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Corporate disclosure, ESG and green fintech in the energy industry

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ABSTRACT

This article examines the crucial role of non-financial disclosure in achieving environmental sustainability across economies and legal systems, focusing on the Corporate Sustainability Reporting Directive (CSRD). It scrutinizes the efficacy of current reporting regimes and their capacity to capture the distinct nature of company activities. The study underscores the importance of flexibility tools in customizing disclosure obligations to individual companies, striking a balance between competing informational interests and adhering to principles of reasonableness and proportionality. It highlights the double materiality criteria and the 'comply or explain' mechanism as pivotal in tailoring reporting duties. Moreover, the article argues for better integration of fintech and greentech to modernize the disclosure obligation, making the disclosed information digitally tagged and machine-readable. It also investigates the potential for technology to ease the existing negative or preventive approach characterizing enforcement mechanisms, possibly setting the incentive for information disclosure. The conclusions encompass policy recommendations aiming to harness the opportunities offered by technology in the context of CSRD, aligning the reporting duties with contemporary needs.

1. INTRODUCTION

The achievement of the net-zero target is an international commitment embedded in numerous international accords, most notably the Paris Agreement.[1] The energy industry is a major contributor to carbon emissions, particularly within the non-renewable energy sector. In light of the energy sector's direct influence on the carbon footprint of other industries, its active involvement is imperative in driving green solutions towards climate change and fostering a successful transition to a net-zero economy.[2]

Laws and regulations ought to facilitate a conducive infrastructure that empowers the energy industry to curtail its carbon emissions. This can be accomplished through the formulation and

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1 Daniel Bodansky, 'The Paris Climate Change Agreement: A New Hope?' (2016) 2 *The American Journal of International Law* 288; Joana Freitas and others, 'The Journey to Net Zero. 12 Perspectives from the Frontline of the Energy Transition in Europe' (2021) Research Paper, European University Institute, <https://fsr.eui.eu/publications/?handle=1814/72002> accessed 1 April 2022.

2 Bassam Fattouh and others, 'Transitioning to Net Zero: CCUS and the Role of Oil and Gas Producing Countries' (2021) Research Report, The Oxford Institute for Energy Studies, <https://www.oxfordenergy.org/publications/transitioning-to-net-zero-ccus-and-the-role-of-oil-and-gas-producing-countries/> accessed 1 April 2022.

execution of effective policies, alongside the provision of explicit guidelines on green taxonomies, such as those outlined in the EU Green Taxonomy Directive.[3] The role of various public–private enforcement mechanisms is also facilitative.[4]

This article aims to delineate an optimal policy, law, and regulation framework that can expedite the energy industry's transformation,[5] focusing particularly on the 'E' dimension or Environmental component of Environmental, Social and Governance (ESG) disclosure. EU law is the main focus for this discussion.[6]

Section 2 focuses on the question whether such environmental disclosures should be mandatory, voluntary or a blend of the two (hybrid), also considering the ideal normative and economic foundations for the selected model. Section 3 investigates the concept of 'materiality' in reporting and examines the logic behind removing the distinction between financial and non-financial information in the EU directive.

Furthermore, we aim to explain how such information can spur the development of green fintech innovations, such as sustainalytics, which can incentivize the energy industry to reach the net-zero target and galvanize financial market participants to join this global initiative. Section 4 evaluates enforcement mechanisms and examines the potential impacts of the new EU directive on the existing arrangements. Finally, Section 5 presents policy recommendations.

2. DIVERSE STRATEGIES: VOLUNTARY, MANDATORY OR HYBRID DISCLOSURE FOR THE ENERGY SECTOR

In this section, we explore the normative and economic underpinnings of mandatory, voluntary and hybrid disclosure regimes. We use the US (voluntary), EU (hybrid) and the French (more mandatory) models as case studies for comparative analysis. The central queries are: which model is best suited to foster the evolution of green fintech as a democratic information dissemination tool? And, which model optimally motivates financial market participants to supervise the energy sector's commitment to sustainable development objectives?

Mandatory, voluntary and hybrid disclosure regimes have each garnered support, yet the incorporation of green fintech development as a catalyst for green financing is a novel element in this debate. Green fintech is an investment vehicle for green financing with a goal of 'democratising' information. It facilitates access to finance and fosters a shared economy. These aims influence not only the formulation of the disclosure regime but also its implementation. The ensuing question is how such a disclosure regime should be crafted for the energy industry to achieve these goals.

The US Voluntary Model

The USA was traditionally characterized—and still it is—by a disclosure system that has been defined as 'private ordering',[7] since it relies largely on the autonomous initiative of companies rather than on prescriptive regulatory intervention.[8] Unlike the European Union, companies are not required to disclose based on universally applicable rules that, in principle, ensure comparability, consistency and reliability. While many nations model their corporate law on the US system, ESG disclosure is a prominent anomaly. While the rest of the world adopts an alternative approach, the

[3] European Commission, EU Taxonomy for Sustainable Activities, <https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en>; Sebastian Steuer and Tobias H Tröger, 'The Role of Disclosure in Green Finance' (2022) 8 (1) *Journal of Financial Regulation* 1–50.

[4] Kaisa Huhta, 'Trust in the Invisible Hand? The Roles of State and the Markets in EU Energy Law' (2020) 13 (1) *Journal of World Energy Law and Business* 1.

[5] For a recent overview—shared by 15 US scholars—see Daniel Raimi and others, 'Policy Options to Enable an Equitable Energy Transition' (2021), Report 21-09, Resources for the Future, <https://www.rff.org/publications/reports/policy-options-to-enable-an-equitable-energy-transition/> accessed 1 April 2022.

[6] Michael Fehling, 'Energy Transition in the European Union and its Member States: Interpreting Federal Competence Allocation in the Light of the Paris Agreement' (2021) 10 (2) *Transnational Environmental Law* 339.

[7] Virginia Harper Ho, 'Nonfinancial Risk Disclosure & the Costs of Private Ordering' (2018) 55 (3) *American Business Law Journal* 407.

[8] However, on 21 March 2022, the SEC announced a proposal to enhance and standardize climate-related disclosures for investors: see <https://www.sec.gov/news/press-release/2022-46>. The text of the proposal can be accessed here: <https://www.sec.gov/rules/proposed/2022/33-11042.pdf> both accessed 1 April 2022.

US system lags to the extent that,[9] despite recent proposals, it continues to diverge from other corporate reporting norms.[10]

In this respect, two distinguished comparative law scholars have noted that 'micro-comparison' of a specific legal issue,[11] such as non-financial disclosure, cannot be separated from 'macro-comparison' of the institutional framework where these issues emerge. Two aspects of the US conventional corporate legal system are relevant in such a macro-comparison.[12] The first is 'shareholder primacy', suggesting that directors' decision-making autonomy should not be curtailed (for example, through disclosure obligations), provided they act in the corporation's interest and within the 'negative' legal bounds.[13] The second is 'regulatory scepticism', signifying the business community's hesitance to restrict 'free' action of private actors, even when inspired by environmental or social motives.

This article does not aim to challenge these two traditional neoliberal assumptions. Nevertheless, these rationales have recently come under scrutiny, and the Securities and Exchange Commission (SEC) is encountering significant pressure from market sectors to implement disclosure policies. Numerous legislative proposals are awaiting Congress consideration, and the Baiden administration has clearly indicated an intention to bolster ESG objectives by mandating company disclosures.[14] While American institutions stand at a crossroads, it is foreseeable that they may eventually align with jurisdictions like the European Union. There are also some legal bases for envisaging such alignment. For example, in May 2002, the Supreme Court of California reproached the company Nike for misleading consumers with activity reports that falsely asserted its production methods adhered to fundamental social rights.[15] This trend is on the rise.[16]

The EU model—transitioning from hybrid (NFRD) to more mandatory (CSRD) model

In this context, the EU has demonstrated pioneering leadership. Despite inter-governmental disputes preceding its ratification,[17] Directive 2014/59/EU (commonly known as the 'Non-Financial Reporting Directive' [NFRD]) was enacted in July 2014 with the support of an unlikely coalition.[18] This directive mandates large companies to disclose non-financial

[9] Virginia Harper Ho, 'Why the U.S. is Lagging on ESG Disclosure Reform' (2020) Columbia Law School's Blog on Corporations and the Capital Markets, <https://clsbluesky.law.columbia.edu/2020/06/02/why-the-u-s-is-lagging-on-esg-disclosure-reform/> accessed 1 April 2022.

[10] Virginia Harper Ho, 'Non-Financial Reporting & Corporate Governance: Explaining American Divergence & its Implications for Disclosure Reform' (2020) 10 (2) *Accounting, Economics and Law* 1.

[11] Konrad Zweigert and Hein Kötz, *An Introduction to Comparative Law* (Tony Weir tr, 3rd edn OUP 1998) 4–5. For further remarks in this direction, see also Gerhard Danneman, 'Comparative Law: Study of Similarities or Differences?', in Mathias Reimann and Reinhard Zimmermann (eds), *The Oxford Handbook of Comparative Law* (2nd edn OUP 2019), 390. As we will see further in text, this tendency to 'universalize' regulatory problems is widespread in literature: for instance, it seems somehow assumed that ESG concerns are bound to be satisfied in the same way regardless of the legal system in which they have taken place; on the contrary, we will adopt a 'relativistic' approach, trying to 'hypostatize' the different solutions on the basis of a specific institutional context.

