



Legal and institutional framework of ESG as a strategic and competitive conditions for the development of financial institutions

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Abstract

Motivation: According to Principles for Responsible Investment (PRI), the number of ESG regulations in the global economy amounted to 460 in 2024. Therefore, it is important to identify the main directions of the impact of these regulations on the conditions of functioning of institutions and their effects.

Aim: To present the impact of ESG regulations on changes in the conditions of operation of financial institutions in the global economy based on the analysis of disclosure results in the years 2017–2023, in terms of theme, sector, region and capitalization.

Results: ESG regulations are shaped at the global, regional and national levels. The legal and institutional dependencies in the ESG area at financial institutions result from the extent to which they are subject to specific legal regulations and oversight by supervisory authorities. According to the ESG Regulation Hub of Sustainalytics, international institutions are the leading actors in ESG regulatory activity, while at the regional level the most active regulators include those from the EU, the Americas, and Asia. Larger financial institutions are observing a strong impact of ESG regulations on operations, investments, and competitive

rivalry, while smaller institutions are also experiencing a significant impact on strategic activities. Many transnational corporations are striving not only to comply with applicable regulations but also to accelerate transformation processes. This stems from treating ESG as a new strategic element and competitive tool, with legal and institutional infrastructure playing a key role.

Based on the TCFD and IFRS Foundation, the analysis of ESG disclosures from 3,814 entities for 2017–2023 showed that the highest disclosure rates were observed for governance-related topics, the insurance and banking sectors, Europe and North America, and institutions with a market capitalization exceeding USD 3.2 billion.

Keywords: ESG, reporting; disclosures, strategies; financial institutions; TCFD, ISSB, FSB.

JEL: G15; G18; Q54; K22; K23

1. Introduction

Sustainability issues (environmental, social, corporate governance, ESG) and the related opportunities and risks are present in many aspects of financial institutions' operations today, and they are expected to intensify further in the future. The obligation to incorporate ESG factors into operations and reporting stems from legal regulations that impact the economic performance, reputation, competitiveness, and corporate social responsibility (CRS) of institutions. ESG factors reveal opportunities, challenges, and also increased risk of reputational damage, investor confidence, and losses for many financial market participants.

The importance of undertaking theoretical and empirical analyses of sustainable development is significant given the dynamic growth of regulations in this area. According to Principles for Responsible Investment (PRI), the number of regulations directly and indirectly related to ESG in the global economy increased from 133 in 2014 to 460 in 2024 (PRI, 2025). Furthermore, in line with the implementation schedules of many ESG regulations, they will cover an increasingly broader group of new institutions and economic entities (including smaller ones) in the future.

In parallel with the regulations on sustainable development, the regulations on non-financial reporting are being adapted to ensure a complementary and effective implementation process (TCFD, 2024).

ESG issues are particularly important in the context of the role of financial institutions in the financial market, including investment financing, capital accumulation and risk hedging, financial stabilization, and the implementation of micro- and macro-acute supervision. ESG regulations reveal new risks, stimulate the creation of new products and services, and drive changes in operational processes and strategies.

Institutions such as banks, insurance companies, investment funds, and pension funds (considered public trust institutions) are subject to specific sectoral regulations, and additional regulations regarding ESG, taxonomy, and reporting have been introduced, posing additional challenges for the financial sector. These issues give sustainability analyses of financial institutions and their operations significant analytical, research, and practical value.

The aim of the article is presenting the impact of ESG regulations on changes in the operating conditions of financial institutions in the global economy based on the analysis of the results of disclosures in the years 2017–2023, in terms of theme, sector, region and capitalization.

Four research questions were formulated:

- Q1. What are the legal and institutional relationships in the ESG area and what differences exist between regions in the global economy?
- Q2. Which regulators are most active in ESG legislation?
- Q3. What areas of financial institutions' strategies require the greatest adaptations to ESG regulations?
- Q4. What is the competition like in the ESG area and which regulatory authorities and financial institutions are leaders in it?

The article examined changes in ESG and climate-related disclosures on the basis of findings reported by the FSB (2023), IFRS Foundation (2024), TCFD (2020–2024), Sustainalytics (2024), and EBA (2025).

The presented analytical results cover the global, regional, and national dimensions. The main research period covers primarily the years 2017–2023, supplemented with additional data from 2024.

