Climate Change Reporting and Human Information Processing – *Quo Vadis Transparency*?

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**ABSTRACT:** The Regulation (EU) 2019/2088 of 27 November 2019 on sustainability-related disclosures in the financial services sector has introduced new transparency obligations, mainly about “the policies on the integration of sustainability risks in the investment decision-making process” (Art. 3[1]). This wording is relatively vague and does not contain clear indications about the contents of the required reporting. Therefore, the transparency term needs thorough discussion.

Information should be given in a concise, evident, intelligent and easily accessible form, using precise and plain language. But too much transparency could have negative effects: The sheer volume and intensity of the information eventually leads to a confusion effect since recipients lose the overview of the data. Furthermore, overconfidence occurs tending to foster a misdirected judgment. Avoiding such situations, reporting obligations about climate change should optimize the outcome of the information process.

Particularly, increased objections have been expressed against the “mandated disclosure paradigm”; apart from the hidden costs caused by any kind of disclosure, mandated information leads to inequality, impairs individual decisions and deters lawmakers from adopting better regulations.

The contribution presents an evaluation of the enterprise-related transparency obligations expressed in reporting duties of companies about climate change in the light of a proper understanding of the transparency principle and the intrinsic horizon of the information recipients. The developed key messages can serve as guidelines for the regulatory concretization of the disclosure obligations.

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**I. Introduction**

For the last few years, climate change discussions have not only influenced the political environment but also the international and national legal frameworks. The COP26 in Glasgow (November 2021) very clearly reiterated the need to adjust and improve the regulatory settings and approved the Glasgow Climate Pact.¹ The results of the COP27 in Sharm-el-Sheikh (November 2022) did not add any new achievement in respect of the challenges of climate change; just a new fund for small island states and other vulnerable nations to financially compensate “loss and damage” caused by climate change was established.

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Strong concerns remain because the efforts to stay below 1.5 °C do not appear to be sufficient. The justified criticism, the actual results of the latest world climate conferences were still remarkable; in fact, in Glasgow new rules for the international carbon market have been established. It is the first genuinely notable achievement since the adoption of the Paris Agreement on Climate Change in 2015. A successfully functioning carbon market is the cornerstone for cost-effective emission reduction activities and ambitious climate protection targets.

The Glasgow Climate Pact addresses one of the main problems, namely the issues around double counting. All international transfers of carbon credits are now recorded based on double-entry bookkeeping to avoid double counting. In consequence, the selling country adds the sold carbon credits to the domestic carbon footprint, while the buyer country subtracts them from its carbon footprint; sold credits cannot be counted towards national emission targets. However, the continued use of “old” Clean Development Mechanism (CDM) credits and some other themes related to article 6 of the Paris Agreement are still not completely solved. Ongoing CDM projects can apply such credits during a transition period until a stricter set of rules for the new markets according to the Paris Agreement are established. Despite all the grumbling about existing gaps, things are progressing; the Glasgow results foster confidence in the long-term stability of the carbon markets and carbon market rules, thereby attracting private sector investments.

Nevertheless, an essential element also concerns transparency: more than 100 years ago, US Supreme Court Justice member Louis Brandeis stated that “sunlight is said to be the best of disinfectants.” Transparency itself does not directly influence production methods; however, the “sunlight” has the potential to change human behavior. Indeed, Brandeis saw transparency as a remedy for objectionable actions; therefore, it has long been recognized as a crucial element of governance.

This contribution attempts to shed light on transparency and information disclosure requirements; in particular on climate change reporting. Such an approach offers the possibility to analyze novel perspectives in the climate change context. On the one hand, provided information regarding sustainability compliance must be correct, comparable, and comprehensible, on the other hand, the addressee should be able and willing to make effective use of it.

The rise of sustainable and responsible investment options partially revolutionizes the financial industry; however, a growing information asymmetry between product producers and investors is prevalent. The negative results of such tendencies are beyond question. Until today, there is no consistent disclosure policy in place, which makes it mandatory for companies to disclose the kind of information the market needs to evaluate and price the climate risk correctly. The current situation allows greenwashing; distortions and manipulation in the marketplace referred to as “greenwashing” can be described as situation in which the disclosed sustainability profile is not in line with the underlying sustainability risks and impacts. Thus, capital flows are misallocated and assets

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7 This contribution is partly based on A. Hörsli and R. H. Weber, ‘Climate Change Reporting and Due Diligence: Frontiers of Corporate Climate Responsibility’, *ECFR* 2021, pp. 948–979.


12 See Armour, Enriques and Wetzer, ‘Mandatory Corporate Climate Disclosures’, passim.

are mispriced, and, in consequence, this harms investors and hampers the net-zero transition.