[12] Harper Ho (n 10) 9–14. However, the first explanation, in its most persuasive terms, is attributable to the pivotal work of Beate Sjåfjell and others, 'Shareholder Primacy: The Main Barrier to Sustainable Companies', in Beate Sjåfjell and Benjamin J. Richardson (eds), *Company Law and Sustainability: Legal Barriers and Opportunities* (CUP 2015), 79.

[13] The most prominent and representative supporter of this view is of course Milton Friedman, 'The Social Responsibility of Business is to Increase its Profits' (1970) *New York Times*, <https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html> accessed 1 April 2022. But, more recently, see also Mark Roe, 'The Shareholder Wealth Maximization Norm and Industrial Organization' (2001) 149 *University of Pennsylvania Law Review* 2063.

[14] For all references, see Virginai Harper Ho, 'Modernizing ESG Disclosure' (2022) *University of Illinois Law Review*, forthcoming, <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3845145> accessed 1 April 2022 1, 2–5 (footprint).

[15] *Kasky v Nike, Inc*, 27 Cal 4th 939, 119 Cal Rptr 2d 296, 45 P.3d 243 (2002).

[16] Emmanuelle Mazuyer, 'Corporate Social Responsibility under European law: the Proposed Directive on the Provision of Social and Environmental Information by Companies' (2013) 85 RLDA <https://www.lamyline.fr/Content/Document.aspx?params=H4sIAAAAAAAEAFVQy07DMBD8mubii5OWtjnkQNUjgkPDB2yTha5w7LBrp-TvWScggaVZjfYxM_JnQp5b_IrNExhGGYMXuJKjuEnWYm0kdAQOTY9i0EfGkUmUC5AQmhHY5CkHigYTh3G9Q282WzAOzKi9IBQpeBUxPTF2kSY0kjjPI4OXgUSWhU2qbFmTfws8QL6R3wRqrw5-Ig7e46BZluYa4F-2QmYf_Dw0LScsIlylqW0BXUzgzqFrysw1QQvXPAjcI5_mxhZyC_dnmOh9cT4BrwrU9825tfrqsjrYYzEh57SNRt2Vld0Vzn-o8AWBu9t604eunUdUL1m6L97Nj86FO_a6mXJ8-VGXV09ZEdxfAUGn_4T9JSTuUBq7OXSlolLsHrRsM1Fkvs_TveKoOCjqOpdvXmQ9ZN0BAAA=WKE> accessed 1 April 2022.

[17] According to David Monciardini, 'Coalition of the Unlikely' Driving the EU Regulatory Process of Non-Financial Reporting' (2016) 36 (1) *Social and Environmental Accountability Journal* 76, such a coalition—composed by investors, a network of non-governmental organizations and parts of European trade unions—prevailed over the tendency not to limit managers' power, for the purpose of ensuring more transparency and accountability.

[18] Represented as a 'struggle' by Daniel Kinderman, 'Corporate Social Responsibility – Der Kampf um die UE-Richtline' (2015) 8 WSI Mitteilungen, 613, <https://www.wsi.de/data/wsimit_2015_08_kinderman.pdf?_x_tr_sl=auto&_x_tr_tl=it&_x_tr_hl=it> accessed 1 April 2022.

data.[19] Going one step further, the adoption of the EU CSRD provides more granularity to the current hybrid model. To this end, the draft European Sustainability Reporting Standard (ESRS) published by the European Commission (i) introduces additional disclosure requirements and data points strictly delimited and (ii) gives additional details on disclosure requirements and data points regarding key environmental and social subjects that an undertaking must disclose if these topics are deemed as material for them according to a materiality assessment.[20] Yet, the recently ESRS first set draft submitted to consultation by the European Commission epitomized the remaining hybrid nature of the European sustainability reporting system by providing 'flexibilities in certain disclosures' and 'making certain disclosures voluntary'. [21]

The NFRD approach

The EU's preference for regulation emerged after a decade of non-binding law publications,[22] which placed the onus on companies to promote Corporate Social Responsibility (CSR) policies.[23] The approach to CSR was based on soft law. It was then replaced by the NFRD. Given the fragmentation of legislative frameworks in the EU, as exemplified by individual member states' legislation like France's 2001 hard law implementation of a CSR report,[24] the NFRD aimed to harmonize practices within the EU and seal regulatory loopholes in certain member states to prevent regulatory arbitrage.[25] The NFRD set out the basis of the topics that should be subject to sustainability reporting. Yet, the Commission's report on the review clauses and its accompanying fitness check highlighted deficiencies in the effectiveness of the NFRD.[26] Both the 'comply or explain' approach as well as the absence of prescription on the data points that should be included, precluded investors and other stakeholders to have access to comparable and reliable data.[27] This was referred by the European Commission as the 'information gap', undermining the right of establishment, the free movement of capital across the Union as well as, more globally, the capital markets union.[28] Going further, the CSRD will significantly increase the granularity of the information that must be disclosed, according to the growing expectation of users of sustainability information that such information should be 'findable, comparable and machine-readable in digital formats'.[29]

The NFRD did not contain specific rules for energy companies or any other industries, regardless of their core business. The 'subjective' scope, which dictates who must disclose, merely specifies the company's size. According to the Directive, despite some national variations,[30] only listed companies with more than five hundred employees are required to disclose, regardless of their societal impact. Prior to this Directive, the subjective scopes of member states' frameworks were not uniform, which is

[19] For the first comments, see—*ex multis*—Dániel Gergely Szabó and Karsten Engsig Sørensen, 'New EU Directive on the Disclosure of Non-Financial Information (CSR)' (2015) 12 (3) *European Company and Financial Law Review* 307; Mark Anthony Camilleri, 'Environmental, Social and Governance Disclosures in Europe' (2015) 6 (2) *Sustainability Accounting, Management and Policy Journal* 224.

[20] Commission, Delegated Regulation draft supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards, 5, <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13765-European-sustainability-reporting-standards-first-set_en> accessed 9 June 2023.

[21] ibid 5–6.

[22] Commission, 'Green Paper- Promoting a European framework for Corporate Social Responsibility' COM(2001) 366 final, Commission, 'Corporate Social Responsibility: A business contribution to Sustainable Development' COM(2002) 347 final, Commission, 'The Social Dimension of Globalisation - the EU's policy contribution on extending the benefits to all' COM(2004) 383 final or Commission, 'Implementing the Partnership for Growth and Jobs: Making Europe a Pole of Excellence on Corporate Social Responsibility' COM(2006) 136 final.

[23] Emmanuelle Mazuyer, 'Corporate Social Responsibility under European Law: The Proposed Directive on the Provision of Social and Environmental Information by Companies' La responsabilité sociale des entreprises saisie par le droit européen : la proposition de directive sur la transmission d'informations sociales et environnementales par les entreprises' (2013) 85 RLDA.

[24] art 116 of the French '*Law on New Economic Regulations*'. *Loi sur les Nouvelles Régulations Economiques*

[25] ibid 8.

[26] Commission, Report of 21 April 2021 on the review clauses in Directives 2013/34/EU, 2014/95/EU, and 2013/50/EU and its accompanying fitness check on the EU framework for public reporting by companies, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021SC0081&rid=1> accessed 12 June 2023.

[27] Council Directive 2022/2464 of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting, Recital 13.

[28] ibid Recital 16.

[29] ibid Recital 55.

[30] Selena Aureli, Federica Salvatori and Elisabetta Magnaghi, 'A Country-Comparative Analysis of the Transposition of the EU Non-Financial Directive: An Institutional Approach' (2020) 10 (2) *Accounting, Economics and Law* 1.

why the Directive established a minimum common base. Member states retain the liberty to expand the subjective scope, given that the Directive's threshold is simply a base minimum. For instance, under French law, non-listed companies meeting specific thresholds are also mandated to disclose.[31]

The 'objective' scope, which defines what must be disclosed, is equally expansive, encompassing typical ESG information such as: (i) environmental, (ii) social, (iii) employee matters, (iv) respect for human rights, (v) anti-corruption and (vi) bribery matters.[32] Some member states have extended the list of required disclosure items. Recently, France included specific information on corporate actions to promote physical and sports activities,[33] as well as direct and indirect greenhouse gas emissions linked to transport activities, both upstream and downstream, accompanied by a plan aimed at reducing these emissions.[34]

The CSRD approach

It is also useful to recall that the NFRD has been in force for less than a decade. Since 5 January 2023, the new Directive no 2464/2022 (also known as 'Corporate Sustainability Reporting Directive' [CSRD]) entered into force, modifying the previous NFRD under numerous respects.

In a preliminary way, it should be noted that the CSRD, as reported by its drafters, aims at fixing two shortcomings of the previous NFRD and, namely, the (excessive) 'flexibility' and the 'lack of specificity' [35]; a complaint that does not seem overly caustic, at least in relation to two (far from peripheral) aspects of the discipline: reporting standards and sanctioning instruments.

But let's proceed in order. A first innovation (certainly not only terminological) appears relevant: the information is no longer defined as 'non-financial', but as 'sustainable' (Recital 8, CSRD). This transition reflects the belief that the 'financial/non-financial' dichotomy is deprived of its *raison d'être*, since even the so-called non-financial (or ESG) data are evidently capable of having an impact on the economic and financial performance of the company.

Furthermore, this choice seems to be justified by the fact that those data can no longer be contained in a separate document (precisely, the non-financial statement), but in a single management report and namely in a special section of the latter (Recital 57, CSRD). Nevertheless, the 'double materiality' criterion[36] is probably bound to reintroduce (fictitiously) the distinction between the financial/non-financial nature of the information, since the company is still mandated to differentiate the 'risks' for the undertaking and its 'external impacts' (Recital 29 CSRD).