The article is structured in seven parts. The introduction presents key premises for the importance of ESG risk analysis in financial institutions. The second chapter provides a literature review. The third chapter presents an overview of the legal infrastructure at the global, regional, and national levels. The fourth chapter outlines the research method and results. The fifth chapter presents discussion aspects, and the sixth chapter presents key conclusions (answers to the questions posed) and considered directions for future research. The last chapter presents the limitations of research and future directions of analysis.

2. Literature review

The concept of sustainable development dates back to the 1970s. One of the first documents referring to the concept of sustainable development was the Report “The Limits to Growth”, published in 1972 by the Club of Rome (Meadows et.al., 1972). In 1987, the World Commission on Environment and Development (the so-called Gro Harlem Brundtland Commission) introduced the concept of sustainable development into the mainstream of inter-

national debate. The Brundtland Commission Report, titled “Our Common Future” (Our Common Future), defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Davidson, Dence, 1988).

In 1992, at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, 179 countries adopted the Rio Declaration and the global agenda for sustainable development (Agenda 21), which aimed to promote sustainable development worldwide.

Other documents that form the basis of this concept at the international level include the UN 2030 Agenda for Sustainable Development and the European Green Deal, adopted by the European Commission in 2019, whose overarching goal is to achieve climate neutrality in Europe by 2050 (Kørnøv, Lyhne and Davila, 2020).

Sustainable development is a concept present in the literature of both the social sciences (economics and finance, management and quality, and law) and the natural sciences (earth and environmental sciences). The contemporary concept of sustainable development focuses on three pillars: environmental, social, and governance (ESG).

In the last decade, many financial markets around the world have been taking into account ESG factors when making investment decisions (Almeyda, Darmansya, 2019; González-Bueno, Riaño, Moreno, 2025). ESG issues have become key factors for both institutional and retail investors, allowing them to assess the sustainability of companies and their risk exposure. This attitude has led companies to fundamentally restructure their ESG profiles in order to meet the needs of stakeholders and acquire long-term capital (Jafar, Basuki, Windijarto, 2024; Kosztowniak, 2023a).

The importance of board structure and institutional ownership in driving ESG transformation across the corporate sector and developing strategies they emphasize, among others: Kozhuharov, Mitrofanova, Zlateva, (2024), Ould Daoud Ellili (2020); Rath, Kurniasari, Deo (2020); Velte, 2020 and Juhmani (2013). The impact of companies’ ESG situation on motivations to undertake mergers and acquisitions is emphasized by, e.g., Tampakoudis, Noulas, Kiosses, Drogalas (2021).

The role of ESG reporting in achieving transparency of companies’ operations is also emphasized by Qayoom, Chisti, 2025. Furthermore, Charai and Zuraida (2021), Lagasio, Cucari (2019) point out that ESG disclosures in non-financial reporting determine investor perception and the creation of the company’s image.

The importance of the impact of ESG practices on the financial standing of enterprises is also highlighted by Kim and Li (2021).

ESG disclosures are particularly important in dirty industries such as mining, fuel, steel, transportation, and other sectors, as assessed by investors and the banks that finance these companies (da Cunha, Policarpo, de

Oliveira, 2025; Kosztowniak, 2023b). Banks, insurance companies, and investment institutions now routinely consider companies' ESG scores when making investment decisions (Kosztowniak, 2025; Lunawat, Lunawat, 2022) to potentially reduce exposure to financial risk. However, empirical research has not yet provided a definitive answer to the direct impact of ESG disclosures on changes in ROA, ROE, or increased financial risk.

However, the increase in traditional banking risks (credit, counterparty, liquidity, solvency) in the conditions of exposure to ESG risks, including climate risk, is pointed out by, for example: Tian, Zhao, (2025), Survilaitė-Venskienė, Stankevičienė (2024), Kosztowniak, Kozak (2023) .

It is worth noting that ESG risk, unlike traditional financial risk, is not neutral in nature, but focuses on the negative, indicating the risk of negative effects resulting from the impact of ESG factors on the financial results or solvency of an entity or a state EBA/GL/2025/01).

A literature review shows that ESG risk in financial institutions is commonly understood as the risk of negative financial consequences resulting from the impact of ESG factors on customers, counterparties, or balance sheet items. The goal of ESG risk management is to support sustainable development and build long-term value in financial institutions through integrated management of the impact of ESG factors.

