Sustainability Skills Disclosure For Boards: An Essential Prerequisite For Assessing Sustainability Competence

Law Working Paper N° 796/2024
August 2024

Gül Demirtaş

Christian Strenger
Corporate Governance Institute of the Frankfurt School of Finance and Management

Tobias H. Tröger
Johann Wolfgang Goethe University , Center for Advanced Studies
Foundations of Law and Finance (CAS LawFin), LIF SAFE, and ECGI

ECGI Working Paper Series in Law

Sustainability Skills Disclosure For Boards: An Essential Prerequisite For Assessing Sustainability Competence

Working Paper N° 796/2024
August 2024

Gül Demirtaş
Christian Strenger
Tobias H. Tröger

Abstract

Not only institutional investors are increasingly demanding to know more about the sustainability skills of the boards they elect. These skills demonstrate a company's capability to navigate new regulations and meet self-imposed targets. Consequently, they also serve as a significant proxy for a firm's commitment to pursuing transition strategies, providing a bonding mechanism. In response to the growing demand for transparency, Germany has recently set itself apart with its German Corporate Governance Code (GCGC) recommendation that companies show their boards' sustainability expertise by disclosing a skills matrix. We analyze the board skills disclosures for the supervisory boards of the leading German listed companies for 2022, the first year after the adoption of the recommendation. We compare these disclosures with those of companies from France, a country that has long expressed sustainability-related expectations for company boards but has yet to make any recommendations for the disclosure of sustainability skills. We observe that German companies follow a more uniform approach to reporting directors' sustainability skills. However, the lack of a standardized definition of sustainability expertise in both countries has resulted in significant variations in how companies define this essential disclosure item, thereby reducing the comparability of the reported data. We recommend that policymakers specify skills disclosure rules for directors and director nominees more granularly, including a standardized definition of sustainability expertise, and that they support them with effective enforcement mechanisms, reinforced by external audits and government oversight.

Keywords: coporate governance, corporate boards, sustainability skills, disclosure, ESG

JEL Classifications: G34, G39, K2, M14

Gül Demirtaş

Christian Strenger
Director
Frankfurt School of Finance & Management
Adickesallee 32-34
60322 Frankfurt am Main, Germany
e-mail: ch.strenger@web.de

Tobias H. Tröger*
Professor of Private Law, Trade and Business Law,
Jurisprudence Johann Wolfgang Goethe University
Theodor-W.-Adorno Platz 3
60629 Frankfurt am Main, Germany
phone: +49 69 798 34236
e-mail: troeger@lawfin.uni-frankfurt.de

*Corresponding Author

SUSTAINABILITY SKILLS DISCLOSURE FOR BOARDS: AN ESSENTIAL PREREQUISITE FOR ASSESSING SUSTAINABILITY COMPETENCE

Gül Demirtaş[a], Christian Strenger[a], Tobias H. Tröger[b]

[a] *Corporate Governance Institute, Frankfurt School of Finance & Management*
[b] *Goethe University Frankfurt, SAFE and ECGI*

ABSTRACT

Not only institutional investors are increasingly demanding to know more about the sustainability skills of the boards they elect. These skills demonstrate a company's capability to navigate new regulations and meet self-imposed targets. Consequently, they also serve as a significant proxy for a firm's commitment to pursuing transition strategies, providing a bonding mechanism. In response to the growing demand for transparency, Germany has recently set itself apart with its German Corporate Governance Code (GCGC) recommendation that companies show their boards' sustainability expertise by disclosing a skills matrix. We analyze the board skills disclosures for the supervisory boards of the leading German listed companies for 2022, the first year after the adoption of the recommendation. We compare these disclosures with those of companies from France, a country that has long expressed sustainability-related expectations for company boards but has yet to make any recommendations for the disclosure of sustainability skills. We observe that German companies follow a more uniform approach to reporting directors' sustainability skills. However, the lack of a standardized definition of sustainability expertise in both countries has resulted in significant variations in how companies define this essential disclosure item, thereby reducing the comparability of the reported data. We recommend that policymakers specify skills disclosure rules for directors and director nominees more granularly, including a standardized definition of sustainability expertise, and that they support them with effective enforcement mechanisms, reinforced by external audits and government oversight.

JEL Classification: G34, G39, K2, M14

Key words: coporate governance, corporate boards, sustainability skills, disclosure, ESG

1 INTRODUCTION

Countries around the world have promulgated and drafted new rules and regulations to meet their commitments under the Paris Agreement, the legally binding international treaty on climate change adopted in 2015 with the goal of holding the global average temperature rise to well below 2°C above pre-industrial levels. Many of the regulations, such as the European Sustainable Finance Disclosures Regulation (SFDR)[1] and the Corporate Sustainability Reporting Directive (CSRD)[2], have already impacted how companies do business. Compliance with the sustainability-related financial reporting standards set by the International Sustainability Standards Board (ISSB)[3] and various other prominent reporting standards[4] defines another major areaThis effect is particularly pronounced that companies are expected to respond to. Furthermore, many companies around the world have set their own science-based emission reduction targets that are aligned with the Paris Agreement.[5]

Investors also take a keen interest in issuers' transition pathways toward sustainable business models. Credible transition strategies mitigate certain systemic risks (e.g., climate change and its impact) that investors cannot avoid through diversification (Condon 2020; Gordon 2022; 2023). However, evaluating whether sufficiently ambitious transition plans will see a time-consistent implementation is another matter altogether. Adequate bonding devices are not readily available (Armour, Enriques, and Wetzer 2023) and expectable advances in the sciences and technological innovation require that corporate decision makers enjoy enough leeway to develop and adapt firm-specific solutions. Shareholders sensitive to sustainability issues, therefore, have a strong interest in understanding the sustainability skills of board members. These skills not only indicate a director's ability to navigate a multitude of new rules, regulations, standards, and self-imposed commitments but also serve as an important proxy for a firm's seriousness in pursuing transition strategies. Board composition can serve as a pivotal bonding device, signaling issuers' credible commitment to shareholder interests especially when board actions are not observable (De Long 1991). If firms staff their boards of directors with members who possess a strong and relevant understanding of sustainability matters, this can more credibly signal their commitment to sustainable transition pathways through meaningful appointment decisions. Such signals become even stronger if board members and nominees have a convincing track record of successful sustainability oversight, increasing the likelihood that they will provide effective and seasoned oversight and guidance to management.

Against this background, investors and other stakeholders are now demanding to know more about the sustainability skills and experience of directors and director nominees. Some countries have already outlined their expectations regarding companies' disclosures on director skills. Among those, Australia, Germany, and Japan have explicitly recommended the use of a "skills matrix" in their respective corporate governance codes whereby issuers shall present individual directors' skills considered as important to the

[1] Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector, (2019) O.J. L 317/1.

[2] Directive (EU) 2022/2464 of the European Parliament and of the Council 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 (2022) O.J. L 322/15.

[3] International Financial Reporting Standard (IFRS) S1 General Requirements for Disclosure of Sustainability-related Financial Information; IFRS S2 Climate-related Disclosures.

[4] The most advanced body of sustainability reporting standards was devised by the European Financial Reporting Advisory Group (EFRAG), Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards (2023) O.J. L 2772/1.

[5] The Science Based Target initiative (SBTi) has emerged as the gold standard for setting corporate emission reduction targets, see SBTi, Monitoring Report 2022 9 (2022), https://sciencebasedtargets.org/resources/files/SBTiMonitoringReport2022.pdf.

company's business in a matrix format to facilitate assessment and comparison. In the EU, the CSRD requires companies to describe their board members' roles concerning sustainability matters and the skills relevant to fulfilling those roles.[6] Germany has recently distinguished itself from other countries by explicitly demanding in the 2022 edition of the German Corporate Governance Code (GCGC) that companies include sustainability expertise in their skills matrix.