As far as the (new) 'subjective' perimeter is concerned, it now includes 'large undertakings, and small and medium-sized undertakings, except micro undertakings, which are public-interest entities as defined in point (a) of point (1) of Article 2' (Article 1 CSRD). Such a relevant extension certainly represents a significant innovation, which will considerably widen the application scope of disclosure duties and consequently increase operators' and scholars' interest in it. The implicit risk, however, is the violation of the proportionality principle, since—in the balance between the ('positive') stakeholders' interest to get access to data and the undertakings' ('negative') need not to face

31 art R225-104 of the French Commercial Code requires non-listed companies to report on non-financial information if their balance sheet total or net turnover is equal to 100 million at least and if their average number of permanent employees during the year is equal to 500.

32 See art 1 NFRD.

33 art 27 of the Loi n° 2022-296 of 2 March 2022 aiming to democratize sport in France, <https://www.legifrance.gouv.fr/jorf/article_jo/JORFARTI000045287598> accessed 24 December 2022.

34 art 138 of the Loi n°2021-1104 of 22 August 2021 portant lutte contre le dérèglement climatique et renforcement de la résilience face à ses effets.

35 See the Executive Summary (n 30) 2, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021SC0151&from=EN> accessed 1 April 2022.

36 The concept of 'double materiality' is clearly illustrated (and graphically represented) in the European Commission Communication, Guidelines on Non-Financial Reporting: Supplement on Reporting Climate-Related Information, 17 June 2019, 6 ff, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017XC0705(01)&from=EN> accessed 1 April 2022 and see also Recitals 29, 37 and 39 CSRD, where the concept seems to be deprived of the radical alternativity between the financial/non-financial nature of the disclosed information. In literature, see Matthias Täger, '"Double Materiality": What is it and why does it Matter?', LSE Grantham Research Institute on Climate Change and the Environment Commentary (2021), <https://www.lse.ac.uk/granthaminstitute/news/double-materiality-what-is-it-and-why-does-it-matter/> accessed 1 April 2022. On materiality in general, see Chiara Mosca and Chiara Picciau, 'Making Non-Financial Information Count: Accountability and Materiality in Sustainability Reporting', Bocconi Legal Studies Research Paper no 3536460/2020 (2020), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3536460> accessed 1 April 2022.

unreasonable costs in collecting them—the possibility that the second demand prevails over the first seems immanent. At the same time, Recital 22 CSRD seems to show an awareness of such a risk, stating that

> Member States should be free to assess the impact of their national transposition measures on small and medium-sized undertakings, in order to ensure that they are not disproportionately [emphasis added] affected, with specific attention to be given to micro-undertakings and to avoiding an unnecessary administrative burden. Member States should consider introducing measures to support small and medium-sized undertakings in applying the sustainability reporting standards.

In this respect, reporting standards are bound to be the main vector of flexibility of a discipline otherwise exposed to the constant risk of non-proportional application (Recital 43 CSRD).

At a general level, it has been observed that the NFRD was characterized by the presence of 'overlapping reporting standards and frameworks, and consequently no consensus on what companies should report'.[37] Conversely, with the CSRD, the Commission will be called upon to publish uniform standards—the European Sustainability Reporting Standards (ESRS)—over the next few months, on the basis of the ones developed (and already published) by the European Financial Reporting Advisory Group (EFRAG) in November 2022.[38]

In this respect, if the regulatory choice of the NFRD, with reference to the audit controls over non-financial statements, was rather timid (being limited to a single 'formal' control, with the possibility for Member States to require a further one), the approach of the CSRD has been slightly more courageous, since it envisaged a form of 'limited' assurance (see Recital 60 CSRD), at the same time outlining interesting prospective (but non prescriptive) considerations on the transition towards (certainly preferrable) forms of 'reasonable' assurance.

Probably, the most challenging issue regarding the relationship between 'reasonable' assurance and sustainability information lies in the fact that the auditor would be called upon to issue an assessment over 'forward-looking' data. In this respect, it could be objected, on the one hand, that also the financial information may be forecast in nature; on the other, that there is no structural need to create an asymmetry between the moment in which the prognostic judgment is formulated and the one in which the given prediction (does not) come true. It should be also highlighted indeed that the moment to which the 'reasonable' assurance must be referred is (technically) when the forward-looking evaluation is expressed (as Recital 60 also clarifies), while, as anticipated, it can be debated, under a diachronic perspective, whether the non-occurrence of the event (or the failure to fulfill the relative promise) may generate directors' liability.[39]

Energy companies

At first glance, both directives do not extend beyond setting requirements for all companies, and it is marked by the generality that typifies normative provisions.[40] For instance, a large electricity or gas company with global subsidiaries will undoubtedly have a significant environmental impact, but it also influences other aspects 'objectively' considered by the NFRD and CSRD, such as corporate crime prevention.[41] The EU rules accomplish their task of identifying the entities required

37 See Executive Summary (n 30) 2.

38 All details available at <https://www.efrag.org/Assets/Download?assetUrl=/sites/webpublishing/SiteAssets/EFRAG+Press+release+First+Set+of+draft+ESRS.pdf&AspxAutoDetectCookieSupport=1> accessed 1 April 2022.

39 As understandable, this represents one of the most cutting-edge issues of corporate disclosure, if it is true that it is currently characterized by a widespread 'under-enforcement': see Donald C Langevoort, 'Disasters and Disclosures: Securities Fraud Liability in the Shadow of a Corporate Catastrophe' (2018) 107 *Georgetown Law Journal* 967, but also the doubts of Virginia Harper Ho, Climate Disclosure Line-Drawing & Securities Regulation (January 27, 2023). __ U.C. Davis L. Rev. __ (Forthcoming 2023), European Corporate Governance Institute - Law Working Paper No. 684/2023, Available at http://dx.doi.org/10.2139/ssrn.4339497.

40 For a similar criticism, see David Monciardini, Jukka Tapio Mähönen and Georgina Tsagas, 'Rethinking Non-Financial Reporting: A Blueprint for Structural Regulatory Changes' (2020) 10 (2) *Accounting, Economics and Law* 17–23.

41 On this peculiar aspect, see 'The Energy and Natural Resources Sector: Business Crime Risks and Remedies' (2021), Special Report, Financier Worldwide, <https://www.financierworldwide.com/the-energy-and-natural-resources-sector-business-crime-risks-and-remedies#.YdXoGi1abq0> accessed 1 April 2022; Europol, 'Knowledge Product: Organised Crime & Energy Supply. Scenarios to 2020', Report available at <https://www.europol.europa.eu/sites/default/files/documents/organised-crime-in-energy-supply.pdf> accessed 1 January 2022.

to disclose. However, a small energy company falling within the 'subjective' scope may have an environmental impact, but due to its limited size, it may not affect other areas of NFRD and CSRD concern. An energy company that is too small to meet the NFRD or CSRD reporting criteria but still negatively impacts the environment is exempt from any disclosure obligation. In such a case, the publication of a non-financial statement becomes purely voluntary.

Finally, it should be noted that while the short and easy-to-read formulation of the NFRD articles, if it could create some loopholes in their application, at the same time provided a set of straightforward and intelligible rules (9 pages), the CSRD (66 pages) has undoubtedly resolved some of those critical issues, but (in so doing) it exacerbated, at least in some respects, the complexity of the disclosure mechanism, probably undermining its fluidity.[42]

The EU model in practice: the French experience

A review of non-financial reporting by French listed issuing companies,[43] undertaken by the French Financial Market Authority (Autorité des marchés financiers, AMF), revealed several insights concerning corporate social and environmental reporting.

First, there was considerable variability in the format of non-financial reporting among issuers due to the Directive's lack of specific reporting requirements. Issuers have the discretion to augment their disclosure with voluntary information in addition to the mandatory requirements, thereby distinguishing between legal obligation and voluntary disclosure.[44]

Secondly, some issuers employ 'cross-reference tables'[45] to streamline the process of locating non-financial information and align their reports with other standards such as the Global Reporting Initiative,[46] the Ten Principles of the United Nation Global Compact or the United Nations Sustainable Development Goals.[47] Each of these disclosure frameworks follows a different approach, and the tables aid issuers in indicating the information required by each standard.