II. Regulatory Activities of the G20

Thus far, sustainability data are often held by private sector data providers in an uncoordinated manner; in consequence, limited accessibility and opaque transparency hinder any kind of efficient data processing. By improving sustainability reporting standards, data governance, and the architectural design of the data communication processes, any interested party is enabled to identify sustainability risks, impacts and opportunities while relying on correct and consistent data. Free and unlimited access to high-quality and timely information is crucial to improve any measures combating climate change. Especially for financial institutions, it is a fundamental prerequisite to strengthen the in-house understanding of their exposure to sustainability-related risks. Therefore, relevant tools to assess and manage emerging sustainability-related risks must be put in place. The results of the European Central Bank (ECB) stress test on climate-related risks in 2022 (2022 ECB Climate Risk Stress Test – CST), published in summer 2022, gives a comprehensive overview of the current status quo and reveals deficiencies, data gaps and inconsistencies across institutions.13

Many international organizations have developed transparency guidelines with more or less guiding effects. In October 2021, the G20 published its “Sustainable Finance Roadmap” to scale up sustainable finance, supporting the objectives of the United Nations’ 2030 Agenda14 and the goals of the Paris Agreement. The Roadmap focuses on five key areas:15

(i) Market development and approaches to align investments to sustainability goals: Undoubtedly, private capital plays a vital role in supporting sustainability goals. Consequently, many countries and regions try to scale up sustainable financial flows. Thereby, sustainability considerations are relevant at any point in the financial value chain.

(ii) Consistent, comparable, and decision-useful information on sustainability risks, opportunities and impacts: Information input is critical to provide investors with the information output they need to integrate sustainability considerations into the financial decision-making processes. The availability of high-quality information is essential to enhance the assessment of sustainability-related risks and opportunities and to allow an efficient capital allocation.

(iii) Assessment and management of climate and sustainability risks: Based on the current broad consensus that climate change is a source of significant macroeconomic risks, financial authorities around the world are working on tools and methodologies to manage climate-related risks. However, there is not only a lack of international coordination of these approaches, but also a broader adoption is fundamental to maintain the current state of welfare in view of the climate transition.

(iv) Role of International Financial Institutions, public finance and policy incentives: Multilateral Development Banks and national governments, with the participation of private capital and the use of other public policy tools like emission trading systems, oversee the national climate actions linked to the goals of the Paris Agreement and the 2030 Agenda. The implementation and monitoring of their commitments facilitate the economy-wide transition; in addition, it is essential that market externalities are not overlooked.

(v) Cross-cutting issues: Some critical issues like appropriate digital solutions and the financing burden of the climate transition process are not easily classifiable. Innovations and digital technologies have significantly increased efficiencies across the financial system and can help to bridge the gap to achieve actionable, granular, and time-sensitive sustainability-related data. Without accounting for the potentially negatively reflected effects on local communities and SMEs the transition will suffer from severe setbacks; in addition, an answer is needed to potential adverse effects such as unemployment.

The G20’s Sustainable Finance Working Group (G20 SFWG) published its first annual report which especially requests a third-party-verification of energy transition plans.16 It is worthwhile that the G20 SFWG monitors the international developments with a regard to the mentioned Roadmap.

III. Regulatory Activities of the European Union

The most advanced transparency guidelines can be found in the European Union (EU). Therefore, emphasis is directed to the recent EU initiatives hereinafter. Other relevant documents are addressed in the subsequent chapter.

Tools (toolbox for regulatees preventing greenwashing)

Disclosures (regime to provide the necessary information)

Tools

EU Taxonomy (common classification of activities)

Building blocks for a sustainable financial framework

A. Action Plans

On 8 March 2018, the European Commission published an Action Plan on the Financing of Sustainable Growth, encompassing three main objectives and ten specific measures. The three objectives cover the (i) capital flows that should be directed to a more sustainable economy, (ii) the risk management that must become a part of the sustainability considerations of all financial market intermediaries, and (iii) the transparency principle that should lead to a disclosure of sustainability information in respect of the financial market intermediaries themselves and the offered products and services. This third main objective will be discussed hereinafter.

To justify its name, the plan stipulates ten actions:

1. establishing an EU classification system for sustainable activities;
2. creating standards and labels for green financial products;
3. fostering investment in sustainable projects;
4. incorporating sustainability when providing financial advice;
5. developing sustainability benchmarks;
6. better integrating sustainability in ratings and market research;
7. clarifying institutional investors’ and asset managers’ duties;
8. incorporating sustainability in prudential requirements;
9. strengthening sustainability disclosure and accounting rule-making;
10. fostering sustainable corporate governance and attenuating short-termism in capital markets.

Based on the experiences from the last two decades, international activities, NGO initiatives, and political statements without legal substance do not change the behavior and consumption patterns of private and public actors to the necessary extent. Nevertheless, in recent years, the general awareness changed and recognized that the consequence of climate change could not only harm specific regions through extreme weather events but also will have detrimental impacts on certain economic sectors, migration movements, as well as nourishment and water supplies. The Action Plan now puts the financial sector in the driver’s seat by allocating the pivotal role in this green


transition to the intermediation between supply and demand for green capital.\(^{22}\)

In addition, the European Green Deal, as an integral part that is designed to implement the United Nations’ (UN) 2030 Agenda and the UN Sustainable Development Goals (SDGs),\(^{23}\) will transform the European Union (EU) into a resource-efficient economy. Since the beginning, the EU has strongly supported the SDGs and it was a key driver in the implementation of the Agenda 2030 process.\(^{24}\) The Green Deal now affirms the SDGs and reflects the change in the EU approach to sustainable development, which resonates the EU values and principles;\(^{25}\) the practical policy measures following the Green Deal will direct public funds to foster strategies against global warming. Since the private sector is key to financing the green transition, long-term signals are set that drive financial and capital flows to sustainable green investments, thereby avoiding stranded assets in unsustainable industries.\(^{26}\)

The European Commission strives at becoming a global sustainable finance leader by proposing major regulatory changes to accelerate the transition to a low carbon economy. However, much will depend on the acceptance of the proposals by asset managers and private investors. The ramifications for the investment chain based on equity and debt financing alone will not guarantee Environmental, Societal, Governance (ESG) criteria compatible flow of funds. New corporate governance principles and transparency with respect to business practice must reflect the sustainable investment processes. One prerequisite to effectively channel investments into sustainable activities is the establishment of a clear taxonomy for sustainable investments and a unified classification for products.\(^{27}\) Another essential requirement are disclosure obligations defining not only the reporting based on principles and policies to integrate ESG criteria in all key business processes but also credible measurement and reporting standards for the relevant data.