In this study, we conduct a skill-set focused, in-depth analysis of corporate governance disclosures of companies in the DAX-40 Index for the year 2022. We also analyze the corresponding disclosures of companies in the CAC-40 Index, the major French stock market index. The French corporate governance code stands out as having long addressed sustainability-related expectations from company boards; however, as yet it makes no recommendation to use a skills matrix or disclose the sustainability skills of directors. Our observations from these two countries could provide valuable insights for policymakers considering the design of their own recommendations or requirements for disclosing board skills. The practices of German and French companies could serve as a valuable benchmark for firms in other countries regarding the disclosure of board sustainability skills, or for those contemplating such disclosures.

In Section 2, we provide background information supporting our hypothesis that directors' sustainability skills can serve as a meaningful commitment device. We begin by outlining the expectations of regulators, investors, and proxy advisors regarding director skills and their disclosure, which align with our hypothesis. We then briefly review the academic literature linking boards' sustainability skills to sustainability performance. In Section 3, we describe our sample and the data collection process. In Section 4, we first present our general observations regarding the disclosure of director skills. We then provide specific comparative evidence on the prevalence of disclosing director skills in a matrix form, the number of skill categories used, and the coverage of the disclosure, including whether and how sustainability skills are reported. Thereafter, we focus on directors with sustainability skills and separately report for the DAX-40 and CAC-40 indices the average percentage of directors with sustainability skills. In Section 5, we develop regulatory avenues through which the disclosure of relevant information on board members' skill sets can be further improved. Section 6 summarizes our findings and concludes with policy suggestions.

2 BACKGROUND

2.1 Regulatory Expectations for Skills Disclosures of Board Directors

The 2023 edition of the G20/OECD Principles of Corporate Governance (hereinafter "the Principles") are a key international benchmark for good corporate governance (for a critical assessment, see Ferrarini 2022). The Principles expect boards to consider material sustainability matters when performing their key functions and to ensure that effective governance and internal controls are established to improve the reliability and credibility of sustainability disclosures.[7] In this context, the Principles assign a critical role to boards in defining the collective or individual profiles of directors that the company needs. They also mandate regular assessments by the board to ensure that its members possess the appropriate mix of backgrounds and competencies.[8] Since the latest revision in 2023, the Principles explicitly state that this board assessment may also be based on experience and expertise, including on sustainability.[9] The

---

[6] See infra Section 2.1.
[7] See OECD (2023), Principle VI.C.
[8] See OECD (2023), Principles V.D.6 and V.E.4.
[9] See OECD (2023), Principle V.E.4; OECD (2015), Principle VI.E.4.

Principles also call for a full and timely disclosure of the experience and background of director nominees to allow an informed voting process.[10] The Principles operate under the implicit assumption that investors regard directors' sustainability skills and experience as critical determinants in their investment and voting decisions, aligning with our bonding hypothesis.

Some jurisdictions have already implemented standards on the disclosure of director skills. For instance, for each director or person nominated or chosen to become a director, public US companies are required to annually disclose the specific experiences, qualifications, attributes, or skills that led the board to conclude that the person should serve as a director of the company.[11] This requirement was implemented in 2010 following an amendment by the US Securities and Exchange Commission (SEC) to Regulation S-K, aimed at providing investors with more meaningful disclosures to aid their voting decisions. The SEC did not specify which particular information should be disclosed and provided companies with "*flexibility in determining the information about a director's or nominee's skills, qualifications or particular area of expertise that would benefit the company and should be disclosed to shareholders*".[12] More ambitious plans, originally proposed in the recently adopted rule titled "The Enhancement and Standardization of Climate-Related Disclosures for Investors", would have required issuers to state whether any member of the board of directors has expertise in climate-related risks and to comprehensively describe the nature of this expertise in necessary detail.[13] However, these provisions were ultimately not adopted.[14] The final rule at least mandates the disclosure of this information for the position holders if the issuer designates management positions or committees for assessing and managing climate-related risks.[15]

In the European Union, a 2017 guideline issued by the European Commission under the Non-financial Reporting Directive 2014/95/EU (NFRD)[16] indicated that diversity-related disclosures concerning board members' professional backgrounds could also include "*expertise in relevant sustainability matters*".[17] The CSRD, which will shape the reporting of many large companies from 2025 onward, starting with data from 2024, will further require companies to include in their management report "*a description of the role of the administrative, management and supervisory bodies with regard to sustainability matters, and of their expertise and skills in relation to fulfilling that role or the access such bodies have to such expertise and skills*".[18]

The Australian Corporate Governance Code, which recommends corporate governance practices for entities listed on the Australian Stock Exchange on a "comply or explain" basis, specifically states that listed companies should establish and disclose a board skills matrix. This matrix should detail the current mix of

---

[10] See OECD (2023), Principle II.C.5

[11] See Regulation S-K, Item 401(e).

[12] See SEC Release No 33-9089, "Proxy Disclosure Enhancements". Available at https://www.sec.gov/file/final-rule-release-no-33-9089.

[13] See SEC Release No 33-11042, "The Enhancement and Standardization of Climate-Related Disclosures for Investors". Available at https://www.sec.gov/files/rules/proposed/2022/33-11042.pdf.

[14] See SEC Release No 33-11275 and 34-99678 17, "The Enhancement and Standardization of Climate-Related Disclosures for Investors", 87 FR 21668, 21713.

[15] 17 CFR § 229.1501(b)(1).

[16] Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups, (2014) O.J. L 330/1.

[17] See Communication from the Commission — Guidelines on non-financial reporting (methodology for reporting non-financial information), (2017) O.J. C 215/1.

[18] See Art. 19a(2c) and Art. 29a(2c) of Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC (Accounting Directive), (2013) O.J. L 182/19.

skills on the board, the skills the board aims to acquire, or both. Companies opting to disclose the skill sets possessed by their board are required to provide only aggregate information at the board level, without revealing the specific skills of individual directors.[19] Similarly, since 2021, Japan's Corporate Governance Code recommends that Japanese listed companies disclose the combination of skills that each director possesses "*in an appropriate form according to the business environment and business characteristics, etc., such as what is known as a 'skills matrix.'*"[20] In France, the corporate governance code, titled the "AFEP-MEDEF Corporate Governance Code of Listed Corporations", makes no recommendation about using a skills matrix or disclosing director sustainability skills. However, the code states that each board should consider the desirable balance of its membership, including dimensions such as diverse qualifications and professional experiences. Hence, the code also recommends disclosing each director's main areas of expertise and experience.[21] The AFEP-MEDEF Code first referred to sustainability issues in its 2016 edition, earlier than in many other jurisdictions, by recommending that board members be informed about important issues, including corporate social and environmental responsibility.[22] Since 2018, the code enhanced its sustainability-related guidance and added new recommendations about board responsibilities regarding social and environmental matters (i.e., opportunities and risks) and board training in this area.[23]

As a precursor to the board skills matrix, the 2017 edition of the GCGC stated that the supervisory board should prepare a profile of skills and expertise for the entire supervisory board, ensuring that its members collectively possess the knowledge, skills, and professional expertise needed to perform their duties properly. Complying companies should disclose the implementation status of this profile in their corporate governance statement.[24] The 2022 edition of the code recommended presenting this information in the form of a "qualification matrix". Furthermore, the skills and expertise profile should comprise those regarding sustainability issues relevant to the enterprise.[25] This pioneering recommendation to include sustainability expertise in the skills matrix sets Germany apart from other countries. This allows us to present novel data on the governance practice of German companies in Section 4, elucidating and informative for policymakers worldwide.