Thirdly, the transposition of the NFRD in France has triggered a surge in the volume of data offered by more than half of the issuers.[48] In 2018, the average additional information provided amounted to three pages, increasing from 58 to 61 pages.[49] This exceeded expectations given that the 'materiality' aspect of reporting should necessitate the inclusion of only significant information from the issuer. The previous approach in France employed a one-size-fits-all methodology, outlining a comprehensive list of items to be included.[50]

Fourthly, the AMF noted that issuers provide detailed information on the scope of reporting but, contrary to legal requirements, this does not extend to the entirety of the consolidated accounts. In all instances, what is covered excludes certain entities, either at the overall reporting level or specific types of data. According to the regulator, issuers justify the exclusion of certain entities due to factors such as their small size, the recent integration of new acquisitions, the recognition or non-recognition of joint ventures, a wide array of sectors of activity, or the existence of subsidiaries in countries where data collection is more challenging.[51]

Fifthly, the AMF emphasized that transparency in the reporting method is essential for providing accurate and fair disclosure.[52] Lastly, the French regulator highlighted several challenges in conducting an international comparative approach to the oil industry. These included the scarcity

[42] In this direction, see Charlotte Villiers, 'New Directions in the European Union's Regulatory Framework for Corporate Reporting, Due Diligence and Accountability: The Challenge of Complexity' (2022)13 (4) *European Journal of Risk Regulation* 548.
[43] AMF, 'Report on the Social, Societal and Environmental Responsibility of Listed Companies' November (2019). <https://www.amf-france.org/sites/default/files/2020-02/rapport-2019-sur-la-responsabilite-sociale-societale-et-environnementale-des-societes-cotees_0.pdf> accessed 15 December 2022.
[44] ibid 29.
[45] Veolia, 2021 Universal Registration Document, April 2022, 233 <https://www.veolia.com/sites/g/files/dvc4206/files/document/2022/05/financial-report-universal-registration-document-URB-2021-Veolia.pdf#page=225> accessed 16 August 2023.
[46] Global Reporting Initiative, Global Reporting Initiative Standards, <https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-english-language/>
[47] United Nations, United Nations Sustainable Development Goals, < https://sdgs.un.org/fr/goals>.
[48] AMF, 'Report on the social, Societal and Environmental Responsibility of Listed Companies', November (2019), 32.
[49] ibid 33.
[50] art. R.225-105 of the French Commercial Code.
[51] ibid 39.
[52] ibid 44.

of data regarding 'scope 3' of the GHG (Greenhouse Gas) Emissions, a lack of detail concerning stakeholder engagement, and issues with comparability due to divergent methodologies.[53] Nonetheless, the AMF acknowledged the overall sectorial convergence on Key Performance Indicators and main risks, which facilitates comparison between issuers.

The French AMF has published three reports on the disclosure of non-financial information.[54] Although initially devised as an informational tool, non-financial reporting has evolved into a strategic management instrument for companies in environmental and social terms. However, the inaugural edition of a market study published by the French Institute of Directors (IFA), the Observatory of the CSR (ORSE)[55] and PricewaterhouseCoopers (PwC), titled 'CSR, a New Strategic Priority for Directors?', highlighted the limited utilization of the non-financial statement as a strategic steering tool by boards of directors. According to the survey responses from executive and non-executive directors, non-financial reporting is only discussed in 55.8 per cent of board meetings.

One possible explanation for such limited discussion could be the almost complete absence of a mechanism for enforcing the disclosure of non-financial information. The French framework, as laid out in Article L225-102-1 VI of the French Commercial Code, requires public companies to publish reports, but non-public companies do not face similar obligations. Consequently, only listed companies run the risk of a court order. Under the duty of vigilance in effect in France, it is challenging to precisely define an offence, as the benchmarks can be ambiguous or left to the discretion of the companies.[56] When the French Constitutional Council deemed the provisions of the law on the duty of vigilance that imposed a fine to be unconstitutional, it highlighted to legislators the need for the clear and precise definition of a breach.

3. JUSTIFICATION FOR THE MANDATORY MODEL WITH THE CONCEPT OF MATERIALITY, AND THE REMOVAL OF NON-FINANCIAL INFORMATION

No purely voluntary nor mandatory model

In the preceding discussion, we illustrated the contrast between the US traditionally voluntary approach and the European Union preference for mandatory disclosure, as mandated by the CSRD, towards non-financial information. The provisions of NFRD have been significantly changed[57] following the approval of the Corporate Sustainability Reporting Directive (CSRD) of 14 December 2022, entered into force on January 2023.[58] This CSRD will progressively replace the previous disclosure system through gradual implementation, reporting.

Though the distinction between mandatory and voluntary disclosure seems straightforward in theory, it may distort the actual situation. Numerous factors drive a global convergence of voluntary and compulsory strategies in corporate reporting. For instance, in a primarily voluntary approach like that of the USA, when over 90 per cent of large companies produce sustainability reports,[59] any enterprise that chooses not to disclose will, in time, face negative repercussions. These are not explicitly predetermined by law but are implicitly triggered by market forces.

53 ibid 100–06.

54 Jean-Jacques Tatoux, 'Reporting social et environnemental extra-financier : quelle mesure de la performance d'entreprise au service de quelle stratégie ?' RLDA (2019) 145, 4 <https://www.lamyline.fr/content/document.aspx?idd=DT0004181098&version=20190208&DATA=XQExtsLDyTCFbs7rFfV2AZgukfs7pzSu> accessed 9 September 2022,

55 French Institute of Directors, the Observatory of the Corporate Social Responsibility and PricewaterhouseCoopers, Barometer 'CSR, a new strategic priority for directors', <https://www.orse.org/nos-travaux/nouveau-la-rse-nouvelle-priorite-strategique-des-administratrices-et-administrateurs-barometre-ifa-orse-pwc> accessed 24 December 2022.

56 Arnaud Félix, 'Issuer's Liability Beyond the CSR Directive' BJB.

57 Katrin Hummel and Dominik Jobst 'The Current State and Future of Corporate Sustainability Reporting Regulations in the European Union' (2021), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3978478> accessed 1 April 2021. For 'insight' remarks, see also Peter Wollmert and Andrew Hobbs, 'How the EU's New Sustainability Directive Will Be a Game Changer' (2021) EY Report, <https://www.ey.com/en_be/assurance/how-the-eu-s-new-sustainability-directive-will-be-a-game-changer> accessed 1 April 2022.

58 Council Directive 2022/2464 of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.

59 Governance and Accountability Institute 2020 S&P 500 Flash Report (2020) <https://www.ga-institute.com/research-reports/flash-reports/2020-sp-500-flash-report.html> accessed 1 April 2022, and it is remarkable that in 2011—just ten years ago—the percentage was 20 per cent.

Conversely, a purely mandatory approach cannot reasonably assert to impose unbreakable obligations on companies, especially when it utilizes flexibility tools that could be misused as loopholes to evade disclosure duties. For instance, the 'comply or explain' mechanism adopted by Article 1, Paragraph 1 of NFRD stipulates that 'where the undertaking does not pursue policies in relation to one or more of those matters, the non-financial statement shall provide a clear and reasoned explanation for not doing so'. A non-financial statement comprising solely of explanations, devoid of any ESG data, was formally valid under the NFRD. The 'or' in 'comply or explain' signifies this, even though it fails to serve any informative purpose.

The CSRD aims at overcoming such technical difficulties; indeed, its Recital 36 clarifies that

> the different treatment of disclosures on the policies that undertakings may have, compared to the other reporting areas included in those Articles, has created confusion among reporting undertakings and has not helped to improve the quality of the reported information. Therefore, there is no need to maintain such different treatment of policies in that Directive. The sustainability reporting standards should determine what information needs to be disclosed in relation to each of the reporting areas mentioned in Articles 19a and 29a of Directive 2013/34/EU as amended by this amending Directive.

However, the 'comply or explain' approach has been maintained under some restricted objective realms.[60]

'Comply or Explain' model and its weaknesses

The 'comply or explain' model, with its inherent flexibility, mitigates the risk of enforcing a universal one-size-fits-all approach by allowing issuers to provide a strong rationale for deviating from rules. Various market stakeholders, such as regulators, investors via their stewardship activities, and local oversight bodies like France's 'Haut Comité de Gouvernement d'Entreprise' (established in September 2013), monitor this approach. These bodies issue annual reports assessing compliance with code rules, checking justifications for any deviations, and verifying their validity.[61] These reports often promote best practices and employ 'name and shame' tactics to enhance corporate governance practices. Furthermore, the French AMF issues annual reports on corporate governance and executive compensation, highlighting a particular theme each year that includes best practices and lists non-compliant issuers. For 2022, the focus was on the integration of Corporate Social Responsibility by boards and committees.[62]

The increasing trend of professionalizing directors worldwide increases the efficacy of the 'comply or explain' rules. While corporate governance is well-scrutinized, sustainability coverage remains inadequate. Articles 19a (5) and 29a(5) of the NFRD only mandate Member States to verify whether a non-financial statement or separate report has been provided by the statutory auditor or audit firm. These articles do not require independent assurance providers such as audit firms to validate the information, although Member States are free to mandate such verification.[63] According to the French AMF, this verification ensures that the companies, in collaboration with third-party experts, have established processes to guarantee the completeness and consistency of the information in the non-financial performance statement.[64]

The public consultation on the G20/OECD Principles of Corporate Governance highlights the potential benefits of a 'comply or explain' mechanism.[65] The OECD highlights that it allows for customization to address the unique needs of individual companies. It asserts that, for instance,

60 For instance, on diversity: art 20(1)(g) of Directive 2013/34/EU, as amended by art 1 CSRD.

61 For instance: HCGE, 2021 High Committee for Corporate Governance Annual Report, <https://hcge.fr/wp-content/uploads/2022/02/Report_HCGE_-2021_EN.pdf> accessed 24 December 2022.

62 AMF, '2022 Report on corporate governance and executive compensation of listed companies', December 2022, <https://www.amf-france.org/sites/default/files/private/2022-12/Rapport%20gouv-rem%2001122022_0.pdf> accessed 15 December 2022.

63 Such option was adopted by the French legislator art L.225-102-1 V of the French Commercial Code.

64 AMF, '2019 Report on Corporate Governance and Executive Compensation of Listed Companies', November 2019, 19.

65 OECD, Public Consultation on Draft Revisions to the G20/OECD Principles of Corporate Governance, September 2022, 10.

effective implementation of certain corporate governance practices might be more efficiently achieved in markets where institutional investors play a pivotal role in enhancing these practices, aligning with soft law code recommendations. In contrast, in markets with more passive investors, the regulator might prefer to mandate and enforce specific corporate governance standards. The OECD also emphasizes that the credibility of the 'comply or explain' disclosure mechanism in markets depends on transparent disclosure about coverage, implementation, compliance and sanctions.[66] The effectiveness of the 'comply or explain' model in corporate governance heavily relies on a supervisory body regularly providing public information about issuer compliance and an evaluation of the rationale for deviating from the corporate governance code. While this demands flexible mechanisms, such flexibility is suspected of undermining the effectiveness of the NFRD. Conversely, it is seen as a safety net for mandatory ESG disclosure. Entrusting this tailor-made effect to companies themselves entirely may offer no assurance of its proper execution.