On 6 July 2021, the European Commission published a new “Strategy for financing the transition to a sustainable economy”.\(^{28}\) This strategy contains several means with the objective to increase the level of ambition on sustainable finance; amongst others, the existing toolbox to facilitate access to transition finance is extended.

This strategy transfers the objectives of the European Green Deal in the financial system and reflects necessary but critical changes in climate and environmental policies. The European Green Deal stipulates a number of ambitious commitments to become the first climate-neutral continent by 2050 and to reduce greenhouse gas emissions by at least 55% by 2030 compared to the levels in 1990. Additionally, the EU strengthens its resilience to climate change and aims at reversing the broader degradation of the environment, supported by the alignment of all sources of public and private finance.

### B. Disclosure Regulation

Out of the ten concrete actions in the Action Plan, the (9) strengthening sustainability-related disclosures and the (7) clarifying sustainability-related fiduciary duties are related to the modification of European disclosure obligations.\(^{29}\) The existing, already quite detailed and har-

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22 See the Green Deal presented by the European Commission on 10 December 2019 (COM (2019) 640 final) and the proposal dated 4 March 2020 for a 'European Climate Law' [COM(2020) 80 final], amended on 17 September 2020 to include a revised EU emission reduction target of at least 55% by 2030 (COM(2020) 563 final).


27 Available at: https://ec.europa.eu/info/publications/210706-sustainable-finance-strategy_en.

28 See also D. Busch, ‘Sustainability Disclosure in the EU Financial Sector,’ in D. Busch, G. Ferrarini and S. Grünewald (eds.), Sustainable Finance in Europe – Corporate Governance, Finan-
monized, regulatory disclosure rules for the EU financial services sector are now subject to sustainability-related (i) disclosure rules and (ii) fiduciary duties (Sustainable Finance Disclosure Regulation – SFDR).\textsuperscript{30} The Regulation (EU) 2019/2088 of 27 November 2019, on sustainability-related disclosures in the financial services sector\textsuperscript{31} has introduced enterprise-oriented transparency obligations (articles 3–5) and product-oriented transparency obligations (articles 6 et seq.). The reporting of companies must particularly encompass the transparency of sustainability risk policies.

The most basic enterprise-oriented provision directed at the strategic foundation of corporate governance measures concerns the “information about the policies on the integration of sustainability risks in the investment decision-making process” (SFDR article 3 para. 1). However, this wording is relatively vague and does not contain clear indications about the contents of the required reporting. Article 4, with the heading “Transparency of adverse sustainability impacts at entity level”, mentions a few specific transparency duties without going much into detail. Therefore, the clarification of transparency contents and its justification under an efficiency perspective needs a thorough analysis.

The Disclosure Regulation (SFDR) is a broad regulation, which aims to increase transparency regarding sustainability in financial markets. In consequence, since March 2021, financial market participants need to deliver product information on sustainability issues. There are now standards in place for dealing with sustainability risks and any negative sustainability impacts supported by accompanying measures regarding advertising, social and ecological aspects. Further details on the levels and characteristics of disclosure were specified within the Final Report on the draft Regulatory Technical Standards issued by the Joint Committee of the three European Supervisory Authorities (ESAs),\textsuperscript{32} substantiating methods, contents, and presentation outlines for the implementation of the transparency obligations.\textsuperscript{33}

The basic idea is to enable retail customers to make fully informed decisions based on a homo oeconomicus approach. This allows for decisions based on the knowledge about all sustainability risks and sustainability impacts. However, there are three opt-out alternatives that make a reduction of the disclosure scope possible: (i) financial market participants with less than 500 employees and financial advisors are exempted from the disclosure of negative sustainability impacts and can just give a statement on why they do not publish such information (article 4 of the Disclosure Regulation); (ii) when financial market participants and financial advisors explain why they do not consider a certain sustainability risk as relevant, they do not have to disclose more information on this issue (article 6 of the Disclosure Regulation); (iii) financial market participants can state and explain for a financial product why they do not consider negative sustainability impacts on investment decisions (article 7 of the Disclosure Regulation). Whether the buy-side pressure is sufficient to avoid a widespread use of the exemptions remains to be seen. Certain steps will ensure the compliance with the new sustainability-related disclosure regulations. The application of the classification criteria is fundamental to identify the financial products concerned and the implementation of the necessary changes in sustainability-related disclosure after a gap analysis in the form of a comparison to existing disclosure processes.

Even if practice is undoubtedly going to contribute to a concretization of the transparency obligations over the years, it appears to be imperative to develop appropriate standards in academic deliberations; based on discussions about transparency requirements in other financial segments, particularly in the finance markets, first attempts of outlining transparency standards will be undertaken hereinafter.