2.2 Expectations of Investors and Proxy Advisors

Investors and proxy advisors demand detailed disclosures about director skills independent of and beyond new regulations. For instance, Glass Lewis, a major proxy advisor, states in its 2024 benchmark policy

---

[19] A board skills matrix was first mentioned in the 2014 edition of the Australian code and was enhanced in its 2019 edition. See Recommendation 2.2 of Corporate Governance Principles and Recommendations issued by the ASX Corporate Governance Council in 2014 and 2019, available at https://www.asx.com.au/documents/asx-compliance/cgc-principles-and-recommendations-3rd-edn.pdf and https://www.asx.com.au/documents/asx-compliance/cgc-principles-and-recommendations-fourth-edn.pdf, respectively.

[20] See Supplementary Recommendation 4.11.1 of Japan's Corporate Governance Code. Available at https://www.jpx.co.jp/english/equities/listing/cg.

[21] See Recommendation 7.2 and Appendix 3 of the December 2022 edition of the AFEP-MEDEF Corporate Governance Code of Listed Corporations.

[22] See Recommendation 3.1 of the November 2016 edition of the AFEP-MEDEF code.

[23] See Recommendations 1.1, 1.4, 1.5, 14.1, and 17.2 of the December 2022 edition of the AFEP-MEDEF code. These recommendationswere first introduced in 2018. The 2022 edition further reinforced the role of the board as the guarantor of the company's social and environmental responsibility strategy and introduced a new chapter titled "The Board of Directors and the Social and Environmental Responsibility".

[24] See Recommendation 5.4.1 of the 2017 edition of the German Corporate Governance Code. Available at https://www.dcgk.de/files/dcgk/usercontent/en/download/code/170214_Code.pdf.

[25] See Recommendation C.1 of the 2022 edition of the German Corporate Governance Code. Available at https://www.dcgk.de//files/dcgk/usercontent/en/download/code/220627_German_Corporate_Governance_Code_2022.pdf.

guidelines that it will consider recommending voting against the chair of the nomination committee "*[i]n egregious cases where the disclosure of a large European company does not allow for a meaningful assessment of the key skills and experience of incumbent directors and nominees to a board*" (Glass Lewis 2024). Furthermore, Glass Lewis builds proprietary standardized skills matrices for companies included in selected market indices, allowing investors to assess and compare issuers more easily, even if the companies do not provide a matrix themselves (Glass Lewis 2020).

Vanguard, the world's second largest asset management company with assets under management exceeding 8 trillion USD[26], outlines in its proxy voting policy document for European and UK companies that it expects companies to disclose a skills matrix (Vanguard 2024). Similarly, DWS, a leading European asset management company based in Germany, states in its voting guidelines that it will generally vote against an appointment or reappointment of a director if there is no comprehensive disclosure of the candidate's qualification and suitability in a competence profile and qualifications matrix (DWS 2024).

Another recent endorsement of the skills matrix has come from the Association Française de la Gestion Financière (AFG), the professional body representing the asset management industry in France. In its 2023 "Recommendations on Corporate Governance," the AFG specified that the nomination committee should maintain a skills matrix summarizing the essential skills deemed necessary by the company. This matrix should be made available to investors (AFG 2023). Furthermore, the 2024 release of these recommendations noted that for each director nominee, the skills that they will bring to the table and the classification on the skills matrix should be disclosed to shareholders (AFG 2024).

2.3 Literature Linking Directors' Sustainability Skills to Sustainability Performance

The commitment hypothesis explains regulators' and investors' push to receive more and better information on whether issuers include sustainability experts on their boards. The underlying assumption is that such expertise would lead to improved board oversight and guidance concerning sustainability matters, resulting in a stronger sustainability performance. This may be desirable for many investors (Pástor, Stambaugh, and Taylor 2021), even though the respective assets need not outperform non-sustainable investment alternatives (Pástor, Stambaugh, and Taylor 2023; 2022). Against this background, there is also growing academic interest in exploring the relationship between boards' sustainability skills and firms' sustainability performance.

Empirical evidence from major UK companies indicates that having non-executive directors with prior experience in environmental issues is linked to lower greenhouse gas emissions. This effect is particularly pronounced when these directors are members of board-level sustainability committees and possess strong networksHowever, in the long term, sustainability objectives (Homroy and Slechten 2019). Similarly, a study covering company data from the US, Canada, and 13 European countries shows that board environmental expertise is positively associated with stakeholder orientation and corporate environmental performance, measured as a combined score in emission reduction, resource consumption reduction, and environmental innovation (Asad et al. 2023).

Walls and Hoffman find that the board's past environmental experience plays a significant role in enabling companies to surpass their peers in environmental practices (Walls and Hoffman 2013). A related group of studies investigates how a specialized board committee focusing on sustainability matters affects corporate sustainability performance measures, some of which also make use of sustainability expertise

[26] The Balance (March 17, 2022). Leading investment management firms worldwide in 2022, by assets under management (in trillion U.S. dollars) [Graph]. In Statista. Retrieved January 15, 2024, from https://www.statista.com/statistics/1378611/worldwide-investment-fund-firms-leading-by-assets-under-management

measures. One such study based on a sample from the UK shows that companies with CSR committees headed by a chair with CSR expertise face fewer CSR controversies. However, having such a committee chair has no significant effect on the company's overall CSR performance or CSR strategy (Elmaghrabi 2021). Another study focuses on S&P 500 companies and finds that environmental committees are positively associated with corporate environmental performance. This relationship is enhanced when the company has a senior-level sustainability manager (Dixon-Fowler, Ellstrand, and Johnson 2017). Velte and Stawinoga review the literature investigating the influence of CSR committees on CSR-related outcomes and report that CSR committees positively influence CSR reporting and performance (Velte and Stawinoga 2020).

However, studies in this field typically suffer from endogeneity problems, as it is difficult to establish causality given the likelihood of omitted-variable bias. Firms may improve their sustainability performance and opt for a specific board composition precisely for the same reasons not captured in the estimated models. Furthermore, the chosen measure of sustainability performance typically focusses on a narrow aspect of overall sustainability, such as greenhouse gas emissions. Therefore, most analyses do not accommodate conclusions about overall sustainability performance. A recent study investigates sustainability performance, looking at both environmental and social practices, and attempts to tackle the endogeneity problems by exploiting an exogenous shock. It shows that the sustainability performance of US firms increases on average by 7.1% when their directors acquire sustainability expertise through exposure to sustainability reforms in other countries where they serve on boards (Iliev and Roth 2023).

3 SAMPLE AND DATA

To assess the value of corporate disclosures for investors who want to gauge and compare firms' commitments to sustainability objectives, we explore whether and how companies have complied with the new recommendation of the GCGC to disclose director skills in a matrix format and to include sustainability expertise therein. To that end, we conduct a detailed analysis of corporate governance disclosures of companies in the DAX-40 Index for the year 2022.

To allow for a cross-country comparison, we also analyze the corresponding disclosures made by companies in the CAC-40 Index. Our analysis of the disclosures of CAC-40 companies provides a perspective from France, a country that has long addressed sustainability-related expectations for company boards but does not explicitly mention the use of skills matrices or sustainability skills disclosure (see above 2.1).

We collect data on director skills for 38 companies in the DAX-40 Index[27] and 40 companies in the CAC-40 Index from disclosures in 2022 annual reports, corporate governance statements, or universal registration documents. We use the same data sources to compare 2022 disclosure practices with those observed in 2021 for a sub-sample of DAX companies. The constituents of the DAX-40 and CAC-40 indices are based on the November 2023 composition.

Comparing data on supervisory boards (*Aufsichtsrat*) in Germany's two-tier system with boards of directors (*conseil d'administration*) in France's dominant one tier-system is highly relevant, despite the differences in the German and French corporate governance frameworks (Ventoruzzo et al. 2015, 251–52; Kraakman et al. 2017, 50–51). First, firms develop and implement their sustainability orientations as part of their long-term corporate strategy in the discourse between key executives and board members with a

[27] Airbus SE and Qiagen N.V. are excluded from the DAX sample as they are not incorporated in Germany and, therefore, are not subject to the recommendations of the German Corporate Governance Code that are explored in this study. While Qiagen N.V. still reports director skills in a matrix format, Airbus SE discloses them at the individual director level, but not in a matrix format.

supervisory function. This ongoing dialogue essentially levels the organizational differences enshrined in the corporate statutes in firms' governance practices. Therefore, looking at the respective board members in Germany and France sheds light on firms' relevant commitments. Second, the term "board," as used in the G20/OECD Principles of Corporate Governance, according to the Preamble, refers not only to boards of directors in one-tier systems but also to supervisory boards in two-tier systems. This equal treatment also reflects investors' practices of comparing supervisory boards in two-tier systems and the boards of directors in one-tier systems to assess board structures.