The hybrid model incorporating reasonableness and proportionality

The choice between mandating or permitting voluntary adoption of an ESG disclosure regulation is a fundamental decision for a legal system. However, the feasibility of such a choice cannot be examined in isolation; it must consider the surrounding context. For instance, if merely 10 per cent of companies currently disclose, expanding this to 100 per cent could be perceived as an unjustifiable, unreasonable and disproportionate[67] encroachment on economic activities. Conversely, if 90 per cent of companies already disclose, instituting regulatory intervention to mandate disclosure becomes significantly more tenable.

A large enterprise with over 500 employees arguably will have considerable ESG impacts that need to be disclosed. Nevertheless, this presumption may be incorrect in two respects: the company may not meet the subjective prerequisites for disclosure yet could still be environmentally harmful, or it might fall within the subjective scope and fail to uphold human rights policies. In the first scenario, legal systems should consider whether to encourage voluntary information disclosure, possibly according to rules that are similar to or even more lenient than those applicable to mandated companies. In the second situation, a judicious use of the 'comply or explain' mechanism could help avoid the typical 'one-size-fits-all' effect often associated with a rule-based approach.[68]

The subjective scope is poised to change significantly in the future as the CSRD expands the disclosure obligation to encompass all large companies and all companies listed on regulated markets, excluding listed micro-enterprises. Therefore, the aforementioned presumptive approach needs to be handled differently, bolstering its flexibility mechanisms. Among these, the materiality criterion is critical: though its precise definition may vary across jurisdictions, information is considered financially material when it holds relevance for the investor. However, the distinction between non-financial and financial is increasingly becoming blurred. In several recent instances, social or environmental controversies have led to a significant drop in share prices.[69]

The concept of double materiality

The 'double materiality' concept, already present in substance in the NFDR and re-asserted and clarified by the Corporate Sustainability Reporting Directive (CSRD),[70] is still an under-explored area in existing literature. According to the CSRD, companies required to provide sustainability reports must include 'information necessary to understand the undertaking's impacts on sustainability matters, and information necessary to understand how sustainability matters affect the

66 ibid 12.

67 On the concepts of 'reasonableness' and 'proportionality', see Giovanni Perlingieri, 'Reasonableness and Balancing in Recent Interpretation by the Italian Constitutional Court' (2018) 4 (2) *Italian Law Journal* 385.

68 This aspect is underlined by Maria Lucia Passador and Federico Riganti, 'Less is More in the Age of Information Overload: The Paradigm Shift from a Shareholder- To a Stakeholder-Oriented Market' (2019)15 (3) *New York University Journal of Law and Business* 567, 650.

69 As an example, in July 2020, Boohoo shares dropped by 23 per cent following allegations of its supply chain working conditions.

70 CSRD, Recital 29.

undertaking's development, performance and position.'[71] This dual notion of materiality defines 'risks specific to the issuer [. . .] that are material for making an informed investment decision' on one hand, and on the other, 'the main risks associated with the company's activities, inclusive of those emerging from its business relationships, products or services'.

In accordance with the European Commission's non-financial reporting guidelines, information is deemed material when 'its omission or misstatement could reasonably be expected to influence decisions that users make based on the financial statements of the undertaking. The materiality of individual items should be evaluated within the context of other similar items.' Furthermore, the Directive stipulating reporting on non-financial information also refers to data 'to the extent necessary for understanding the [. . .] impact of (the company's) activity'. Thus, with respect to non-financial information, materiality is established whenever there is a social or environmental impact on the company or its influence on its surroundings.

This represents a notable shift from non-financial information to sustainability information, a transition explained in the Directive's preamble as evidence of responsiveness to stakeholders' increasing concerns about the financial relevance of information encompassed by the NFRD.[72] On one hand, as anticipated, the intention was to regard all information as 'financial' thereby eliminating the 'non-financial' label; however, the financial nature of information continues to be pertinent due to the principle of double materiality. The practical and empirical implications of this criterion are yet to be seen, as companies will only have a single document at their disposal, where the distinction between financial and non-financial information may prove challenging to discern.

Interplay of financial and non-financial information

In the non-financial statement issued by major energy corporation, ENEL,[73] in 2020, the emphasis is predominantly on environmental issues, a subject of interest to both investors and stakeholders. However, this focus on materiality within non-financial data likely mirrors the prevalent apprehension that such information is considered less impactful to market participants when juxtaposed with financial details. Although retail investors possess the freedom to determine their own areas of interest, it is essential that other investors, particularly institutional ones, are made cognizant of non-financial concerns.[74] This is further supported by the observation that ESG data are often not divulged in the management report but instead are presented in a separate document. This approach will be rendered obsolete with the introduction of the CSRD, which will prohibit the publication of an isolated non-financial statement.

On the face of it, this seems a prudent decision. For instance, it is challenging to contend that the environmental impact of an energy company—representing the 'E' in 'ESG' – has no financial ramifications and does not influence 'corporate financial performance'. Yet, the implications of such 'financialisation' remain unclear, and it is premature to forecast what they might be.[75] The notion that diverse recipients may hold varying levels of interest in any given information, contingent on the degree of 'financiality', has been retained through the 'double materiality' principle. This criteria, introduced by the 2019 EU Commission Guidelines on climate-related information, identifies 'financial materiality' as relevant to investors and 'environmental and social materiality' as pertinent to stakeholders.

Operationalizing double materiality

The CSRD not only upholds financial materiality but also introduces the concept of double materiality, inclusive of 'impact materiality' as discussed above. Under this principle, entities responsible for reporting are required to document not only the environmental impact on the company but

71 CSRD, art 2(1).
72 CSRD, Recital 8.
73 See <https://www.enel.com/content/dam/enel-com/documenti/investitori/informazioni-finanziarie/2020/annuali/en/integrated-annual-report_2020.pdf> accessed 1 April 2022.
74 CSRD Recital 7: 'many stakeholders consider the term "non-financial" to be inaccurate, in particular because it implies that the information in question has no financial relevance. Increasingly, however, the information in question does have financial relevance'.
75 For similar doubts, see Täger (n 36).

also the repercussions that the company has on its environment. Such data could be harnessed by every stakeholder of the company to more effectively assess the risks posed to the company's growth and performance by sustainable development, as well as the company's influences on sustainable development.[76]

One instance of utilizing such information is the ongoing litigation involving TotalEnergies SE[77] (formerly Total SA), a French issuer and multiple NGOs. Invoking the French obligation of vigilance,[78] relying on the data provided by TotalEnergies to alleviate environmental and social risks and following prior formal notice denouncing the company's due diligence plan concerning two specific projects and requiring the company 'to fulfil its due diligence obligations with regard to both the inadequacies of its plan and its actual implementation and publication',[79] the multinational corporation was taken to court on 28 January 2020[80] and directed to implement necessary measures to drastically curtail its greenhouse gas emissions.[81] NGOs and several cities like Paris and New York are endeavouring to expose climate inaction by the company and the associated indirect costs for civil society. As per the French duty of vigilance ('devoir de vigilance'), certain companies are required to furnish a plan encompassing a series of measures being undertaken. They are mandated to exhibit reasonable vigilance in identifying risks and averting severe breaches of human rights and basic freedoms, and in safeguarding individual health and safety, as well as the environment from the impacts of the company's activities and those of the companies it controls, directly or indirectly, and from the activities of subcontractors or suppliers. By two rulings handed down on 28 February 2023, the Judicial Court of Paris decided to declare inadmissible the actions brought by various associations to enjoin TotalEnergies SE from complying with its duty of care obligations arising from Act 2017-399 of March 27, 2017.[82]

Promoting a market-led model

The varied methodologies employed by different ESG ratings may inadvertently constrain the market pressure on issuers to report comprehensively. Some agencies primarily depend on a company's non-financial reports and publicly accessible information, while others rely on questionnaires and surveys sent to issuers. This variation could potentially deter issuers from creating exhaustive public reports. Moreover, since not all agencies necessitate that the data be presented in published reports, some companies craft *ad-hoc* reports for their stakeholders, including the ESG rating agencies. This practice could potentially curb the growth of information in non-financial reporting and may lead to data fragmentation.

The definitive text of the CSRD was adopted by the Council of the EU on November 28, 2022. The CSRD aims to establish a harmonized reporting framework set to be gradually implemented from 2025, beginning with reports on the 2024 financial year. The CSRD includes new provisions in Chapter 8 'Auditing and Assurance of Sustainability Reporting,' which will require an opinion based on a limited assurance engagement regarding the compliance of sustainability reporting with relevant standards. These standards will be embraced by the EU in the form of delegated acts following their development by the European Financial Reporting Advisory Group ('EFRAG'). Such provision will harmonize practices among Members States, as audits on sustainability reporting was not mandatory under the previous framework.

[76] European Commission, Communication 2019/C 209/01.

[77] Hereafter referred as TotalEnergies.

[78] According to the legal framework set out in arts L225-102-4 and L225-102-5 of the French Commercial Code. LOI n° 2017-399 du 27 mars 2017 relative au devoir de vigilance des sociétés mères et des entreprises donneuses d'ordre.