### C. Taxonomy Regulation

The first concrete action of the EU postulates the establishment of an EU classification system, a taxonomy for sustainable activities. Without a shared understanding
of what 'sustainable' means, no clarity is given about which activities can be considered 'sustainable'. Therefore, this issue was the starting point and an urgent action.\textsuperscript{34} However, the EU Taxonomy has been delayed for various reasons, including a debate among Member States on whether nuclear and gas will qualify as environmentally sustainable activities; finally, France pushed through nuclear power and Germany gas as "sustainable".\textsuperscript{35}

The Regulation (EU) 2020/852 of 18 June 2020, on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088\textsuperscript{36} outlines specific transparency obligations and is therefore called "Taxonomy Regulation". According to article 8, every financial market participant "shall include in its non-financial statement or consolidated non-financial statement information on how and to what extent the undertaking's activities are associated with economic activities that qualify as environmentally sustainable". Non-financial undertakings shall also disclose the proportion of their turnover derived from products or services as well as the proportion of their capital expenditure and the proportion of their operating expenditure related to assets or processes associated with economic activities that qualify as environmentally sustainable (article 8 para. 2 of the Taxation Regulation).

The environmental objectives are defined in a quite broad way (article 9), encompassing climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, as well as protection and restoration of biodiversity and ecosystems.

Based on the Taxonomy Regulation, an EU-wide classification system with a common language identifies how an economic activity can be considered environmentally sustainable. The three fundamental obligations are: (i) application of the taxonomy by Member States and at EU level when regulating the issuance of environmentally financial products or bonds; (ii) all financial market participants are obliged to make statements about the alignment of investments with the taxonomy when distributing financial products; (iii) large public-interest entities must include information about how their activities align with the taxonomy in the non-financial disclosure part of their financial statements.

In addition, in the course of 2022, large, listed companies must disclose how their business activities align with the climate objectives under the EU Taxonomy Regulation based on further specified requirements regarding the non-financial statement under the Non-Financial Reporting Directive (NFRD). In the course of 2023, all six environmental objectives are to be addressed; the classification system identifies economic activities that achieve performance levels which provide a "substantial contribution" to at least one of six environmental objectives whilst ensuring that the activity will "do no significant harm" to any of the other five objectives and also meet minimum safeguards (article 3).

The six objectives are:

1. climate change mitigation and adaptation;\textsuperscript{37}
2. sustainable use and protection of water and marine resources;
3. transition to a circular economy, including waste prevention and increasing the uptake of secondary raw materials;
4. pollution prevention and control;
5. protection and restoration of biodiversity and ecosystems, boosting green investments.

These obligations will be mirrored against the relevant milestones of an appropriate and stable transparency concept hereinafter.

D. Banking Regulation

The European Banking Authority (EBA) requires banks to disclose exposures to carbon intensive activities and assets because physical risks resulting from climate change may occur. The disclosure of climate risks like stranded carbon intensive assets should relate to mitigating actions that address risks and finally reduce carbon emissions. Therefore, banks need to provide information regarding fossil fuel companies excluded from sustainable climate benchmarks, information towards other carbon-related


\textsuperscript{35} Commission Delegated Regulation 2022/1214 of 9 March 2022 amending Delegated Regulation 2021/2139 as regards economic activities in certain energy sectors and Delegated Regulation 2021/2178 as regards specific public disclosures for those economic activities, OJ L 188/1–45, 15 July 2022.


\textsuperscript{37} The EU Taxonomy Climate Delegated Act includes a first set of technical criteria for defining activities that contributes substantially to climate change mitigation and adaptation.
sectors as identified in the sustainable climate benchmark regulation, and information on GHG emissions financed by the institution on alignment of metrics with 2050 Net Zero goals. Implementing Technical Standards (ITS) on Pillar 3 disclosures\(^{38}\) on ESG risks provide for comparable quantitative disclosures on climate-change-related transition and physical risks. In addition, they should include a Green Asset Ratio (GAR) to identify the institutions’ assets financing activities that are environmentally sustainable according to the EU taxonomy.\(^{39}\)

### E. ESAs Activities

Through the Joint Committee of the European Supervisory Authorities (JC-ESAs), the European Banking Authority (EBA), the European Insurance and Occupational Pensions Authority (EIOPA) and the European Securities and Markets Authority (ESMA) coordinate their collaboration. In connection with the “Green Deal” and the "Renewed Sustainable Finance Strategy",\(^{40}\) the JC-ESAs are still working on technical standards within the framework of the Sustainable Finance Disclosure Regulation (SFDR). Also, both individual and system-wide climate risk stress tests are pending and the implementation of the disclosure standards for non-financial information in the context of the Corporate Sustainability Reporting Directive (CSRD) must be coordinated.

In 2023, ESMA will provide several reports, technical advice and technical standards in support of the sustainable finance regulatory framework. In addition to statements on the new sustainability reporting standards (Corporate Sustainable Reporting Directive, CSRD), technical standards for the proposed regulation of European green bonds and regulatory requirements for the Sustainable Finance Disclosure Regulation (SFDR) must be developed. A central component is the analysis of the drivers of greenwashing and the implementation of appropriate instruments that enable the national supervisory authorities to counter this risk in the best possible way; this includes capacity building to train national supervisors accordingly. The steering effects for capital flows alone is not enough; the integration of the assessment of environmental risks into the stress test framework of the European Central Bank (ECB) will provide for the necessary awareness and active involvement of the financial institutions.