4 EMPIRICAL EVIDENCE

4.1 Reporting Director Skills

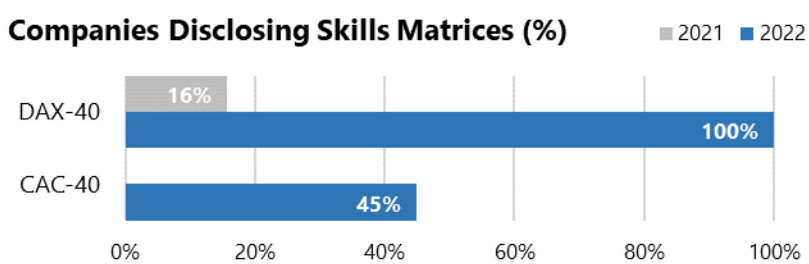
4.1.1 Use of Skills Matrices

Presenting directors' skills and expertise in a matrix format provides a clear and comprehensive snapshot of each director's contribution to the profile of the skills and expertise required for the board. It also allows for assessing the board's overall fulfillment of the profile and discerning how a particular nominee would complement the current profile.

According to Figure 1, before the GCGC was updated in 2022, only 16% of DAX companies presented skills information in a matrix format. In 2022, however, all DAX companies chose to comply with the new recommendation.

On the other hand, although there is no recommendation in the French code to use a skills matrix, 18 CAC-40 companies (45%) reported director skills in a matrix format in 2022, suggesting that this is emerging as a best practice. Evidence from the US also supports this observation. In 2022, 66.2% of S&P 500 companies disclosed director skills in a matrix format, representing a significant increase from 2016, when this was only 14.3% (Shapira and Nili 2024). However, in France and the US, the use of a skills matrix remains significantly less common than in Germany.

Figure 1. Disclosure of Skills in a Matrix Format

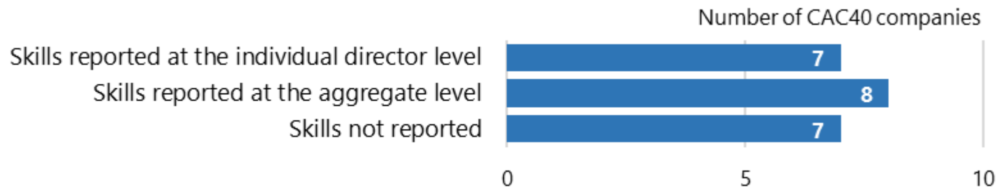


Source: Annual reports, annual corporate governance statements, or universal registration documents of DAX-40 and CAC-40 companies.

4.1.2 Alternatives to Using Skills Matrices

An analysis of the annual reports issued by the remaining 22 CAC-40 companies, which do not disclose skills matrices, provides evidence of some alternatives to using matrices. Figure 2 shows that seven of the 22 companies using alternative disclosure techniques reported skills in a way that still allowed readers to see each director's skill set, either by reporting such information in directors' respective biographies or by listing the relevant directors' names under each desired skill. Although readers can extract the information presented in the matrix format under these alternative reporting practices, acquiring and comparing the relevant data requires significantly more effort.

Figure 2. Alternatives to Using Skills Matrices



Source: Annual reports or universal registration documents of CAC-40 companies in 2022.

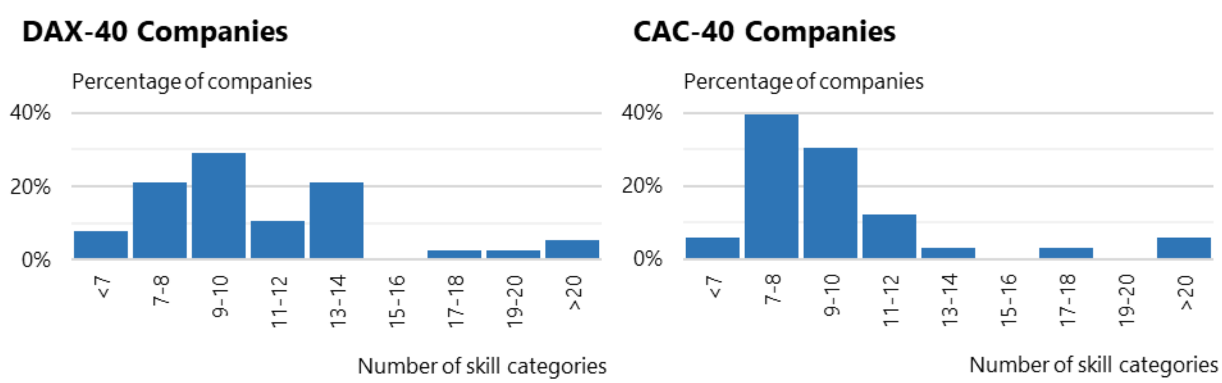
Eight companies reported director skills in aggregate, precluding analysis at the individual director level, yet still offering insight into the board-level fulfillment of the desired skill profile. Finally, seven CAC-40 companies did not address director skill sets in their annual disclosures.

4.1.3 Number of Skill Categories

Although the GCGC recommends the preparation of a profile of skills and expertise for the supervisory board and the inclusion of sustainability expertise, it leaves the specifics of building this profile to the companies themselves. Boards, therefore, determine how many different skill categories they wish to include in their skills profile.

Figure 3 shows the percentage of companies that report a specific number of director skills in the annual report. This allows a comparison between companies in the DAX-40 and CAC-40 indices.[28] Companies in the CAC-40 Index concentrate in the range of 7 to 10 skill categories, with 70% of companies fitting this profile. In contrast, the number of skill categories used by the DAX companies exhibits greater variation.

Figure 3. Number of Skill Categories Reported



Source: Annual reports, annual corporate governance statements, or universal registration documents of DAX-40 and CAC-40 companies in 2022.
Notes: The percentages reported are expressed as a share of the total number of companies disclosing director skills, i.e., 38 DAX-40 companies and 33 CAC-40 companies, respectively.

---

[28] When a company reports subcategories of skills, each is counted separately. For example, if a company provides a breakdown of the "ESG" skill into "Environmental," "Social," and "Governance" subcategories, each is considered a distinct skill, totaling three different skills.

While DAX-40 companies included 11 categories in their skills matrices on average, CAC-40 companies disclosed 10 different categories. The number of reported director skills in our sample is comparable to that reported by US companies. According to a study that analyzes types of director skills from companies' descriptions of specific experiences, qualifications, or skills that were disclosed during a director's nomination, the average number of skills represented on the board of a US public company is 10.42 (Adams, Akyol, and Verwijmeren 2018).

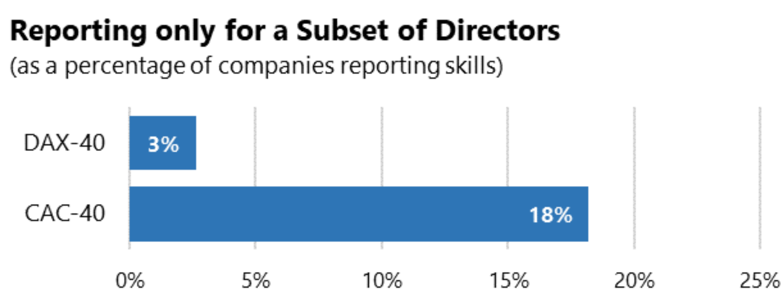
4.1.4 Coverage of Disclosure

In the absence of specific guidance on how to report director skills, companies may adopt differing approaches regarding whether to cover all directors or only a subset. This leads to inconsistent scopes of director skills disclosures across companies. Figure 4 shows the percentage of companies reporting skills only for a subset of directors.