[79] TJ Paris, 28 févr. 2023, n° 22/53942 <https://www.dalloz-actualite.fr/sites/dalloz-actualite.fr/files/resources/2023/03/2253942.pdf>, 3.

[80] ibid.

[81] Assignation before the Judicial Court of Nanterre, <https://media.business-humanrights.org/media/documents/files/documents/Assignation_NAAT_et_autres_vs_TOTAL_VDEF.pdf> accessed 7 June 2022.

[82] TJ Paris, 28 févr. 2023, n° 22/53943 <https://www.dalloz-actualite.fr/sites/dalloz-actualite.fr/files/resources/2023/03/2253943.pdf> and TJ Paris (n 79).

The significance of technology (Fintech, Greentech and Sustainalytics)

The advancement of artificial intelligence (AI) and machine learning heavily rely on data, one of the most valuable resources in the digital economy. The financial services sector has traditionally leveraged data for business growth, from securities trading to consumer insurance. Over the years, the industry has made significant investments in data acquisition, storage, transfer and monetization. This strategic approach to data preceded the advent of modern information systems such as blockchain and data analytics. Data have always been an asset that financial entities are willing to pay for and monetize. The extensive accumulation of data over the years is a resource that competitors within and outside the sector are eager to access, as exemplified in 'open banking'. Financial firms are cognisant of data's competitive asset class status and have developed strategic defenses to safeguard their interests.

Data and its refined algorithms can significantly contribute to sustainable financing.[83] Index companies employ their own algorithms to generate sustainability scores based on predetermined benchmarks and collected data,[84] including information disclosed by companies or provided by third parties. Such companies create indices such as ESG indices,[85] facilitating financial institutions to devise index-based funds and promote these products to investors. Financial products built on ESG indices can appeal to investors interested in sustainable development and who aim to structure their portfolios to meet specific targets or invest in sustainable financial products.[86] The algorithms developed by index companies are essentially computer codes, and data input into these algorithms yield a score analogous to the credit ratings of companies or individuals. Digitizing benchmarks and available data augments the value of ESG indices in the financial market, transforming ESG benchmarks into machine-readable soft law and facilitating access to necessary data from various data pools. For instance, an energy trading platform powered by distributed ledger technology can display how sustainably a company uses energy,[87] allowing for a digital comparison with regulatory benchmarks set by the index providers. However, this raises a legal issue: whether the algorithm design guarantees fair scoring,[88] which would need transparency in the algorithms. The index providers should clarify how their models reach a particular decision and provide a mechanism for companies to raise questions and contest the scores they receive. Even though index providers are not regulators and do not perform public body functions, the algorithms they use must be meticulously vetted. A regulatory regime covering computer code as soft law is needed to promote sustainability.[89]

Although utilizing code as soft law can increase sustainable finance for the market, it introduces the risk of benchmark manipulation. The code is employed to develop benchmarks that reflect sound ESG practices, but faulty algorithms can generate inaccurate results that misleadingly portray a company's ESG performance. There are two primary areas where code-as-law can produce errors: inaccurate definition of an ESG activity and inaccurate extraction of ESG data. For instance, it may recognize a nuclear plant as an environmentally damaging activity based on the amount of nuclear waste used, leading to the perception of nuclear energy companies as unsustainable. However, from a broader perspective, nuclear energy may be crucial for climate-change mitigation. Similarly, computer coding may collect data on a company's number of labour protests within a

83 United Nations, 'Financing for Sustainable Development Report 2020' (Report of the Inter-Agency Task Force on Financing for Development 2020).

84 ibid.

85 Guido Giese and others, 'Performance and Risk Analysis of Index-Based ESG Portfolios' (2019) 9 *The Journal of Index Investing* 46, 57.

86 Mario La, 'Does the ESG Index Affect Stock Return? Evidence from the Eurostoxx50' (2020) 12 *Sustainability* 1, 12.

87 Joseph Lee and Vere Marie Khan, 'Blockchain and Smart Contract for Peer-to-Peer Energy Trading Platform: Legal Obstacles and Regulatory Solutions' (2020) 19 *Review of Intellectual Property Law*. <https://repository.law.uic.edu/ripl/vol19/iss4/1/> accessed 1 April 2022.

88 Yash Raj Shrestha and Yongjie Yang, 'Fairness in Algorithmic Decision-Making: Applications in Multi-Winner Voting, Machine Learning, and Recommender Systems' (2019) 12 *Algorithms* 1, 28; Art Jahnke, 'Are Computer-Aided Decisions Actually Fair? – Researchers from BU and MIT are Trying to Overcome Algorithmic Bias' (2018) <http://www.bu.edu/articles/2018/algorithmic-fairness/> accessed 1 April 2022.

89 Marcel Meyer and others, 'The EU Benchmark Regulation: Users be Cautious' 2018 (17) Performance Magazine <https://www2.deloitte.com/content/dam/Deloitte/lu/Documents/financial-services/lu-eu-benchmark-regulation-users-be-cautious-092018.pdf> accessed 1 April 2022.

specific period and assign it a poor social rating, even though the company might receive a better social rating for establishing a framework for labour unions to exercise their right to protest.

To illustrate what technology could add to the sustainability reporting framework, a vital area would be democratizing climate scenario-based strategy and assessment of physical and transitional environmental risks.[90] Companies might conduct scenario-based analyses to understand how their business model will be impacted by climate change. However, as the European Central Bank supervisory stress test suggests, companies, including financial ones, must intensify their focus on climate risk. Platforms such as Weather Trade Net[91] aid companies by evaluating physical climate risk exposure based on location and multiple scenario analyses. Such a tool might reduce the risk of stranded assets by empowering companies to execute mitigation actions to diminish their assets' exposure to physical environmental risks.

Additionally, technology could enhance the accessibility of sustainable information on issuers. With the ongoing standardization of sustainable information, certain financial technologies might offer proprietary ESG models and analyses. For instance, Sycomore AM,[92] an investor since 2008, has created a proprietary ESG model that quantifies a company's risks and opportunities to strengthen its investment strategies. Similarly, Axylia,[93] a French company, has formulated a 'Carbon Score' that evaluates a company's ability to meet its carbon obligations. Axylia quantifies the company's CO_2 emissions, including its indirect emissions, and converts them into euros based on a price calculated by the IPCC (e.g., €108/tonne). This value is then compared with the company's operating income (EBITDA).

According to the CSRD, 'If undertakings carried out better sustainability reporting, the ultimate beneficiaries would be individual citizens and savers, including trade unions and workers' representatives who would be adequately informed and therefore able to better engage in social dialogue. Savers who want to invest sustainably will have the opportunity to do so, while all citizens would benefit from a stable, sustainable, and inclusive economic system.'[94] To achieve this, technology could play a crucial role by providing summarized information and support to individuals seeking to align their behaviour with their preferences.

Sustainable reporting technologies are likely to face regulatory scrutiny. ESG rating agencies, which assess companies based on their ESG practices and disclosure, are also expected to come under regulation by the European legislator. A consultation was carried out by the European Commission between 4 April and 10 June 2022 on this matter.[95] The preferred regulatory option of the Commission remains to be seen, but the consultation revealed a collective desire for regulation.

4. ENFORCEMENT MECHANISMS

The efficacy of a disclosure regime is closely linked to several enforcement mechanisms. Primarily, the disclosed information itself is a crucial component of market enforcement, enabling monitoring, reinforcement and promotion of sustainability by various investors such as asset managers, asset owners, pension schemes and investment product providers. Green fintech has the potential to augment this market enforcement mechanism by improving the efficiency and effectiveness of information provision and widening participation through engagement with retail investors. Given the significance of information for market enforcement, inaccuracies can distort its effectiveness, thereby impacting the achievement of sustainable development goals. As such, enforcing the disclosure regime both pre-emptively and retrospectively is critical to ensure the market enforcement

90 European Central Bank, '2022 Climate Risk Stress Test', July 2022, <https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.climate_stress_test_report.20220708~2e3cc0999f.en.pdf> accessed 13 December 2022.
91 Weather Trade, <https://www.weathertrade.net/> accessed 15 December 2022.
92 Sycomore AM, <https://en.sycomore-am.com/sycomore> accessed 15 December 2022.
93 Axylia, <https://www.axylia.com/score-carbone-axylia?lang=en> accessed 15 December 2022.
94 CSRD, Recital 9.
95 European Commission, 'Targeted Consultation on the Functioning of the ESG Ratings Market in the European Union and on the Consideration of ESG Factors in Credit Ratings', <https://finance.ec.europa.eu/regulation-and-supervision/consultations/finance-2022-esg-ratings_en> accessed 15 December 2022.

mechanism's functionality. Public agencies can directly intervene to correct defective information, and private parties can bring lawsuits to rectify inaccuracies and seek redress, such as compensation. Therefore, the concept of materiality determines which actions are relevant and can be instigated in the courts. The effectiveness of these actions will in turn alter the dynamics of the market enforcement mechanism.

In this context, the term 'enforcement' is used broadly, encompassing all direct and indirect mechanisms and techniques that aid in implementing the disclosure obligation. It includes both proactive enforcement, which encourages compliance with the disclosure obligation and prevents its infringement, and reactive enforcement, wherein companies are penalized for non-compliance despite market or legal pressures. Enforcement strategies typically perform more efficiently in a system characterized by a minimum binding component, especially for large companies, as a purely voluntary system would result in the absence of a legal provision on which retrospective sanctioning tools are activated.