The above-mentioned reasons for financial institutions to undertake ESG transformation confirm their importance both currently and in the long term. The course of this ESG transformation process depends primarily on the scope of legal regulations and various guidelines, the implementation schedule, and monitoring and enforcement by supervisory institutions.

3. Legal and institutional infrastructure

Among the main disclosure regulations according to the ESG Regulation Hub of Sustainalytics (2024) classification, they have:

1. Global regulations:
 - ISSB standards (ESG and climate disclosures).
 - TCFD disclosures (climate).
 - Taskforce on Nature-related Financial Disclosures (TNFD) Recommendations (climate).
2. Regional regulations, e.g. EU area:
 - Corporate Sustainability Reporting Directive (CSRD) (ESG disclosures).
 - CRR and CRD (EBA Pillar III disclosure and CRD6) (ESG and climate).
 - ESMA guidelines for funds names (Min. Portfolio ESG standards).
 - EU Benchmark Regulation (ESG).
 - EU Taxonomy (ESG and climate).

- MiFID II/IDD/European ESG Template. Sustainability Preferences (ESG).
- The Corporate Sustainability Due Diligence Directive (CSDDD)
- 3. National regulations (implementations):
 - EU countries, e.g. Poland: CSRD, CSDDD, EBA/GL/2025/01 (ESG and climate).
 - Canada – (Guidance B-15) (climate).
 - US (California) – The Climate Corporate Data Accountability Act “SB 253” and Greenhouse Gases: Climate-Related Financial Risk “SB 261” (California SB 253 and 261) (climate).
 - US – Sec Climate Risk Disclosures (climate).
- 4. Other: in some regions/countries ESG disclosures are treated broadly, as combined **ESG and climate disclosures** apply, e.g. in:
 - Canada (Canadian Sustainability Disclosure Standards, CSDS).
 - Japan (TCFD, ISSB, Amended Supervisory Guidelines for ESG Investment Trusts).
 - EU countries (CRR and CRD (EBA Pillar III disclosure) and CRD6; EU Taxonomy).

EU ESG regulations, in the form of directives, regulations, and implementing acts, are characterized by a broad scope of entities and subject matters, as well as numerous references to other sectoral regulations. The most important regulations include:

- Non-Financial Information Disclosure Directive (NFRD) (Directive 2014/95/EU).
- Regulation on the Disclosure of Information on Sustainable Finance (SFDR) (Regulation (EU) 2019/2088).
- Regulation (EU) 2020/852 of the European Parliament and of the Council, the so-called Taxonomy on the establishment of a framework to facilitate sustainable investment, and Regulation 2021/2178.
- CSRD (Directive (EU) 2022/2464).
- European Sustainability Reporting Standard (ESRS, Commission Delegated Regulation (EU) 2023/2772).
- CSDDD (Directive (EU), 2024/1760).
- EBA Guidelines on the management of environmental, social and governance risks (EBA/GL/2025/01).

Moreover, ESG objectives in the strategies of financial institutions focus on:

- environmental target – including green asset indicators (*Green Asset Ratio, GAR*), the indicator of compliance of the banking portfolio with the EU Taxonomy (*Banking Book Taxonomy Alignment Ratio, BTAR*) and the number and volume of financing that meets the environmental objectives set out in Article 9 of the Taxonomy Regulation (2020/852) and the calculation of the bank’s carbon footprint (at levels 1, 2, 3);

- social purpose – e.g. activities for the benefit of the community and society, employee relations and improvement of working conditions, customer protection and product liability, human rights;
- corporate governance objectives – including ethical considerations, risk strategies and management, inclusiveness and transparency (Kosztowniak, 2025).

Regulations regarding reporting by financial institutions in the area of sustainable development are supplemented by, among others:

- *Global Reporting Initiative (GRI Standards) reporting standard* (GRI Sustainability Taxonomy, 2025).
- *Integrated Reporting Guidelines (International Integrated Reporting Council, IIRC) (2025)*.
- recommendations of the Working Group on Climate-related Financial Disclosures (TCFD) (2017).

The above-mentioned regulations and numerous recommendations regarding ESG reporting confirm the need for financial institutions to carry out a wide range of activities.

ESG issues in the global economy are determined at the global and regional levels (e.g. in the Americas, Asia or European Union countries) and implemented at the national level, taking into account the specificities of individual countries.