According to Figure 4, only one (3%) of the DAX companies excluded a subset of directors when reporting skills in 2022. Specifically, employee representatives on the board were not included in the skills matrix. This exclusion meant that no skills information was disclosed for 10 board members of this particular company, accounting for 50% of the board. DAX companies have generally made more comprehensive disclosures than in the previous year when explicit guidance on the skills matrix did not exist. In 2021, three out of the six DAX companies (50%) that utilized a skills matrix chose to exclude employee representatives from their disclosures. This practice contributed to a more restricted scope of skills disclosures during a period when the GCGC did not recommend using a matrix.

In the CAC-40 Index, out of the 33 companies that disclosed director skills in 2022, 6 (18%) provided this information only for a subset of directors. Three of these companies excluded the CEO, also serving on the board, and the remaining three excluded employee representatives, accounting for 13% of the board.

Figure 4. Coverage of the Skills Disclosure



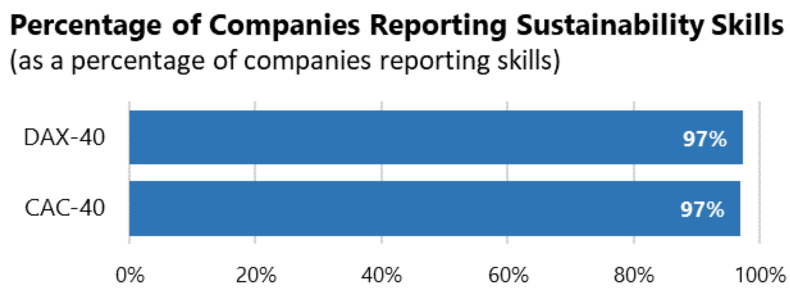
Source: Annual reports, annual corporate governance statements, or universal registration documents of DAX-40 and CAC-40 companies in 2022.
Notes: The percentages reported are expressed as a share of the total number of companies disclosing director skills, i.e., 38 DAX-40 companies and 33 CAC-40 companies, respectively.

4.1.5 Reporting Sustainability Skills

Figure 5 indicates that companies in the DAX-40 and CAC-40 indices are placing significant emphasis on board-level sustainability skills. Almost all of them have included sustainability skills in their board skills profiles. Of the 38 DAX companies in our sample, 37 (97%) have included sustainability-related skills in their matrix. Furthermore, despite the lack of a formal recommendation to include sustainability skills in board skills profiles, companies in the CAC-40 Index have also widely adopted this approach. Thirty two

(97%) of 33 CAC-40 companies that disclose director skills have included sustainability-related skills in their board profiles, accounting for 80% of all 40 companies in the CAC-40.

Figure 5. Inclusion of sustainability-related skills when reporting director skills



Source: Annual reports, annual corporate governance statements, or universal registration documents of DAX-40 and CAC-40 companies in 2022.
Notes: The percentages reported are expressed as a share of the total number of companies disclosing director skills, i.e., 38 DAX-40 companies and 33 CAC-40 companies, respectively.

The inclusion of a sustainability-related category on the skills profile typically indicates that there is at least one director on the board with sustainability skills. Specifically, among DAX-40 and CAC-40 companies that report sustainability skills, the minimum number of directors with such expertise is four.

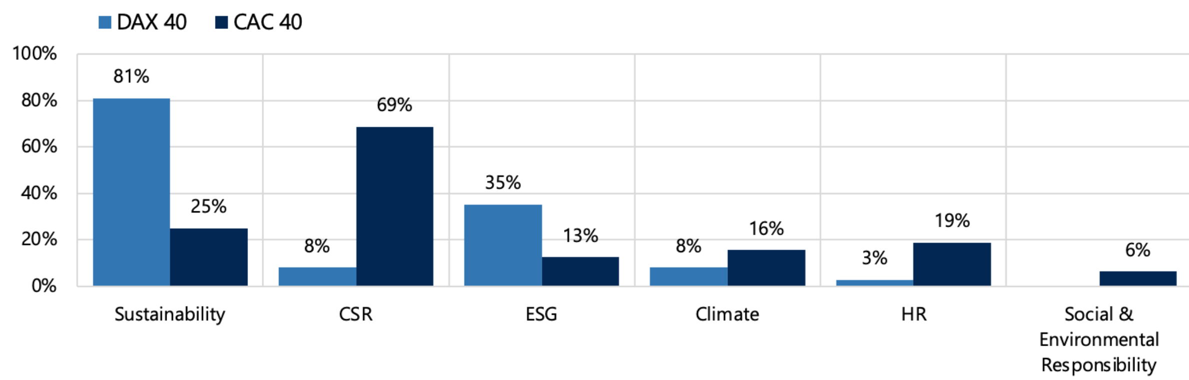
To give an international perspective, 81.8% of companies in the FTSE MIB Index, Italy's leading stock market index, had at least one director with sustainability skills as of 2020 (CONSOB 2021). In 2022, 87% of S&P 500 companies reported that their directors had ESG experience (Spierings and Washington 2023). Despite its broader scope, the S&P 500 Index can serve as a comparative benchmark because its average and median market capitalizations exceed those of the DAX and CAC indices, and the smallest companies within these indices are comparable in size.

4.1.6 Sustainability-Related Skill Categories

There is substantial heterogeneity in the way DAX-40 and CAC-40 companies categorize sustainability-related skills and, consequentially, determine their scope. Figure 6 displays six different terms and their frequency of use in naming the sustainability-related skill category among companies in the DAX-40 and CAC-40 indices.

Figure 6. Naming the Sustainability-Related Skill Category

Terms used for categorizing sustainability-related skills
(as a percentage of companies reporting sustainability skills)



Source: Annual reports, annual corporate governance statements, or universal registration documents of DAX-40 and CAC-40 companies in 2022.
Notes: The percentages reported are expressed as a share of the total number of companies reporting sustainability skills, i.e., 37 DAX-40 companies and 32 CAC-40 companies, respectively. Percentages are not supposed to add up to 100% as more than one term can be used by a given company. We do not count "HR" as a sustainability category when the term is used standalone; however, some companies combine "HR" with sustainability-related terms when naming their sustainability skills category. In this context, the term obviously characterizes something different from the traditional skill set of firms' human resources executives.

The GCGC explicitly recommends that the skills and expertise profiles of German listed firms comprise *"expertise regarding sustainability issues relevant to the enterprise."* As a result of this anchor, we observe a higher use of this skill category in the DAX 40. For instance, the majority of companies (81%) use the term "sustainability", and a significant number (35%) use the term "ESG". All the DAX-40 companies use either the term "sustainability" or "ESG" or both. A few companies combine these terms with related items, such as "climate" or "CSR".

"CSR" is the most frequently used term by the companies in the CAC-40 Index, with 69% of them using it to denote their sustainability-related skill category. This preference is likely due to the language contained in the French Corporate Governance Code. The code refers to "social and environmental responsibility" instead of "sustainability" when addressing sustainability-related subjects and uses this characterization interchangeably with "CSR"[29]. "CSR" is followed in frequency by the terms "sustainability" (25%), "HR" (19%)[30], "climate" (16%), and "social and environmental responsibility" (6%). Frequently, the skill category is presented as a combination of these as well as additional terms, leading to categories such as "Human Resources/CSR", "CSR & Ethics", "Sustainable development/Societal and environmental commitment", "Social and environmental responsibility/Sustainable development". As a result, the somewhat inconsistent categorization of sustainability-related skills among CAC-40 companies, especially due to the combination of diverse categories, may complicate the understanding and comparison of specific skill content and the determination of which directors possess which specific sustainability skills. For instance, it is unclear if a director who is attributed "Human Resources/CSR" skills in the firm's disclosure has CSR or human resources skills or both.