However, no single enforcement mechanism, irrespective of its power or deterrence, is sufficient. What is necessary is a range of policies, strategies, and approaches that together optimize the effectiveness of sustainability disclosures. Here, effectiveness implies a suitable balance of all the involved interests, which practically translates to fairly apportioning the reasonable and proportionate costs for fulfilling the disclosure obligation—in essence, the stakeholders' interest in being informed and aware of ESG information. For example, if a small energy company incurs substantial costs to purchase machines or equipment capable of detecting its gas emissions for the purpose of non-financial-information disclosure, but this information is irrelevant to stakeholders, this solution would be deemed ineffective due to its failure to adequately balance the opposing interests.

Consequences of non-compliance: diverse and multifaceted

There's a vital distinction to be made between direct and indirect enforcement. Direct enforcement involves all the legal and predetermined consequences that arise from non-compliance, while indirect enforcement includes all market-driven side effects that do not have an immediate connection with the violation of the disclosure obligation. Non-compliance consequences vary and have different impacts on businesses.

First, the Non-Financial Reporting Directive (NFRD)[96] mandates member states to establish suitable remedies for non-performance.[97] The primary direct remedy is sanctions, which serve both a punitive and deterrent function. However, the discretionary approach of the NFRD has led to noticeable differences in national responses to non-performance, undermining uniform application within the single market.[98] For example, Germany has the highest sanctions at either 10 million euros, 5 per cent of the company's total annual turnover, or twice the profits gained or losses avoided due to the breach.[99] In contrast, in Italy, sanctions never exceed 150,000 euros.[100]

The CSRD aims to eliminate this inconsistency by requiring member states to set specific sanctions considering general and occasionally generic criteria.[101] Although this represents progress compared to the previous regime, it still falls short of an adequate penalty framework. For instance,

[96] Recital 10 CSRD: 'Member States should ensure that adequate and effective means exist to guarantee disclosure of non-financial information by undertakings in compliance with this Directive. To that end, Member States should ensure that effective national procedures are in place to enforce compliance with the obligations laid down by this Directive'.

[97] For an overview, see GRI, CSR Europe and Accountancy Europe, 'Member State Implementation of Directive 2014/95/EU. A comprehensive overview of how Member States are implementing the EU Directive on Non-financial and Diversity Information' (2017), <https://www.accountancyeurope.eu/wp-content/uploads/NFR-Publication-3-May-revision.pdf> accessed 1 April 2022.

[98] In such terms, see Recital 69 CSRD: 'According to Article 51 of Directive 2013/34/EU, the enforcement of corporate reporting by undertakings the securities of which are not listed on regulated markets is carried out by Member States. The types of sanctions are, however, not specified, which means that sanctioning regimes can vary widely between Member States, so undermining the single market'.

[99] See art 1, para 17, letter b), *Gesetz zur Stärkung der nichtfinanziellen Berichterstattung der Unternehmen in ihren Lage- und Konzernlageberichten) (CSR Directive Transposition Act*, CSR-RUG) of 11 April 2017.

[100] See art 8 Legislative Decree 30 December 2016, no 254.

[101] In particular: (i) effective systems of investigations and sanctions to detect, correct and prevent inadequate execution of the statutory audit and the assurance of sustainability reporting; (ii) effective, proportionate and dissuasive sanctions in respect of statutory auditors and audit firms; (iii) administrative sanctions for infringements which are already subject to national criminal law (art 3, para 20, CSRD).

in the Italian case, a 150,000 euro sanction might deter small and medium-sized enterprises in the energy sector but would not significantly impact large companies such as ExxonMobil, Shell or TotalEnergies, despite potential indirect or reputational effects.

Secondly, auditors might also be subject to direct sanctions. The NFRD only mandated member states to ensure non-financial information was provided,[102] leaving the option for more in-depth verification at their discretion. However, the CSRD introduces limited or negative assurance as a general parameter, which is likely to increase auditors' liability risk, especially for qualitative and future-oriented data where auditors might lack necessary expertise.[103] This trend will likely persist if we transition towards a reasonable or positive assurance type.[104]

Thirdly, indirect enforcement mechanisms could include 'reputation' costs resulting from failure to fulfil non-disclosure obligations,[105] either due to unavailability of data or inadequately justified non-compliance cases, ie, lack of clarity or reasonableness.

As the institutionalization of ESG concerns within corporate structures becomes more prevalent,[106] a gradual reduction of the 'business judgement rule' exemption scope should be considered, given the implicit inclusion of environmental and social topics in directors' duties.[107] For instance, if an energy company's non-financial information reveals unacceptable environmental pollution levels (or significantly higher than its competitors), a director who takes no action to reduce this impact in subsequent financial years should fall outside the typical discretion protected by the business judgement rule.

The EU framework and market-driven solutions

The EU mandatory model promotes the use of data analytics to strengthen market enforcement and achieve sustainability goals. Under the current scheme, the compulsory disclosure mandate will enhance the data flow related to ESG. A fully voluntary approach, on the other hand, would constrain this data flow and shrink the data pools available for developing sophisticated analytics. The EU model, even though largely mandatory, allows companies to disclose additional, supplemental information alongside their primary data, offering them the opportunity to 'own' and price this supplementary information. For both primary and supplementary data regulated by the directive and disclosed via regulated methods, companies must ensure the accuracy of the data. Poor data quality may result in civil and criminal penalties, as well as private lawsuits for damages.

However, if the information is voluntarily disclosed instead of mandated, the quality of such data can only be managed through private agreements. Financial market actors may find it challenging to invoke the principle of materiality to claim damages if they rely on data disclosed on a company's webpage that is intended for non-financial stakeholders. As data analytics are being developed by non-financial entities yet may be relied upon by financial actors, it is vital to ensure that datasets are financially significant and compiled in a regulated way. The EU mandatory model offers a template for such regulated data for financial markets. The directive should also clarify whether companies can disclose supplementary data outside the confines of a regulated document. If permitted to do so, companies might opt for voluntary disclosure on their website to circumvent regulatory oversight. There remains much work to be done to bridge this gap and ensure that the CSRD provides a competitive framework for enhancing ESG data flow.

102 art 1, NFRD.

103 art 1, para 10, NFRD.

104 An overview in Amanda Ling Li Sonnerfeldt and Caroline Aggestam Pontoppidan, 'The Challenges of Assurance on Non-financial Reporting' (2020)10 (2) *Accounting, Economics and Law*, 1.

105 On this aspect, see Benjamin Pfister, Manfred Schwaiger and Tobias Morath, 'Corporate Reputation and the Future Cost of Equity' (2020) 13 *Business Research* 343. But more specifically in our context, see Christopher J Hughey and Adam J Sulkowski, 'More Disclosure = Better CSR Reputation? An Examination of CSR Reputation Leaders and Laggards in the Global Oil & Gas Industry' (2012)12 (2) *Journal of the Academy of Business and Economics* 24.

106 See Isabel-María García-Sánchez and others, 'Board Committees and Non-financial Information Assurance Services' (2021) 27 *Journal of Management and Governance* 1.

107 Such a view has been suggestively proposed by Sara Barker, 'Directors' Duties in the Anthropocene: Liability for Corporate Harm Due to Inaction on Climate Change', *Corporate Law, Economics & Science Association* (2013), <http://responsible-investment banking.com/wp-content/uploads/2014/11/Directors-Duties-in-the-Anthropocene-December-2013.pdf> accessed 1 April 2022. But see also, in more general terms, Thomas Clarke, 'The Widening Scope of Directors' Duties: The Increasing Impact of Corporate Social and Environmental Responsibility' (2016) 39 *Seattle University Law Review* 531.

5. RECOMMENDATIONS

Sector-specific approach: moving beyond a universal standard

The experiences gained from the application of the NFRD reveal distinct sectoral differences in ESG issues among investors and market practices. On a sector-by-sector basis, investors have identified key ESG elements, thereby enabling risk mitigation and enhanced business opportunities through engagement with companies. However, certain subjects transcend sector boundaries and are universally applicable. This is particularly evident in the area of climate issues, where investors are advocating for action plans, measurements, targets and even compensation incentives linked to climate change. While these topics may hold universal relevance, it doesn't necessarily mandate a one-size-fits-all approach, as strategies to reduce carbon emissions will vary across sectors.

Industry-developed guidelines should serve a dual purpose: first, to provide a common matrix applicable to all sectors, encompassing material risks and opportunities within environmental and social issues. It is important to recognize that each sector needs to adapt this matrix to its unique circumstances, such as local implementation, organizational structure or business model. Secondly, these guidelines should offer a consistent methodology for the entire industry concerning cross-sectoral topics such as climate change, including relevant Key Performance Indicators (KPIs).

Such a sector-specific approach is not a novel concept and is currently employed in frameworks such as the Global Reporting Initiative. The guidelines presently being developed by the European Financial Reporting Advisory Group and the European Platform of Sustainable Finance should build on existing frameworks and should involve industry stakeholders in discussions to prevent bias.

The anticipated standardization of information will enhance comparability amongst peers and exert increased pressure on industrial entities outside the European Union to adopt these guidelines. Without adherence, they risk exclusion from ESG indices or potential downgrades in their ESG ratings, whether they choose to adopt the guidelines voluntarily or otherwise.[108]

Loopholes in the mandatory model

Non-financial or corporate sustainability disclosure traditionally adopts a defensive or preventive approach concerning companies now required to provide such information. This is true whether the obligation stems from explicit legislative provisions (as in the EU) or due to market pressures in cases where there is no explicit requirement (as in the USA). Consequently, normative prescriptions cannot escape the 'if-then' logic that characteristically underpins norms. 'If' non-financial information is published, 'then' compliance with the NFRD (using the EU as an example) is achieved, irrespective of any potential benefits, as this falls outside the purview of the law. Conversely, 'if' a document is not published, or the information provided is incomplete or misleading, 'then' the negative consequences previously described are inevitable.