Taking into account the levels of functioning of key institutions, it is necessary to:

1. Global institutions (worldwide):
 - Financial Stability Board (FSB) (publishes reports to monitor disclosures, FSB, 2023).
 - International Financial Reporting Standards (IFRS) Foundation (from 2024 onwards, it took over the monitoring of progress in climate disclosure, at the request of the FSB, after the TCFD was completed).
 - Taskforce on Climate-related Financial Disclosures (TCFD) (publishes status reports on the progress of companies in disclosures)(TCFD Status Report 2023).
 - Sustainability Accounting Standards Board (SASB).
 - International Sustainability Standard Board (ISSB).
 - International Organization of Securities Commissions (IOSCO).
 - International Auditing and Assurance Standards Board (IAASB).
 - International Ethics Standards Board for Accounts (IESBA).
2. Regional institutions (blocks/groups of states) e.g.:
 - The European Union (EU) – European Commission (EC), European Banking Authority (EBA), European Securities and Markets Authority (ESMA).
3. National institutions (individual countries), e.g.:
 - Japan – The Japan Financial Services Agency (FSA).

- The United States – US Securities and Exchange Commission's (SEC)
- United Kingdom – Financial Conduct Authority (FCA), Financial Reporting Council (FRC).
- Poland – Ministry of Finance, The Polish Financial Supervision Authority.

4. Research methodology and results

The analysis of the impact of ESG regulations on changes in the operating conditions of financial institutions focused on the assessment of disclosures published by and TCFD (2017; 2020–2024), IFRS Foundation (2024).

According to the TCFD (2017) recommendations and guidelines entities should disclose data in **11 areas** in total, divided into the **four categories** mentioned:

- 1. Governance** – disclosed the organization's governance around climate-related risks and opportunities, refer to:
 - a) the board's oversight of climate-related risks and opportunities;
 - b) management's role in assessing and managing climate-related risks and opportunities.
- 2. Strategy** – disclosed the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material:
 - a) the climate-related risks and opportunities the organization has identified over the short, medium, and long term;
 - b) the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning;
 - c) the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.
- 3. Risk Management** – disclosed how the organization identifies, assesses, and manages climate-related risks):
 - a) the organization's processes for identifying and assessing climate-related risks;
 - b) the organization's processes for managing climate-related risks;
 - c) how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.
- 4. Metrics and Targets** – disclosed the metrics and targets used to assess and manage relevant climate-related risks and opportunities where such information is material):
 - a) the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process;
 - b) e Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.

- c) the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

According to the IFRS Foundation (2024) and TCFD recommendations (2017), financial institutions (FCs) such as banks, insurance companies, assets owners and assets Managers should focus their disclosures on the following categories:

- Strategy (banks – 2a and others FCs 2b–c);
- Risk management (banks – 3a, and others FCs 3b–c);
- Metrics and targets (banks 4a; asset owners and managers 4a–b).

On the other hand non-financial institutions (NFCs) operating in the following sectors: Energy, Transportation, Materials and buildings, Agriculture, food, and forest products should concentrate myself on strategy (b, c) and metrics and targets (4a) ranges (Table 1).

In terms of **the research method**, in accordance with TCFD and IFRS Foundation date, artificial intelligence (AI) technology was used to check the quantity and accuracy of disclosures for the seven years 2017–2023, in line with the 11 recommended climate and ESG reporting guidelines, respectively for public sector:

- 1,701 companies (2017–2020),
- 1,651 companies (2021),
- 1,365 companies (2022),
- 1,365 companies and 25,127 reports (2022),
- 3,814 companies and 26,637 reports (for 2023) (Table 2).

Four scopes of presentation of research results were adopted (Table 3–6):

- *Four thematic areas of disclosure*: Governance; Strategy; Risk Management; Metrics and Targets.
- *Disclosures according to sectors*: financial institutions (FCs): Banks, Insurance companies and non-financial companies (NFCs): Energy, Transportation, Agriculture, Food and Forest, Technology and Media, Consumer goods.
- *Regional disclosures* broken down by company in five areas: Asia-Oceania, Europe, Africa, North America, Latin America and Caribbean.
- Disclosure by company size (Market Capitalization).