---

[29] See, for instance, Article 14.1 and Appendix 1 (December 2022 subheading) of the AFEP-MEDEF code.

[30] We do not count "HR" as a sustainability category when the term is used standalone; it is only considered part of this category when combined with other sustainability skills categories (as previously mentioned).

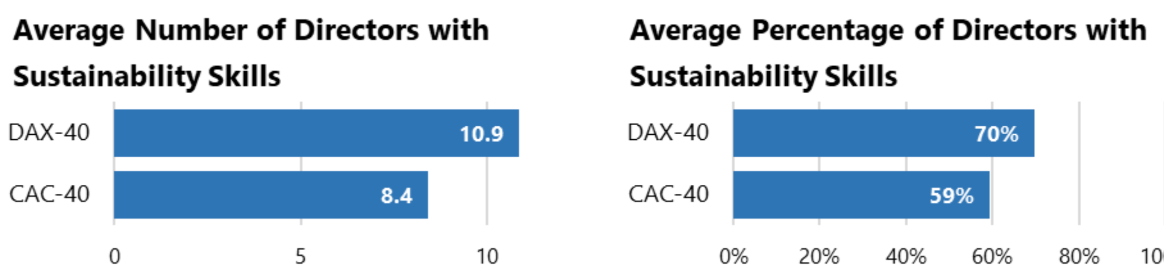
Only five CAC-40 and seven DAX-40 companies provide a more granular view of sustainability-related skills by identifying multiple categories or forming subcategories within the main sustainability category. An example of this practice is to provide a breakdown into (E)nvironmental, (S)ocial, and (G)overnance subcategories when presenting ESG skills for directors.

Finally, while companies typically establish a specific skill category clearly related to sustainability issues, they may also develop other skill categories that intersect with this category. For instance, "Accounting and auditing, including sustainability reporting" is one such skill category, which seven DAX-40 companies declare. It remains unclear whether directors listed under this category as having sustainability reporting skills are also included under the general sustainability-related skill category. Nonetheless, such a 'double listing' would be a logical consequence of the observed categorization of these skills.

4.2 Directors with Sustainability Skills

It may be of interest to stakeholders to determine how many directors possess sustainability skills and, possibly, to contrast firm-specific observations with general practices to gauge a firm's observable commitment to sustainability goals relative to its peers (see above section 0). Figure 7 presents the average number and percentage of directors with disclosed sustainability skills on the boards of DAX-40 and CAC-40 companies.[31] On average, DAX-40 companies have 10.9 directors with sustainability skills. The average percentage of directors with sustainability skills is 70%, calculated individually for each company to account for variations in board size and then averaged across all companies. In contrast, CAC-40 companies have a lower average of 8.4 directors and a percentage of 59% with sustainability skills.[32]

Figure 7. Directors with Sustainability Skills: DAX-40 vs. CAC-40



Source: Annual reports, annual corporate governance statements, or universal registration documents of DAX-40 and CAC-40 companies in 2022.
Notes: The sample in this figure consists of the companies reporting sustainability skills (except for the one DAX company reporting skills for only half of its supervisory board), i.e., 36 DAX-40 companies and 32 CAC-40 companies, respectively.

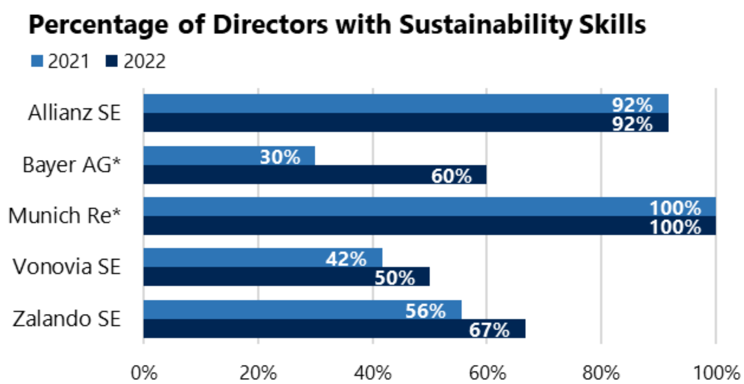
---

[31] When collecting data on directors' sustainability skills, we follow certain rules: First, if a company reports two or more skill categories that are directly related to sustainability, we count a director as having sustainability skills if they have either of those skills. For instance, if a company reports sustainability in two categories, such as "Environmental Sustainability" and "Social Sustainability", having skills in either category is recorded as having sustainability skills. Second, a few companies report three different levels of skills for each category. We count those directors who are reported as having one of the two higher levels of sustainability expertise (e.g., those with "Good knowledge" or "Expert knowledge", but not those with "Basic knowledge) as having sustainability skills.

[32] As discussed in Section 4.1.4, six of the 33 CAC-40 companies that disclosed director skills in 2022 excluded a small subset of directors from this disclosure, accounting, on average, for 10% of the entire board. In such cases, the directors excluded from disclosures are neglected (from both the numerator and the denominator) when calculating the percentage of directors with sustainability skills. Furthermore, a few CAC-40 companies have "censors" (also known as "non-voting directors") on their boards. Censors do not fall within the scope of this study.

Germany's lead in this respect could be associated with the explicit recommendation contained within its Corporate Governance Code to include and report sustainability expertise in the skills matrix. Germany's advantage could simply be a result of underreporting in France. Alternatively, this difference could also result from an incentive effect of enhanced transparency, where the disclosure requirements motivated German firms to improve the sustainability skills on their boards. Figure 8 presents data from the five DAX companies that reported sustainability skills in their matrices in 2021 and 2022. It shows, consistent with the second hypothesis, that three companies (Bayer AG, Vonovia SE, and Zalando SE) increased the percentage and number of directors with sustainability skills on their boards. At the same time, the remaining two (Allianz SE and Munich Re) kept it at their already high level.

Figure 8. Directors with sustainability skills: 2021 vs. 2022

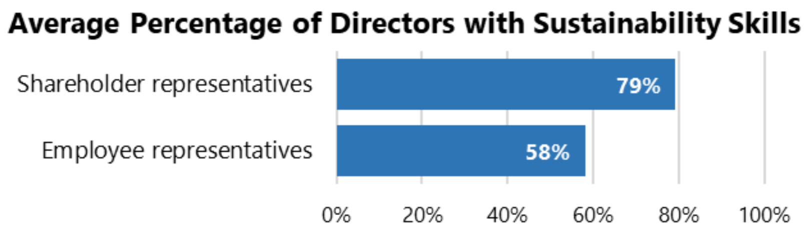


Source: Annual reports and annual corporate governance statements of DAX-40 companies in 2021 and 2022.
Notes: Companies marked with an asterisk (*) disclosed their skills matrix only for their shareholder representatives in 2021. For them, the comparison is based on shareholder representatives.

Figure 9 indicates that a significantly higher percentage of shareholder representatives on German supervisory boards tends to hold sustainability skills than employee representatives.[33] This imbalance is likely due to the board's influence over the nomination of shareholder representatives, as opposed to employee representatives, creating a skewed channel for calibrating the board's skill set. Therefore, increasing sustainability skills on the board may be more readily achieved by shaping the group of shareholder representatives in the short term. However, in the long term, sustainability objectives are likely to become incrementally important for labor representatives, thus leading to an increase in relevant skills on the employee bench.