While such a regulatory strategy may be necessary, it also carries potential drawbacks stemming from the 'universality' of the mechanism. The propensity to avoid disclosure duties, when they are not expressly imposed, is evident given that very few companies voluntarily disclose in contexts where non-financial disclosure isn't mandatory.[109] This necessitates regulatory efforts to devise proactive tools and strategies, aimed at enhancing the performance of already obliged companies and incentivizing those that are not.[110] Technology, in this context, can play a significant role, with

[108] It leads to the embedded question of the ESG indices and ratings regulation that is the subject of a public consultation of the EU Commission and resulted in a paper from the IOSCO <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD690.pdf>

[109] For instance, in Italy, for the financial year 2020, only 3 companies: see Consob, 'Report on Non-financial Reporting of Italian Listed Companies' (2020), <https://www.consob.it/documents/46180/46181/rnf2020.pdf/f1370058-d521-4a96-80c5-d64f7a7ac7ff> accessed 1 April 2022.

[110] For the notion of 'proactive law' in the context of sustainability, see Gerlinde Berger-Walliser and Paul Shrivastava, 'Beyond Compliance: Sustainable Development, Business, and Proactive Law'(2015) 46 *Georgetown Journal of International Law* 417; Gerlinde Berger-Walliser, Paul Shrivastava and Adam Sulkowski, 'Using Proactive Legal Strategies for Corporate Environmental Sustainability' (2016) 6 (1) *Michigan Journal of Environmental & Administrative Law* 1.

the interaction between ESG disclosure and fintech representing an area ripe for exploration and potential collaboration.[111]

Market-led model

While sustainability generally carries normative undertones and embodies values expressly mentioned in fundamental charters,[112] the core objective of many businesses is profit maximization, as Milton Friedman articulated over half a century ago in his piece 'The Social Responsibilities of Business'.[113] The financialization of information can address this dichotomy, with the CSRD eradicating the division between financial and non-financial data. This shift acknowledges the often equal, if not greater, significance of ESG data compared to purely financial data.

Financialization marks a potential advancement. Disclosure traditionally plays an informative role, contributing to market transparency and assisting participants in effective capital allocation while deterring unfair business practices, such as 'greenwashing'. In this context, corporate sustainability data are harvested from the market to enhance it. Yet, if all data are deemed 'financial'—meaning it holds economic value—it could foster new markets in which both investors and stakeholders have an interest in purchasing data.

Information price can hinge on a binary choice (pay to access all data), or it can vary based on the depth and detail of the data disclosed, thereby creating a gradient: the more you are willing to invest, the more information you receive. In this system, companies are incentivized to offer high-quality disclosure services, as market participant value depends on accuracy and reliability. This does not necessarily entail a self-regulated market; public authority interventions should also be considered. Coordination with the disclosure regime of the relevant legal system needs to be established. For instance, if companies are not legally required to disclose, such a system could substitute for this function, albeit with a risk of under-regulation. Conversely, in systems as such the EU where companies are required to publish Non-Financial Statements, charging for data that should be freely available in compliance with reporting duties will not be possible.

A lenient regulatory approach could determine the minimum information to disclose, affording market participants access to supplementary data. The significance of information, in this context, is determined not only by the disclosing company when drafting the non-financial disclosure but also by the market itself. If certain data availability is deemed relevant in the decision-making process, it can be considered materially significant. Fintech, already engaged in ESG rating,[114] could play a substantial role here, particularly in devising instruments to facilitate the creation of a data market.[115]

[111] A first overview in E Macchiavello and M Siri, 'Sustainable Finance and Fintech: Can Technology Contribute to Achieving Environmental Goals? A Preliminary Assessment of "Green FinTech"', European Banking Institute Working Paper Series 2020 – no 71 (2020), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3672989> accessed 1 April 2022 and in Alexandra Andhov, 'Fintech as a Facilitator for the Capital Market Union?', University of Copenhagen Faculty of Law Research Paper No 2018-63 (2018), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3232710#> accessed 1 April 2022.

[112] For the EU, see for instance arts 3.3 TEU ('Treaty on European Union'), 11 TFEU ('Treaty on the Functioning of the European Union') and 37 CFR ('Charter of Fundamental Rights of the European Union'). In literature, on 'sustainability' as an essentially 'constitutional' concept, see András Jakab, 'Sustainability in European Constitutional Law', Max Planck Institute for Comparative Public Law & International Law (MPIL) Research Paper No 2016-16 (2016), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2803304> accessed 1 April 2022. For some empirical and 'operational' implications, see Sander RW van Hees, 'Sustainable Development in the EU: Redefining and Operationalizing the Concept' (2014) 10 (2) *Utrecht Law Review* 60.

[113] Milton Friedman, 'The Social Responsibility of Business is to Increase its Profits', *New York Times* (1970), <https://www.nytimes.com/1970/09/13/archives/a-friedman-doctrine-the-social-responsibility-of-business-is-to.html> accessed 1 April 2022.

[114] See Anna Hirai and Andrew Brady, 'Managing ESG Data and Rating Risk', Harvard Law School Forum on Corporate Governance (2021), <https://corpgov.law.harvard.edu/2021/07/28/managing-esg-data-and-rating-risk/> accessed 1 April 2022, especially paragraph 'D', where the Authors make a clear distinction between 'traditional' ESG rating and the one performed through artificial intelligence (AI): 'a key difference between traditional ESG ratings providers and AI-driven ESG data providers is that the former opts for an 'inside-out' approach while the latter adopts an 'outside-in' approach. What this means is that traditional ESG ratings providers primarily rely on corporate disclosure amongst other data sources while AI-driven data providers focus more on external data sources such as media reporting'. For a focus on the role of AI and machine learning, see Martina Macpherson, Andrea Gasperini and Matteo Bosco, 'Implications for Artificial Intelligence and ESG Data' (2021), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3863599> accessed 1 April 2022.

[115] See, for example, Adam J Sulkowski, 'Blockchain, Law, and Business Supply Chains: The Need for Governance and Legal Frameworks to Achieve Sustainability' (2019) 43 (2) *Delaware Journal of Corporate* 303; in particular, ibid, 'Sustainability (or ESG) Reporting: Recent Developments and the Potential for Better, More Proactive Management Enabled by Blockchain' (2021), <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3948654> accessed 1 April 2022.

The CSRD acknowledges the pivotal role of technology in this sphere. The previous NFRD's failure to mandate digital report obstructed data discoverability and usability.[116] As required by the CSRD, data must be provided in XHTML format, be digitally 'tagged', and electronically readable.[117] This consideration underlines the increasing recognition of technology's transformative impact on ESG disclosure, making information more accessible, understandable and actionable. It reinforces the notion that the dynamic interplay of technology and regulation has the potential to create a more transparent and effective ESG data ecosystem.

In this continually evolving landscape, striking a balance between regulatory enforcement and market-driven innovation will be a challenging public–private partnership. Combining mandatory and voluntary disclosure, ensuring data quality, leveraging technological advances and maintaining a keen focus on the interests and needs of all stakeholders will remain the cornerstones of a successful and effective ESG disclosure regime.

6. CONCLUSIONS

Environmental sustainability has emerged as a focal aspect of contemporary economies and legal systems. It embodies a broad objective that can be pursued across various sectors and through diverse techniques, one of which is the disclosure of corporate non-financial information. The CSRD is designed to guide the companies toward a climate-neutral, circular economy and a toxin-free environment, a journey that demands the full engagement of all economic sectors. In this respect, energy reduction and enhancement of energy efficiency are paramount, given the widespread use of energy across supply chains. Thus, considerations related to energy use must be adequately represented in sustainability reporting standards, particularly concerning environmental issues.

Recognizing the fundamental role of energy resources for all businesses, their relevance is amplified for companies whose core operations encompass the extraction, production or distribution of these resources. Nonetheless, there is a debatable point as to whether current reporting regimes fully consider the unique nature of each company's activities to determine if the disclosed information truly holds material significance for shareholders and stakeholders. Section 2 explored the advantages and limitations of both voluntary, mandatory and hybrid corporate reporting methods, suggesting that the mandatory models, such as the EU one with carefully studied the subjective and objective parameters, can optimize the effectiveness and efficiency of disclosure obligations.

The challenge lies in fortifying and leveraging flexibility tools, as discussed in Section 3, that can tailor disclosure obligations to individual companies—a 'case-by-case' approach. This approach must strike a balance between conflicting informational interests by adhering to principles of reasonableness and proportionality. The 'comply or explain' mechanism, coupled with the double materiality criteria, in its new limited objective scope, is poised to play a central role in customizing reporting responsibilities.

Moreover, fintech and greentech, as discussed in Section 4, should be better integrated to modernize the disclosure obligation. Harnessing the potential offered by technology in this field, an explicit aim of the CSRD, can render disclosed information digitally tagged and machine-readable. Simultaneously, technological aid may alleviate the existing negative or preventive approach that characterizes enforcement mechanisms, as discussed in Section 5, potentially laying the groundwork for information pricing, as outlined in our concluding policy recommendations.

116 Recital 55 CSRD.
117 art 1 CSRD.