The results of institutions' ESG and climate disclosures across the global economy over the seven years (2017–2023) covered by the study showed that the percentage of companies disclosing TCFD recommendations increased in 2023 compared to 2017 respectively (TCFD, 2020–2024):

- 82% of companies disclosed at least one recommendation compared to 52%;
- at least five recommendations were disclosed by 44% of companies compared to 13%;
- all eleven disclosures were published by 2% of companies compared to previously below 1%.

In 2023, the most companies published TCFD disclosures in terms of metrics and targets (63% GHG emissions and 53% Climate-related targets), governance (55% Board oversight). Companies disclosed information in the field of Strategy (11% Resilience of strategy) and Risk management (18% Integration into overall risk management) the least. Upward trends in disclosures in the field of Metrics and Targets have been established since 2017 (29% for Climate-Related Metrics). Although in 2017, the most disclosures concern strategies (40% Risks and Opportunities) (Table 3).

The results of disclosures by **sector** in 2019–2023 clearly indicate that both in the financial sectors (banks, insurance) and in the non-financial sectors (energy or transport), the pillars of disclosures are governance scopes and the strongly developed range of Metrics and Targets, with its components such as: Scope 1,2,3 GHG Emissions; Climate-Related Metrics and Climate-Related Targets (Table 4).

In terms of the five analyzed **regions**, the highest percentage of companies in 2019–2023 was disclosed from Europe and North America. Although European companies are the main leader, companies from other regions have doubled their disclosure ranges. Regionally, in the scope of 11 thematic scopes, the pillars are climate disclosures (including in the range of 1–3 GHG Emissions) (Table 5).

Disclosures by company size based on **market capitalization** indicate that in 2019, most small (\$2.8B), medium <(\$2.8–10B) and large (>\$10B) companies focused mainly on governance and Metrics and Targets (albeit to a lesser extent). 2023 did not change priorities for small and medium-sized businesses, which maintained a similar distribution of disclosures, although they increased them compared to 2019. And changes have taken place among large companies.

The highest level of reporting among large companies (above US\$12.3 billion) in 2023 was for GHG emissions (70%), followed by climate-related metrics and targets at approximately 60%. Average companies (US\$3.2–12.3 billion) reported most frequently on GHG emissions at 65% and on climate-related metrics and targets at 56%. Reporting of GHG emissions by less companies (than US\$3.2 billion) was at 46%, whereas the rate of reporting on climate-related metrics and targets was at 40%. Moreover, companies of all sizes reported on board oversight of climate-related risks and opportunities at approximately 50% or higher (Table 6).

With regard to EU countries, important information is provided by, among others, indicators of the share of loans in green assets (Green Asset Ratio, GAR) based on EBA data (2025), which allow for the assessment of the degree of activity in the area of economy transformation financed by the financial sector. For 2024, the average share of green loans in total assets (Loan GAR, %) of financial institutions in the EU and the euro area (EU/EEA) was 6% for all countries.

The leaders in this area (GAR – stocks (loans and advances) were:

- Netherlands (14.1%),
- Norway (8.9%),
- Greece (7.4%).

The lowest share of loan GAR (%) was shown by:

- Cyprus, Iceland and Bulgaria (at 0.1%).

In other countries this share was as follows:

- France (6.5%),
- Italy (5.4%),
- Poland (1.9%).

5. Discussion – main challenges and opportunities

Due to the multidimensional nature of ESG risk factors, it is not isolated but integrated with existing risk management systems. Therefore, it requires significant and adequate support from legal regulations and supervisory institutions.

Financial institutions treat ESG with the same attention as traditional financial and non-financial risks. ESG risk management is treated as a cross-cutting risk that, to varying degrees and through different transmission channels, affects risks within institutions, such as credit, operational, and reputational risks (EBA, 2021; Battiston and Monasterolo, 2019).

The growing importance of ESG factors, especially climate factors, in the global economy determines their strong impact on current operations, as well as on business models, operational strategies and value creation (Adrian et.al., 2022; Battiston et.al., 2017; Kalkuhl, 2020; Monasterolo, 2020; Monasterolo and Battiston, 2020; Kosztowniak, 2023c). The impact of climate factors on the financial stability of institutions also remains an important issue (Giuzio et.al., 2019).