### IV. Transparency Concept

#### A. Objectives of Transparency

Transparent is usually defined as evident, apparent, clear.\(^{41}\) Therefore, information should be given in a concise, intelligible, and easily accessible form, using precise and plain language. In addition, regulators must strive at introducing legal obligations which promote the disclosure of relevant information on certain business activities; obviously, the determination of the relevant objectives leaves some room for discretion, but detrimental developments should be avoided.

Often, four different categories of transparency are distinguished, namely political, substantive, procedural and operational:\(^{42}\) (i) Whereas political and substantive transparency address aspects such as the access to decision-making mechanisms and the establishment of rules containing the desired substance of regulations, standards, and provisions, (ii) procedural and operational transparency encompass rules in the structure of organizations and the processes of governance. Not surprisingly, empirical evaluations and assessments of these categories lead to relatively complex and, at times, inconclusive results.\(^{43}\)

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38 Pillar 3 of the Basel framework seeks to promote market discipline through regulatory disclosure requirements. The CRR (Regulation 575/2013 of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation No 648/2012), as amended in 2019, includes Article 449a on disclosure of environmental, social and governance risks requiring large institutions which have issued securities that are admitted to trading on a regulated market to disclose information on ESG risks. These Pillar 3 disclosure requirements on ESG risks put forward tables, templates, and associated instructions to disclose prudential information on ESG risks, including transition and physical risks, addressed to large institutions with securities traded on a regulated market of any Member State.


40 The Renewed Sustainable Finance Strategy was adopted in July 2021: Communication from the Commission, Strategy for Financing the Transition to a Sustainable Economy [COM/2021/390 final]; <https://eur-lex.europa.eu/resource.html?uri=cellar:9f5e7e95-df06-11eb-895a-01aa75e d71a1.0001.02/DOC_1&format=PDF>.


The release of relevant information is partly called a "regulatory tool of minimum intrusion"; the disclosure puts the addressees, whether they are market participants or non-market constituents, into the position to reasonably take the appropriate steps.\(^4\) The informational "minimum intrusion" helps to carefully consider decisions as well as the proper behavioral conduct in the execution of activities. Thereby, quantitative, and qualitative elements of information are of importance.

For more than ten years, various countries have introduced mandatory disclosure regimes relating to specific "non-financial" issues, including multiple aspects of corporate social responsibility; the concerned "non-financial statements" that are required must include a narrative description of the policies pursued by the company in relation to the addressed matters and the implementation of due diligence processes.\(^5\) Specific regulatory provisions starting from the business-oriented governance requirements, over addressing corporate social governance reporting, and leading to corporate sustainability transparency gained importance.\(^6\)

In the meantime, it is generally acknowledged that disclosure requirements are needed to reach an adequate climate-transparent environment. Even if the concrete definition of this term "climate transparency" is often discussed in a controversial manner,\(^7\) some general guidelines have been developed. Enhanced corporate transparency on climate-related issues can particularly be found in the Final Report of the Task Force on Climate-Related Financial Disclosures (TCFD), published in June 2017;\(^8\) the TCFD Recommendations address different disclosure requirements that must be made in order to assist financial market participants in understanding their respective climate-related risks.\(^9\) The TCFD identified a need for (a) improved information to enable informed investment, lending, and insurance underwriting decisions, as well as (b) an improved understanding and analysis of climate-related risks and opportunities.\(^10\) In comparison with other initiatives,\(^11\) the TCFD Recommendations are innovative in that they encourage companies and investors to disclose the expected impact of climate change on their businesses and investment portfolios, based on scenario analyses.\(^12\)

In a nutshell, based on economic theories suggesting that the provision of adequate information to the markets influences corporate decision-making, the regulatory initiatives which improve transparency can steer businesses into a more sustainable future realizing an appropriate disclosure paradigm.\(^13\)

### B. Mandated Disclosure

Mandated disclosure has become a major topic in the discussions related to consumer protection. Supporters of this concept have expressed the opinion that an increased amount of information would enable consumers to make informed decisions. Therefore, suppliers of goods and services have been requested to disclose more and more information; typical examples in the EU are the Consumer Rights Directive 2011/83\(^14\) and specifically a remarkable number of transparency provisions related to financial markets (amongst others the Directive 2014/65 on markets in financial instruments, MiFID II).\(^15\) Companies report on the sustainability of their activities as per the Corporate Sustainability Reporting Directive (CSRD).\(^16\)

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\(^7\) Hösl and Weber, Climate Change Reporting and Due Diligence: Frontiers of Corporate Climate Responsibility, ECFR 2021, pp. 948–979, p. 963.


\(^10\) TCFD, Final Report, p. iii.

\(^11\) Principles for Responsible Investment (PRI), see <https://www.unpri.org/pri>.

\(^12\) Hösl and Weber, Climate Change Responsibility, ECFR 2021, pp. 948–979, p. 964 seq.


asset managers use this information to report on the sustainability of their products as per the Sustainable Finance Disclosures Regulation (SFDR) and financial advisers use this information for their interaction with end-investors while establishing sustainability preferences as per the MiFID suitability test.