Figure 9. Employee vs. Shareholder Representatives

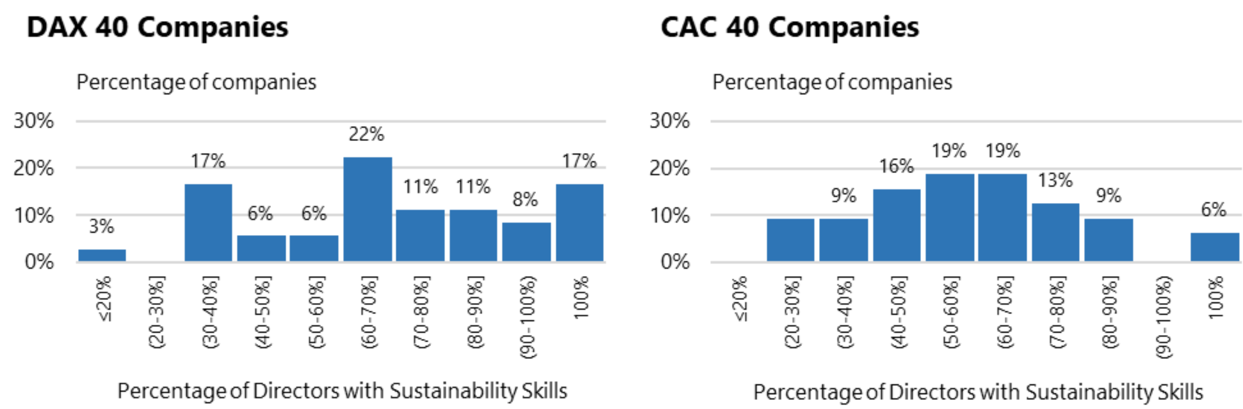
[33] Thirty four of the 38 DAX-40 companies under review have directors representing employees on their boards. In 32 of those companies, employee representatives make up half of the supervisory board, and in the remaining two companies, they make up one third of the board. This practice follows from the German Co-Determination Act and the German One-Third Participation Act. On the other hand, the role of employee representatives is less significant in France. Among the CAC-40 companies, 35 out of 40 have employee or employee shareholder representatives on their boards. However, these members typically number no more than four on average, accounting for 18% of the board.



Source: Annual reports and annual corporate governance statements of DAX 40 companies.

Figure 10 presents two histograms showing the decile distribution of companies with respect to the percentage of directors with sustainability skills on their boards. A noticeable difference between the panels for DAX-40 and CAC-40 companies is that while the distribution for CAC-40 companies has a clear bell shape, for DAX-40 companies, it has multiple peaks.

Figure 10. Distribution of companies with respect to the percentage of directors with sustainability skills



Source: Annual reports, annual corporate governance statements, or universal registration documents of DAX-40 and CAC-40 companies in 2022.
Notes: See the notes under Figure 7 for a description of the sample used.

The distribution of CAC-40 companies has a single peak around the midpoint. Only two CAC-40 companies report that all their directors have sustainability skills. On the lower end, the CAC-40 company with the lowest percentage of directors possessing sustainability skills has 27% of its directors equipped with such expertise. The distribution of DAX-40 companies, on the other hand, reveals three peaks. Seventeen percent of DAX-40 companies report that all their directors have sustainability skills. At the lowest end, one company has only 20% of its board possessing sustainability skills.

These dispersed distributions and the multimodal pattern observed among DAX-40 constituents indicate a lack of convergence across companies towards a specific range of directors with sustainability skills. One can expect the chosen board composition to depend on, among others, the degree to which sustainability is relevant to a company's industry, the sustainability challenges specific to the company's business, and, somewhat relatedly, the company's emphasis on sustainability. There is no one-size-fits-all model due to firms' idiosyncrasies; therefore, investors (and other stakeholders) need to evaluate the adequacy of boards' skill sets in light of diverging business models, transition strategies, and other factors.

The observed differences in "sustainability skills" at the board level among companies may also depend on each company's interpretation of these skills and the applied methods for their disclosure. A skills matrix is typically based on annual self-assessments carried out by the board. Within the same group of directors, a more stringent company that reports a director as having sustainability skills only if they possess significant sustainability-related professional experience would consistently report a lower percentage of directors with these skills compared to a more lenient company that considers completion of sustainability training sufficient for such reporting. Although only a few companies describe how they evaluate sustainability skills in detail, some examples outlined below illustrate the diversity of the approaches.

One company, for instance, states that its supervisory board considers its members to possess expertise and experience in the corresponding skill categories if they have completed professional training in that field or have accumulated a certain number of years of professional experience.[34]Other companies note that a director is reported as having a particular skill if they possess a strong understanding of the subject, implying the ability to grasp relevant issues effectively and make informed decisions. Good knowledge may result from existing qualifications, experience acquired as a board member, or regular board training.[35] On the other hand, several other companies report three different levels of skills for each category. For instance, one such company reports the levels “Basic knowledge,” “Good knowledge,” or “Expert knowledge.” “Good knowledge” requires many years of practical experience on the subject, and “Expert knowledge” necessitates expertise in the entire subject area acquired through a role as a decision-maker.[36] A few companies allow board members to choose only up to five skills on the matrix.[37] This restriction may result in an understatement compared to companies with less restrictive approaches.

5 Regulatory Interventions for Further Improvement

5.1 The case for mandatory disclosure of board members’ sustainability skills

The disclosure of board members’ sustainability skills can be understood as a signaling tool allowing firms to commit to meaningful and ambitious sustainability transition targets. Appointing personnel with a distinct set of skills at the highest level provides a strong signal that firms are willing to put their money where their mouth is, that is, firms commit significant resources to advancing their transition agendas, rather than merely promising to do so (above section 0). This signaling hypothesis is consistent with investors’ and information intermediaries’ (proxy advisors) increased demand for information on directors’ and nominees’ skill sets (above section 2.2). It also aligns with the available evidence on the interrelation of boards’ sustainability skills and firms’ sustainability performance. However, the empirical results in this body of literature do not conclusively establish a causal relationship.

Our findings indicate that self-regulatory interventions like the GCGC can induce companies to disclose relevant information following a matrix format that facilitates investors’ comparative assessments. Moreover, we also provide evidence from France that investor pressure can lead to some standardization in the disclosure of directors’ skills, albeit far more limited. In addition, we highlight that the lack of a consistent definition of sustainability expertise remains worrisome. Neither the GCGC nor its French counterpart defines what constitutes sustainability expertise. This shortcoming gives companies significant flexibility in specifying which directors have sustainability skills. For example, while 100% of the supervisory board members at 17% of the companies in the DAX sample possess sustainability skills, one DAX company reported that only 20% of its directors had such skills. This considerable divergence likely

[34] Please refer to the 2022 annual report of Bayer AG.

[35] See, for instance, the 2022 annual reports of Allianz SE, Beiersdorf AG, Hannover Rück SE, Merck KGaA, Rheinmetall AG, RWE AG, Siemens AG, and Siemens Energy AG.

[36] See, for instance, the 2022 annual reports of Commerzbank AG, Covestro AG, and Fresenius SE & Co. KGaA.

[37] See, for instance, the 2022 annual report of Vonovia SE and the 2022 universal registration document of Danone SA.

arises from companies' distinct approaches to interpreting and reporting director skills (for more illustrations, see above section 4.2).

The differing approaches across companies to defining director skills may make it difficult for investors and other stakeholders to assess sustainability skills at the board level. If companies adopt overly lenient criteria for evaluating directors' sustainability skills, the resulting disclosures may become ineffective. In environments where many companies use such lenient criteria, boards might be hesitant to adopt stricter standards, even if they deem a more rigorous approach necessary, because a more rigid stance would make them look as if they were trailing competitors. Basic signaling theory (Grossman 1981) suggests that in the absence of rigorously enforced standards that make sending a high-quality signal costly for low-quality firms, companies committed to ambitious transition pathways may struggle to credibly communicate their quality to investors. The projected market failure (Akerlof 1970) calls for mandatory disclosure because the informed party (issuer) has no means to signal the attributes of the offered good (investment) credibly, and the uninformed party (investor) has no means of becoming informed about that attribute. Although powerful incentives to disclose information exist for high-quality suppliers (Milgrom 2008), more nuanced justifications of disclosure mandates (Leuz and Wysocki 2016; Enriques and Gilotta 2015) point to, among other things, the public good characteristics of standardization (Zingales 2009), managerial agency problems (Coffee 1984), and the relevance of effective enforcement regimes (Jackson and Roe 2009; La Porta, Lopez-De-Silanes, and Shleifer 2006) that might explain information underproduction under pure private ordering regimes.