Moreover, many financial institutions point to climate change as one of the greatest challenges to sustainable development. *The Network of Central Banks and Supervisors for the Greening of the Financial System* (NGFS, 2024), which brings together central banks and supervisors, points out that climate-related threats are a source of financial risk, and central banks and supervisors are tasked with ensuring the resilience of the financial system to these threats (ECB, 2022; NGFS, 2020; ESRB, 2016).

The importance of climate risk was also confirmed by the results of *the Global Risk Report* (WEF, 2024), pointing to environmental factors as the main source of global risks. Climate change-related risks (physical and transformational) will require increasingly clear and comprehensive consideration in the management of financial and non-financial institutions, as their impact on financial performance will become increasingly significant (EBA, 2021; ESRB, 2020).

For investment funds, the challenge is the impact of asset price shocks resulting from adverse scenarios, including climate-related risks, direct declines in the value of assets managed by funds, or portfolio rebalancing by managers following the disclosure of price declines (ECB 2020; ESRB, 2020).

The analysis of the literature and empirical results of the disclosures shows that, the main challenges related to ESG include:

- a broad scope of legal regulations (global and regional), a lack of harmonized regulations that take into account the specificities of individual countries, for example, within the EU;
- other challenges include the complexity of the required adaptations in institutions' ongoing and strategic ESG activities, as well as limitations in staffing ESG experts and practitioners, and gaps in data for ESG monitoring (models, stress tests, portfolio management etc.);
- other problems include a lack of coordination between institutional disclosures and supervisory reporting, and problems with the comparability of ESG provider ratings.

Implemented ESG management strategies can be an opportunity and a tool for strengthening competitiveness in the domestic and global markets by building a brand, strengthening reputation, and differentiating in the market. The evolution of financial institutions' strategies primarily involves incorporating ESG risk into existing risk management systems, taking adaptive measures in organizational structures, using ESG strategies as a competitiveness tool (Kosztowniak, 2025; WEF, 2024).

6. Conclusions

The legal and institutional dependencies in the ESG area at financial institutions stem from the scope of their subjection to specific legal regulations and oversight by specific supervisory authorities.

The main conclusions are as follows:

1. International standards issued by institutions (ISSB, SASB, IAASB, IESBA), recommendations (TCFD) and supervisory institutions (IFRS Foundation, IOSCO) apply to transnational corporations and smaller institutions operating in multiple markets. Internationalization of operations forces companies to comply with regulations both in the country of their headquarters and in host countries. The ESG framework is structured by legal regulations, regulatory bodies, and supervisory authorities at three levels: global, regional, and national. Differences in the subject matter and scope of ESG regulation requirements occur primarily at the regional and national levels. Differences in the development of financial market segments, as well as internal priorities (regional or national), determine the intensification of ESG implementation in individual sectors. Advanced implementation procedures oc-

- cur in the banking and insurance sectors (EU, USA) and pension and investment funds, asset and fund managers (US, Asia).
2. Regulatory activity in the ESG field has intensified over the past decade. However, international institutions establishing global regulations have been particularly active and regional institutions, EU, US, and Asian regulators are implementing a wide range of adaptations.
 3. The scope of ESG regulations is multifaceted, therefore impacting the entire operations of institutions. However, the pillars of change are the areas of risk management, planning, investing, and reporting. Many adjustments have already been made to management and reporting. Strategies and risk management, on the other hand, require intensification of activities, as evidenced by lower disclosure scores (Table 3). In larger financial institutions, subject to regulatory requirements, the changes apply to both operational and strategic activities, while in smaller ones, they primarily focus on strategic planning. Financial institutions (banks, insurance companies, and investment funds) require special attention to reporting, disclosure, and due diligence in the supply chain.
 4. Competition in the ESG area concerns, on the one hand, regulatory authorities, which strive to implement regulations as broadly and often quickly as possible. Examples of leaders in this area include EU regulatory authorities (EC, EBA, ESMA). On the other hand, entities implementing ESG regulations also participate in this competition. Many transnational corporations strive not only to comply with applicable regulations but also to accelerate transformation processes within their entities. This stems from treating ESG as a new element of competitiveness. Implementing ESG processes often allows for improving reputation, strengthening the brand, and differentiating from other entities by demonstrating a positive impact on the environment and society (Table 6).

In sum, TCFD, FSB and IFRS Foundation data indicate that many banks and insurance companies in the EU and North America are ESG leaders, while banking, insurance, energy and construction show the highest reporting and competitiveness levels.