Under the MiFID suitability concept any portfolio manager or advisor must obtain information from a client about their sustainability preferences – if there are any – so that, when providing advice or portfolio management, a reasonable basis is established for concluding that investments recommended or made comply with those preferences.57 Under the MiFID product governance concept manufacturers and product distributors must include sustainability preferences and sustainability factors into the target market analysis.58

Proponents of mandated disclosure in financial markets are of the opinion that information requirements would not interfere with the principle of individual autonomy and equally keep the (additional) costs for suppliers relatively low.59 The respective obligations are considered.

57 Art. 54 (a), paragraph 2, point (a) of the MiFID II Delegated Regulation is replaced by the following: “it meets the investment objectives of the client in question, including the client’s risk tolerance and any sustainability preferences”: MiFID II, Delegated Regulation 2021/1253 of 21 April 2021 amending Delegated Regulation 2017/565 as regards the integration of sustainability factors, risks and preferences into certain organisational requirements and operating conditions for investment firms, OJ L 277/1–5, 2 August 2021; <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R1253>.


better regulations. In practice, inadequate and overloaded disclosure obligations can impair people's decisions while inappropriately burdening the legally obligated market participants; this can lead to a situation that turns the desired results into the exact opposite. Consumers in general and also financial market participants anyhow often tend to make the "economically rational" decision to not read the information provided under mandated disclosure requirements.

In particular, it should not be overlooked that the provided information, whether individually aggregated or based on advice, "will not adequately help the naïve in their dealings with the sophisticated." It is essential to overcome procrastination and inertia by default to ensure people engage in valuable activities. Almost unsurmountable information deliveries are hardly apt to overcome the transparency problem.

Mainly in the financial markets, problems of mandated disclosure have become apparent. In addition to the prospectus obligations, a financial market intermediary must now also summarize the risks and costs of financial products or services in a so-called key investor document (KID). The framing of information within the KID attempts at considering the cognitive biases that can distort perceptions; information is provided in a simple format with ratings and illustrations.

The KID, as a typical example for mandated disclosure, can be described as a means of summary disclosure, which concentrates on the crucial elements for the evaluation of financial products: the risk and the cost. The standardized format of the KID allows investors to compare different products directly; the mandated presentation and the information content gives due consideration to consumer behaviour and capabilities, thereby maximizing the understanding and subsequent use of information in the decision-making process.

The PRIIPs Regulation, together with the relevant Regulatory Technical Standards (RTS), provide an answer on how risk and return should be presented based on the importance of "plain language, clarity, and simplicity." However, a critical assessment of this form of mandated disclosure might conclude that also this attempt of "accurate disclosure of information may be ineffective" because "the information is too abstract, vague, detailed, complex, poorly framed, or overwhelming to be useful." In the near future, it is likely that sustainability assessments will become part of the product information concept. Thus, lessons learned from the previous experiences regarding the human perception of the KID should be considered.

**C. Over-information**

It appears to be generally acknowledged that too much transparency could have negative effects because (i) the sheer volume and intensity of the information eventually leads to a confusing effect since the recipients are not (anymore) able to cope with all information details and lose the necessary overview of the data. Additionally, (ii) the risk can occur that the informational content is no longer taken as being reliable, i.e. the information is not converted into actual behavior.

The general wisdom (coming from the food perspective) that overconsumption can be negative or even risky also applies with respect to information for the following

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66 See Ben-Shahar and Schneider, More Than You Wanted To know, p. 169.
69 For further details see Weber, ‘From Disclosure to Transparency in Consumer Law’, p. 78.
71 Developing the KID provisions existing and ongoing research into consumer behaviour, including results from testing the effectiveness of different ways of presenting information to consumers, was taken into account; see London Economics, Consumer Testing Study of the Possible New Format and Content for Retail Disclosures of Packaged Retail and Insurance-based Investment Products, MARKT/2014/060/G for the Implementation of the Framework, Final Report, 2015; <https://ec.europa.eu/info/sites/info/files/consumer-testing-study-2015_en.pdf>.
75 Weber, ‘From Disclosure to Transparency in Consumer Law’, p. 79 with further references.
76 Often this situation is called “Kassandra effect” since the information is not being taken as serious and reliable, i.e. information is not “converted” into actual behaviour.
reasons: (i) attention is a scarce resource; a person cannot dispose of this resource in an unlimited way; (ii) as already stated by Niklas Luhmann, over-information consumes working and leisure time of all involved persons (and companies); (iii) over-information increases the risk that messages or data being spread out are considered to be redundant; (iv) the utilization level of the (potential) informational supply is decreasing in case of data overload.

A good solution can hardly be found since the excessive information supply causes an unsuitable attempt to communicate a message to an individual, i.e., the information dissemination vanishes without any effect. "Incomplete disclosure leaves people ignorant, but complete disclosure creates crushing overload problems. Thus, a sophisticated lawmaker could recognize that “less is more” but still fear that “less is not enough”. Furthermore, and crucially, the lawmakers’ incentives generally push it towards even more disclosure."78

Regulators need to incorporate the findings regarding the decision-making processes when designing disclosure regulations. One option would be to reduce the volume of information, and the other is to address the way information is delivered to optimize the outcome of the information process.79

D. Overconfidence

According to the 2002 Nobel Laureate Daniel Kahneman, "the illusion that we understand the past fosters overconfidence in our ability to predict the future".80 Studies have shown that people also overestimate their capabilities, i.e., people assume that they have substantial control over their lives and/or over initiated projects.81 This attitude can lead to problems since not all relevant elements are taken into consideration.82

Overconfidence also tends to foster misdirected judgment since, in such cases, recipients have the illusion that they are in control of the situation. Avoiding such situations, reporting obligations about climate change should optimize the outcome of the information process.

