidiary exemption
Link to financial statements	Explicit: common scope; references to consolidated financial statements (OMF 85/2024)	Balance sheet: green financing 11.3% corporate; 20.1% green mortgage loans	Absent locally: reconciliation impossible at Romanian subsidiary level
Quality of external assurance	EY — limited assurance; recommendations regarding the digitisation of collection	Erste Group auditor + local auditor BCR	Intesa Sanpaolo group auditor; no specific local assurance
The CFO's role in ESG governance	Taking shape: CFO assumes ESG responsibilities through operational procedures	Integrated: ESG influences credit decisions and asset classification	Delegated to the parent group; local CFO with a limited role in sustainability reporting

Source: compiled from the 2024–2025 reports

5.2. Structural Gaps in Data Quality and the Issue of External Counterparties

The comparative analysis identifies a recurring pattern of ESG data gaps, concentrated primarily at the level of counterparties located outside the financial consolidation scope. This issue arises, in various forms, in all three patterns investigated:

- At Transgaz, the inclusion of Vestmoldtransgaz within the 2024 ESG scope — an entity based in the Republic of Moldova, with potentially less mature information systems and no direct ESRS compliance obligations — required a standardisation effort that had not been formally established in the relevant procedure. Data from this subsidiary was collected and included, but without a fully validated procedural framework.
- At BCR, the calculation of financed emissions (PCAF Category 15) requires access to ESG data from all corporate clients in the portfolio. Clients who do not provide their own data are estimated using average sectoral intensity factors (PCAF Level 5), introducing significant aggregate uncertainty that is difficult to quantify. High-carbon sectors — where data quality is most critical — are precisely those where obtaining primary data is most difficult.
- At Intesa Sanpaolo Bank Romania, even the 14% of active suppliers not covered by the group's Sustainability Portal represent an uncharted segment of the upstream value chain, with implications for the completeness of Scope 3 Category 1 and 2 emissions.

Research shows that the success of ESG harmonisation at group level does not depend primarily on the scale of the financial or technological resources deployed, but on two technical prerequisites: the standardisation of methods for calculating indicators and the existence of a formalised non-financial chart of accounts at group level. The non-financial chart of accounts — the ESG equivalent of the financial chart of accounts — specifies, for each material ESRS indicator, the precise definition, the calculation method with the relevant standard reference, the data source and the person responsible for collection, the inter-entity consolidation method and the quality control mechanism. Without this tool, any ESG consolidation remains an ad hoc exercise, unrepeatable under identical conditions and impossible to certify with reasonable assurance.

5.3. Faithful Representation vs. Methodological Constraints

ESRS 1 imposes the principle of faithful representation of sustainability information — the non-financial equivalent of the true and fair view principle within the IFRS/IASB conceptual framework. The comparative analysis highlights a structural tension between this requirement and the practical constraints of the first CSRD reporting cycle, which manifests itself in ways specific to each format:

- Transgaz acknowledges that the double materiality analysis methodology is due to be refined in 2025 and that the independent auditor has made recommendations regarding the digitisation of data collection. This acknowledgement implies that the data presented for 2024 reflects the best possible effort given a data collection system that is still maturing, not necessarily an exhaustive and complete representation.
- BCR operates with financed issues calculated at PCAF Levels 4–5, without an explicit quantification of uncertainty ranges. The classification of 11.3% of the corporate portfolio as green involves eligibility criteria and allocation methods that are well documented, but whose verification at the level of individual transactions is difficult for the external auditor.
- Intesa Sanpaolo Bank Romania presents group data without local granularity, which makes it impossible to conduct an independent assessment of the ESG performance specific to the Romanian legal entity. This is not necessarily a problem with the quality of the group data, but a consequence of the structure of the proxy reporting model.

6. Technical-Accounting Approach under OMF No. 85/2024

6.1. The Four-Stage Framework for Transforming Heterogeneous Data

From a technical-accounting perspective, the process of harmonising ESG data at the level of a multinational group is structurally analogous to the consolidation of financial statements, but presents significant particularities that make it more complex, less standardised and more exposed to methodological uncertainties. We propose a four-stage framework, derived from the analysis of the cases investigated:

- Collection of primary data — from heterogeneous source systems (SCADA, HRIS, procurement ERP modules). Main risk: variation in definitions, granularity and frequency across entities, departments and jurisdictions.
- Normalisation and unit conversions — raw data converted into ESRS units (tCO₂e, MWh/GJ, FTE, thousands of EUR). Emission factors (DEFRA, IEA, IPCC) may be revised annually, affecting the comparability of time series even without changes in practice.
- Aggregation and elimination of duplicates — similar to intra-group financial eliminations, with the difference that ESRS rules are less detailed than IFRS standards, leaving more discretion to entities.
- Reconciliation with financial data — linking ESG indicators to off-balance-sheet items (green capex, climate provisions, GAR). This step is often carried out manually, with a risk of errors, in the absence of an automated system integrated into the ERP.

6.2. Non-Financial Chart of Accounts: Design and Implementation Status

The concept of a non-financial chart of accounts is considered the central technical tool for ESG harmonisation within multinational groups. It should not be understood as a formal analogue of the accounting chart of accounts, but rather as a structured system for the governance of non-financial data, which defines any material ESRS indicator with the same conceptual and procedural rigour. The essential components of such a framework include: the precise definition of the indicator and the scope of responsibility; the calculation method with the relevant standard reference (GHG Protocol, PCAF, ESRS E1); the data source and the person responsible for collection at entity level; the inter-entity consolidation method; the validation and quality control mechanism; and the treatment of estimates and missing data.