The relevance of ESG regulation in the financial sector stems from its rapid global growth, regulatory differences and the risk of disclosing financial losses that may be negatively assessed by investors.

Key implementation challenges include the multidimensional scope of ESG actions, lengthy legislative processes, uneven regulatory progress across regions, and limited financial and human resources. Enhanced cooperation among legislative and regulatory authorities is necessary to harmonise key provisions, since legal and institutional disparities may disrupt operations and adversely affect financial and socioeconomic outcomes. Appropriate

changes to legal regulations should be initiated by bodies with legislative and regulatory powers, such as the European Parliament and the Council of the EU, the EC or the European supervisory authorities (ESMA, EBA, EIOPA).

7. Limitations of research and future directions of analysis

The presented preliminary results of the disclosure assessment have several limitations. These data refer to the first results of the disclosures, covering a short period (2017–2023) of data collection resulting from reporting obligations, introduced in stages towards institutions. These data are aggregated data, not detailed data. The short implementation period may also indicate some problems with the quality of this data.

There are different problems at different levels of ESG regulation. Globally, the problem is the lack of full regulatory harmonisation, institutional fragmentation, and low comparability and quality of ESG data. Regionally, the difficulties arise from the uneven level of development of financial markets, differences in supervisory capabilities and the tension between climate and economic goals. In Europe, the main challenge is the complexity and overlap of regulations, high compliance costs and interpretation uncertainty. In Poland, the limited maturity of the ESG market, the economy's dependence on carbon-intensive sectors and the lack of established practice of applying new regulatory obligations are additionally important.

Future research should include the development of a multi-level methodology for ESG regulatory and institutional analysis, combining legal, comparative and strategic approaches. In order to identify future directions of regulatory changes and their potential impact on the business models of financial institutions, it would be important to assess trends such as the consolidation of ESG law, the development of mandatory data attestation, the linking of ESG to financial risk, the development of taxonomy, and the tightening of supervision over greenwashing.

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Appendix

Table 1. Supplemental Guidance for the Financial Sector and Non-Financial Groups

Industries and Groups		Governance		Strategy			Risk Management			Metrics and Targets		
		a	b	a	b	c	a	b	c	a	b	c
Financial	Banks			x			x			x		
	Insurance Companies				x	x	x	x		x		
	Asset Owners				x	x	x	x		x	x	
	Asset Managers				x		x	x		x	x	
Non-Financial	Energy									x		
	Transportation				x	x				x		
	Materials and Buildings				x	x				x		
	Agriculture, Food and Forest Products				x	x				x		

Source: TCFD (2017).

Table 2. Types and number of analysed companies

Sectors	2017–2020	2021	2022	2023
Banking	286	282	235	534
Insurance	138	132	117	150
Energy	274	267	205	444
Materials and buildings	414	404	345	1,398
Transportation	162	158	126	242
Agriculture, food and forest products	147	142	115	288
Technology and media	113	106	91	364
Consumer goods	167	160	131	394
Total	1,701	1,651	1,365	3,814

Source: TFCD (2020–2024), IFRS Foundation (2024).



Table 3. TCFD-Aligned Disclosures for 2017–2023 (%)

Recommendations	Recommended Disclosure	2017	2018	2019	2020	2021	2022	2023
Governance	Board Oversight	16	21	24	39,0	56,0	48,0	55,0
	Management's Role	20	24	28	23,0	37,0	31,0	34,0
Strategy	Risks and Opportunities	40	42	41	36,0	55,0	34,0	38,0
	Impact on Organization	29	32	35	26,0	37,0	33,0	37,0
	Resilience of Strategy	4	5	7	4,0	9,0	9,0	11,0
Risk Management	Risk ID and Assessment Processes	14	19	25	14,0	26,0	25,0	28,0
	Risk Management Processes	15	21	25	19,0	33,0	30,0	34,0
	Integration into Overall Risk Management	8	11	17	11,0	21,0	16,0	18,0
Metrics and Targets	Climate-Related Metrics	29	32	35	58,0	66,0	46,0	54,0
	Scope 1,2,3 GHG Emissions	22	24	26	50,0	60,0	53,0	63,0
	Climate-Related Targets	17	30	33	42,0	59,0	48,0	53,0

Source: TFCF (2020–2024), IFRS Foundation (2024).