E. Implementation of Transparency

In all circumstances, the primary objectives of transparency require robust and general rules and not necessarily more regulation.83 The improvement of transparency does not require to have a quantitative increase of information, but “more” in terms of higher informational quality.84

As the General Data Protection Regulation 2016/679 (GDPR)85 of the European Union states, information must be given “in a concise, transparent, intelligible and easily accessible form, using clear and plain language” (article 12 para. 1 GDPR). This provision can contribute to an

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81 Kahneman, Thinking Fast and Slow, p. 255.
84 Kahneman, Thinking Fast and Slow, p. 255.
85 Kahneman, Thinking Fast and Slow, p. 85 seq.
86 "There are known knowns; there are things we know that we know. There are known unknowns; that is to say, there are things that we now know we don’t know. But there are also unknown unknowns – there are things we do not know we don’t know." Donald Rumsfeld, February 2002; <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=2636>. Additionally, there might be unknown (unconscious) knowns. See above chapter IV.C. on over-information.
88 OJ 2016 L 119/1 of 4 May 2016.
improved access to information by assuring and strengthening the individual rights of concerned stakeholders.90 Consequently, regulators should strive at introducing legal obligations which promote (or request) the disclosure of relevant information and certain business activities; obviously, the determination of relevance leaves some room for discretion, but if the regulator limits its rule-making activity to basic principles of transparency, the disadvantages of mandated disclosure can be avoided.91 Thereby, the following elements appear to be relevant:92

(i) The information recipient should be defined as the right holder in respect of both information and transparency. (ii) The provided information must be reliable, i.e., substantive informational quality standards, supported by an adequate legal framework, are needed to influence a rational person’s choice for proper conduct. (iii) Disclosure procedures must be available, i.e., transparency implies constant visibility of information.

Furthermore, transparency also relates to good governance and accountability as further pillars of the regulatory environment since it is essential for providing legal certainty and for maintaining trust.93

F. Assessment
Sustainability will stay at the top of any global agenda. The European Union is overcoming a long phase of theoretical approaches and vague pledges moving now into an area of regulatory action. The commitment to become the first climate-neutral continent proves ambitious goals that build on the Paris Agreement. In recent years, this commitment changed its appearance from pledges to real regulatory actions. Summarizing the European regulatory strategy containing interlinked regulations, the crucial pillars are the following:

- The European Green Deal Investment Plan is set up to mobilize €1 trillion of public and private funding over the next decade.94
- The EU Taxonomy Regulation as a classification tool was for a long time a work in progress.95 Now three Delegated Acts on sustainable activities reporting specify various criteria under which certain economic activities qualify as contributing substantially to climate change mitigation and climate change adaptation and for determining whether those economic activities cause significant harm to any of the other relevant environmental objectives, the economic activities in certain energy sectors and specific public disclosures for those economic activities, and the content and presentation of information need to be disclosed.96 The main purpose is to prevent “greenwashing” by introducing a clear framework and understanding of what constitutes sustainable activities.
- From 2023 on, the European Green Bond Standard97 aims to create a “gold standard” for green bonds: how
ever, it is just a voluntary standard for how companies and public authorities can use green bonds to raise funds on capital markets to finance investments.

- The Sustainable Finance Disclosure Regulation\(^\text{98}\) mandates manufacturers of investment products and financial advisors to disclose how sustainability concerns are integrated into their business models. Respective RTS\(^\text{99}\) require financial market participants to measure and report on the Principal Adverse Impact (PAI) of their investments.\(^\text{100}\)

- The Corporate Sustainability Reporting Directive,\(^\text{101}\) a replacement of the current Non-Financial Reporting Directive (NFRD), was adopted in November 2022 and will be effective for the reporting in 2025 on the financial year 2024 for companies already subject to the NFRD; the scope of companies subject to the CSRD will widen until 2029 on the financial year 2028. It will help to allocate the flow of capital towards sustainable activities by standardizing the collection and analysis of reported ESG data. Undoubtedly, an essential element is the standardization and digitization of all information to ensure that it is machine-readable.

The objective of the further measures and recommended actions consist in the attempt of evaluating the enterprise-oriented transparency obligations expressed in reporting duties of companies about climate change in the light of a proper understanding of the transparency principle and the intrinsic horizon of the information recipients.


\(^{99}\) The Joint Committee of the three European Supervisory Authorities (EBA, EIOPA and ESMA – ESAs) published a final report, including the draft Regulatory Technical Standards (RTS), on the content, methodologies and presentation of disclosures under the EU Regulation on sustainability-related disclosures in the financial services sector (SFDR); <https://www.esma.europa.eu/press-news/esma-news/three-european-supervisory-authorities-publish-final-report-and-draft-rtss>.

\(^{100}\) Relevant are the “negative, material, or likely to be material effects on sustainability factors that are caused, compounded by, or directly linked to investment decisions and advice performed by the legal entity.”


\(^{102}\) The Glasgow Financial Alliance for Net Zero, launched in 2021 by Mark Carney, UN Special Envoy for Climate Action and Finance, bringing together existing and new net-zero finance initiatives in one sector-wide coalition and including over 450 financial firms across 45 countries responsible for assets of over $130 trillion, is focused on broadening, deepening and raising net-zero ambitions across the financial system; <https://www.gfanzero.com/>.