The three cases analysed illustrate different stages of implementation of this concept: Transgaz — the first version via the ESG Operational Procedure (2025); BCR/Erste — a mature model, with ESG scoring integrated into the lending process; Intesa Sanpaolo — Supplier Portal + Risk Committee, without local granularity. The success of harmonisation is proportional to the degree of formalisation of this tool.

6.3. ERP–ESG Integration: Opportunities and Limitations

The SAP S/4HANA, Oracle ERP Cloud and Microsoft Dynamics 365 platforms offer sustainability modules integrated with financial flows (e.g. SAP Sustainability Control Tower). Structural limitations: (i) the ERPs of non-EU subsidiaries may be incompatible with the parent company's ERP (the case of Vestmoldtransgaz); (ii) Scope 3 data cannot be collected natively from the internal ERP — it requires supplier portals (the Intesa model), external databases (the BCR model) or sectoral estimates; (iii) ESG modules are recent and insufficiently calibrated for the ESRS; XBRL/ESEF tagging (required by OMF No. 85/2024 for listed issuers) will require further updates in 2025–2026.

6.4. Implications for the Allocation of External Resources

The quality of ESG data directly influences the Green Asset Ratio (GAR) — a GAR calculated using Level 4–5 PCAF will be inaccurate, affecting ESG fund decisions and financing terms. ESG risks become financially material: Transgaz — physical/transition risk on the value of infrastructure assets; BCR — credit risk on carbon-intensive exposures; Intesa Sanpaolo — a colour-coded ESG credit framework impacting risk appetite. If these risks are material within the meaning of IFRS S1/ESRS, they must be reflected as KAMs — transforming the quality of ESG data from a compliance issue into a financial audit issue.

7. Conclusions, Implications and Research Directions

7.1. Main Conclusions

This paper has investigated, through an original technical-accounting approach, the challenges of collecting and harmonising ESG data faced by multinational groups operating in Romania, in the context of the first mandatory CSRD/ESRS reporting cycle. The comparative case study applied to Transgaz, BCR/Erste and Intesa Sanpaolo Bank Romania yielded five key conclusions:

- There is a structural mismatch between the scope of financial consolidation and the maturity of ESG data collection systems. Transgaz had to make a deliberate decision to align the scopes for 2024, and the absence of an ESG operational procedure in that financial year led to audit recommendations. Intesa Sanpaolo Bank Romania illustrates the extreme case of group exemption, where the local connectivity gap remains an unresolved structural issue.
- Scope 3 methodologies produce estimates with material uncertainties, which are insufficiently quantified in the reports analysed. None of the three entities presents explicit confidence intervals for Scope 3 emissions, although the GHG Protocol and ESRS E1 recommend methodological transparency. This limits inter-company comparability and the decision-making utility of the data for investors.
- The non-financial chart of accounts is the key tool for harmonisation, currently at different stages of implementation across the three cases. Transgaz is in the drafting phase; BCR/Erste demonstrates an advanced model by integrating ESG scoring into its lending processes; Intesa Sanpaolo uses the Supplier Portal as a mechanism for standardising the upstream value chain. The success of harmonisation is directly proportional to the degree of formalisation of this tool.
- The CFO's role as guarantor of the quality of non-financial data is in the process of institutional crystallisation. The process is most advanced at BCR, where ESG directly influences the classification of the loan portfolio and financing decisions. The transformation of the CFO into the architect of the non-financial chart of accounts is the organisational prerequisite for achieving reasonable assurance in the medium term.
- The limited assurance from the first CSRD cycle reflects the nascent maturity of ESG internal controls, not necessarily an inferior quality of the reported data. EY's recommendations to Transgaz are the functional equivalent, in the ESG domain, of audit observations on internal control — a signal that data collection systems require further investment before reasonable assurance becomes feasible.

7.2. Implications for Practice and Regulation

For managers of multinational groups, the research proposes a strategy structured around three priorities: formalising the non-financial chart of accounts at group level, with clear responsibilities at the subsidiary- e level; investment in ERP–ESG integration, at least for material indicators subject to external assurance; and the proactive involvement of the CFO and the internal control function in validating ESG data, with a view to preparing for reasonable assurance.

For researchers, the paper proposes a replicable analytical framework across five dimensions (scope alignment, Scope 3 methodology, non-financial chart of accounts, financial connectivity, audit quality), applicable to other multinational group contexts or in longitudinal studies tracking the evolution of ESG data quality over multiple reporting cycles.

For the regulatory authorities — Ministry of Finance, ASF, NBR —, the analysis suggests that the transitional provisions in OMF 85/2024 regarding the value chain, whilst necessary and justified, should be accompanied by technical guidelines on the structure of the non-financial chart of accounts, analogous to the methodological guidelines issued by the MFP for the application of IFRS. The absence of such guidance leaves entities to navigate between the ESRS and the GHG Protocol without a standardised national framework, creating the conditions for methodological heterogeneity that is difficult to eliminate through audit.

7.3. Limitations of the Research and Future Directions

This study presents the limitations inherent in qualitative methodology: the deliberate selection of cases does not allow for statistical generalisations, and the analysis is based exclusively on information published in the reports analysed, without access to internal governance documents. Furthermore, the first CSRD/ESRS reports (2024) represent a starting point, not a mature picture of reporting practice.

Identified avenues for future research include: a longitudinal analysis of the evolution of ESG data quality in the 2025–2027 reports of the same entities, as data collection systems mature; assessing the impact of the European Commission's Omnibus Package (proposed in February 2025, aimed at simplifying the ESRS and reducing the number of mandatory data points) on the depth and comparability of reporting in Romania; panel studies on the relationship between the quality of consolidated ESG data and the cost of capital for groups in Central and Eastern Europe; and a comparative analysis of non-financial chart of accounts models adopted in various sectors of activity in Romania.

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