Table 4. Disclosure by sectors in 2019Y and 2023Y (% of companies)

	Banking		Insurance		Energy		Materials and buildings		Transportation		Agriculture, food and forest products		Technology and media		Consumer goods	
Disclosure	2019Y (286)	2023Y (534)	2019Y (138)	2023Y (150)	2019Y (274)	2023Y (444)	2019Y (414)	2023Y (1,398)	2019Y (162)	2023Y (242)	2019Y (147)	2023Y (288)	2019Y (113)	2023Y (364)	2019Y (167)	2023Y (394)
Board Oversight	23	47	24	71	42	70	26	54	16	55	20	51	6	55	11	48
Management's Role	24	33	35	57	45	46	31	33	20	34	21	33	8	25	17	27
Risks and Opportunities	32	41	49	57	65	50	39	37	30	31	41	33	27	25	27	35
Impact on Organization	27	26	21	44	54	49	43	40	30	40	35	39	16	34	25	31
Resilience of Strategy	12	7	8	15	15	18	4	11	2	7	1	13	0	7	2	8
Risk ID and Assessment Processes	25	31	36	48	39	34	26	27	15	24	21	26	7	23	16	22
Risk Management Processes	23	33	28	53	38	42	26	33	18	29	26	31	11	33	14	24
Integration into overall Risk Management	19	27	26	31	30	24	14	15	10	17	14	14	4	13	7	14
Climate-Related Metrics	27	45	26	50	41	68	43	57	37	61	35	51	23	48	31	49
Scope 1,2,3 GHG Emissions	21	52	19	61	27	75	35	66	27	62	28	62	19	60	24	58
Climate-Related Targets	19	40	22	59	44	65	41	54	35	60	38	59	19	49	29	48

Note: The numbers in parentheses represent the size of the review population.

Source: TFCF (2020–2024), IFRS Foundation (2024).



Table 5. Disclosure by region in 2019Y and 2023Y (% of companies)

	Asia-Oceania		Europe		Africa		North America		Latin America and Caribbean	
Disclosure	2019Y (346)	2023Y (1,754)	2019Y (441)	2023Y (717)	2019Y (83)	2023Y (113)	2019Y (779)	2023Y (1,111)	2019Y (52)	2023Y (119)
Board Oversight	22	47	36	70	17	50	18	59	21	43
Management's Role	26	24	47	56	14	29	20	38	15	28
Risks and Opportunities	24	24	43	52	22	28	50	53	38	27
Impact on Organization	29	37	60	52	27	34	25	31	13	23
Resilience of Strategy	7	8	11	22	4	9	4	8	10	4
Risk ID and Assessment Processes	25	19	43	57	14	21	15	25	27	23
Risk Management Processes	25	30	43	50	18	30	15	29	15	29
Integration into overall Risk Management	16	13	30	29	10	17	10	20	8	20
Climate-Related Metrics	31	52	58	80	23	50	25	42	25	44
Scope 1,2,3 GHG Emissions	29	62	49	84	17	56	14	52	12	50
Climate-Related Targets	27	45	52	83	17	47	27	49	15	43

Note: The numbers in parentheses represent the size of the review population.

Source: TFCF (2020–2024), IFRS Foundation (2024).

Table 6. Disclosure by Company Size (Market Capitalization, %)

		2019Y			2023Y		
Recommendations	Disclosure	<\$2.8B (613)	\$2.8–10B (539)	>\$10B (549)	<US\$3.2B (929)	US\$ 3.2B– 12.3B (879)	>US\$12.3B (2,006)
Governance	Board Oversight	11	23	39	48	61	56
	Management's Role	15	26	43	29	36	36
Strategy	Risks and Opportunities	31	40	53	39	42	35
	Impact on Organization	20	30	55	24	38	43
	Resilience of Strategy	2	6	12	8	10	12
Risk Management	Risk ID and Assessment Processes	12	24	41	24	33	28
	Risk Management Processes	13	22	40	25	36	36
	Integration into overall Risk Management	7	16	28	15	23	17
Metrics and Targets	Climate-Related Metrics	20	30	56	40	56	60
	Scope 1,2,3 GHG Emissions	16	25	40	46	65	70
	Climate-Related Targets	19	28	52	40	56	58

Source: TFCF (2020–2024), IFRS Foundation (2024).