\(^{104}\) On 3 November 2011 the IFRS Foundation announced the creation of a new International Sustainability Standards Board, ISSB, to exist in parallel to the International Accounting Standards Board; the ISSB will establish sustainability-related disclosure standards constituting a comprehensive global baseline which will apply in those jurisdictions that sign up to them; see <https://www.ifrs.org/news-and-events/news/2021/11/ifrs-foundation-announces-issb-consolidation-with-cdsb-vrf-publication-of-prototypes/>.


### V. Outlook

A quarter of a century after the Kyoto Protocol and eight years after the Paris Agreement, more political ambition and more professional knowledge are flowing into a profound management of climatic risks and effective emission trading. A good example is the Glasgow Financial Alliance for Net Zero\(^\text{102}\) aiming to move “climate change from the fringes to the forefront of finance so that every financial decision takes climate change into account”\(^\text{103}\).

The Carney-led initiative focuses on banks, asset owners, money managers and insurers motivating the financing side to drive the companies they lend to adopt green strategies. Without the financing of new energy sources, the transition will not work, e.g., the early retirement of high-emitting fossil fuel facilities will not be successful.

Another significant contribution comes from the International Financial Reporting Standards (IFRS) Foundation, a global accounting entity, establishing consistent climate disclosure metrics.\(^\text{104}\) In March 2022, a draft “General Requirements for Disclosure of Sustainability-related Financial Information” was published.\(^\text{105}\) Based on consultations to identify the demand from stakeholders in the area of sustainability reporting, the IFRS Foundation needs to improve the standards regarding the consistency and comparability in sustainability reporting that allow
businesses to build public trust based on greater transparency of their sustainability initiatives. Such information will enable investors and other stakeholders to improve the decision-making process in view of climate change risks. The broad recognition of the IFRS Foundation as a standard-setting body will prove to be very valuable for setting sustainability reporting standards. The acceptance of standards should not only guide regulated entities in providing audited reports which are comparable but also allow digital data bases to digest such information in a way that helps the addressee to process it. Since the establishment of the ISSB, announced at Glasgow’s COP26, a consultation on proposed standards to set the foundations of the global baseline of sustainability-related financial disclosures was launched to build the architecture needed for a global baseline. The ISSB is working with the European Commission, jurisdictions globally and regularly consults with IOSCO.

At least for larger entities there is a need for an automatically readable, structured, regulated, and quantitative ESG-based statement. Although such an option will provide an additional economic burden to companies, there is no alternative to ensure transparency and avoid green-washing practices. One option is to combine mandatory ESG reporting and XBRL to enforce comparable CSR disclosure. However, next to the political will and appropriate legal action, it is essential to bring private and public investors on board, retail as well as big asset managers. Especially for retail consumers, financial products could be classified with a sustainability indicator (green-light green-yellow-orange-red) like the risk indicator implemented with the PRIIPs Regulation. Such an easy recognizable sticker could work as a nudge, which has its roots in their understanding of Libertarian Paternalism. A nudge can be “any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives”.

Hopefully, the EU regulations following the Green Deal will have the potential to contribute to a ‘greener’ investment behavior while considering how the potential investors will process the sustainability information provided. Mandatory disclosure requirements, including quantitative indicators and a stringent regulatory taxonomy, should frame institutional and private investors’ disclosure towards the market participants and not only curb greenwashing but also reduce the agency cost of sustainable corporate governance. In addition, unassessed climate risks are going to be priced by the market because a mandatory climate risk disclosure regime will force companies to review their exposure to the consequences of the climate change.

Furthermore, already at the COP26, governments around the world have committed significant resources to foster the flow of private finance towards sustainable investments. In consequence of a broad acceptance to stop the global warming, there is an increasing demand for financial instruments and products that incorporate ESG factors. As the credibility of all sustainable finance endeavors will depend on a regulatory regime that is still in the making, the status quo is giving rise to specific risks. In consequence, there is not only a reduced impact towards a greener economy but also detrimental effects

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108 XBRL (eXtensible Business Reporting Language) is an XML-based language used to create electronic financial reporting documents; annual financial statements are generated in this language. Stock corporations database above a certain size in the USA and Canada are usually required to transmit business data to a central data base. Already since 2009, the US Securities and Exchange Commission (SEC) requires that large companies, funds and credit agencies submit their data in XBRL. In Germany, the electronic transmission of the balance sheet and the profit and loss account based on the XBRL standard is required.

113 Thaler and Sunstein, Nudge, p. 6.
115 Regarding the incorporating of climate change-related risks into asset prices see M. Condon, ‘Market Myopia’s Climate Bubble’ (2021); <https://scholarship.law.bu.edu/cgi/viewcontent.cgi?article=2084&context=faculty_scholarship>.
Finally, it can be argued that a regime relying on mandatory green disclosure obligations might only be the second-best option\(^\text{117}\) because paternalistic policy makers have other options to combat climate change like direct intervention, e.g., bans, prohibitive regulations combined with emission trading as economic incentives. The costs of an information-centered green financial regulation will exceed the resulting benefits in the eyes of many practitioners. However, considering political realism and the challenging climatic situation only the disclosure-centered option seems to be realistic.

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