The evidence we present indicates that without highly specified disclosure standards, reporting entities have incentives to blur the information with confounding data and language (e.g., bundling sustainability skills with other skills under one reporting category) and skew the disclosures to make the firm appear in an overly favorable light (e.g., reporting director skills aggregated at the board level or reporting the skills of only a subset of directors) (for more on the drivers of these undesirable reporting practices, see Christensen, Hail, and Leuz 2021)). Avoiding vague standards requires more than merely establishing prescriptive disclosure rules. Effective enforcement through comprehensive audits and government oversight (public enforcement) is also crucial (Gipper, Leuz, and Maffett 2020; Christensen, Hail, and Leuz 2013; DeFond and Zhang 2014).

5.2 The location for mandatory disclosure of board members' skill sets

Policymakers who want to support firms' commitment efforts should regulate the standardized disclosure of board members' and nominees' skill sets in a matrix form in the law. This would enhance the information's credibility, because misreporting could be sanctioned under the appropriate laws, and enforcement practice would yield a far more harmonized understanding of the relevant categories over time, supported by auditing methodologies.[38] The EU's approach of mandating the disclosure of board members' sustainability skills in the management report under the CSRD (see above section 2.1) provides a solid foundation. However, Level 2 legislation and national implementations need to be significantly more specific and should prescribe a detailed skills matrix.

In addition, the disclosure of a skills matrix should become mandatory at the nomination stage. At this critical moment for issuers' credible commitments, the problems of information underproduction (see above section 5.1) are particularly pronounced. Therefore, shareholders who wish to base their voting decisions on firms' credible commitments to effective transition pathways need high-quality, comparable

---

[38] While we do not claim that auditing is a panacea, we believe it can support efforts to achieve a standardized understanding of reported items, such as sustainability skills, thereby facilitating comparative assessments.

information supported by robust enforcement mechanisms. Corporate laws' pre-election information requirements for director nominees should include an individualized skills matrix that encompasses sustainability skills. The potential risk of shareholders challenging a director's election due to significant omissions or misrepresentations serves as a strong incentive to ensure the quality of these disclosures.

6 Conclusion

Our empirical observations indicate that the recent "comply or explain" requirement introduced by the GCGC for disclosing a skills matrix, including sustainability expertise, has resulted in all German companies in the sample disclosing a matrix, with all but one company including all directors in the matrix. Such uniform application of the skills matrix is not observed among the CAC-40 companies, as there is no code recommendation addressing this issue. Although there is evidence that the skills matrix is emerging as a common practice also in France, with 45% of CAC-40 companies having adopted such a matrix, seven companies still do not report director skills, and six companies do so only for a subset of the board.

Notably, among the companies that report director skills, almost all include sustainability skills in the profile, irrespective of whether the company is in the DAX-40 Index or the CAC-40 Index. However, the naming of the sustainability skills category is clearly more consistent across DAX-40 companies. CAC-40 companies adopt many different titles to represent this category, which could hinder comparisons across companies.

An area of concern in both Germany and France is the lack of a definition of what constitutes sustainability expertise in their respective corporate governance codes, leading to inconsistencies in how sustainability expertise is defined across companies. Our analysis reveals significant variation among companies in their self-reported percentage of directors possessing sustainability skills. This variation likely stems from differing approaches in interpreting and reporting director competencies. The absence of a standard definition and methodology also leaves room for practices that obscure skills disclosure, such as bundling sustainability skills with unrelated ones, reporting skills at the board level rather than at the individual director level, and limiting disclosure to only a subset of directors.

In the absence of prescriptive disclosure rules and strictly enforced standards, companies are incentivized to portray themselves in a favorable light by, for instance, lowering the bar for sustainability expertise or introducing ambiguity in disclosure data and language. Under these circumstances, investors would face difficulties in making sense of company disclosures and distinguishing those genuinely committed to ambitious transition pathways from others.

Policymakers who want to support firms' commitment efforts and to address the information gap between issuers and investors should set highly-specified skills disclosure rules for directors and director nominees, including a standardized definition of sustainability expertise. Effective enforcement mechanisms, supported by external audits and government oversight, would be crucial for ensuring harmonized reporting, enhancing the consistency and reliability of the reported data.

7 References

Adams, Renée B., Ali C. Akyol, and Patrick Verwijmeren. 2018. "Director Skill Sets." *Journal of Financial Economics* 130 (3): 641–62. https://doi.org/10.1016/j.jfineco.2018.04.010.

AFG. 2023. "Recommandations Sur Le Gouvernement d'entreprise 2023." https://www.afg.asso.fr/afg-document/recommandations-sur-le-gouvernement-dentreprise-2023/#.

———. 2024. "Recommandations Sur Le Gouvernement d'entreprise 2024." https://www.afg.asso.fr/afg-document/recommandations-sur-le-gouvernement-dentreprise-2024/#.

Akerlof, George A. 1970. "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism." *The Quarterly Journal of Economics* 84 (3): 488–500. https://doi.org/10.2307/1879431.

Armour, John, Luca Enriques, and Thom Wetzer. 2023. "Green Pills." *Arizona Law Review* 65:285–336.

Asad, Sarosh, Jan C Hennig, Jana Oehmichen, Michael Wolff, and Veronika Haas. 2023. "From Attention to Action: How Board Environmental Expertise Influences Corporate Environmental Performance." *Strategic Organization*, September, 14761270231197995. https://doi.org/10.1177/14761270231197995.

Christensen, Hans B., Luzi Hail, and Christian Leuz. 2013. "Mandatory IFRS Reporting and Changes in Enforcement." *Journal of Accounting and Economics* 56 (2): 147–77.

———. 2021. "Mandatory CSR and Sustainability Reporting: Economic Analysis and Literature Review." *Review of Accounting Studies* 26 (3): 1176–1248. https://doi.org/10.1007/s11142-021-09609-5.

Coffee, John C. 1984. "Market Failure and the Economic Case for a Mandatory Disclosure System." *Virginia Law Review* 70 (4): 717–53. https://doi.org/10.2307/1073083.

Condon, Madison. 2020. "Externalities and the Common Owner." *Washington Law Review* 95:1–81.

CONSOB. 2021. "Report on Corporate Governance of Italian Listed Companies." https://www.consob.it/documents/1912911/1925397/rcg2021.pdf/82c2f0a3-360a-eb16-04f2-e90c11475e11.

De Long, Bradford J. 1991. "Did J.P. Morgan's Men Add Value? A Historical Perspective on Financial Capitalism." In *Inside the Business Enterprise: Historical Perspectives on the Use of Information*, edited by Peter Temin and National Bureau of Economic Research, 205–49. A National Bureau of Economic Research Conference Report. Chicago, Ill.: Univ. of Chicago Press.

DeFond, Mark, and Jieying Zhang. 2014. "A Review of Archival Auditing Research." *2013 Conference Issue* 58 (2): 275–326. https://doi.org/10.1016/j.jacceco.2014.09.002.

Dixon-Fowler, Heather R., Alan E. Ellstrand, and Jonathan L. Johnson. 2017. "The Role of Board Environmental Committees in Corporate Environmental Performance." *Journal of Business Ethics* 140 (3): 423–38. https://doi.org/10.1007/s10551-015-2664-7.

DWS. 2024. "Corporate Governance and Proxy Voting Policy 2024." https://www.dws.com/AssetDownload/Index?assetGuid=4f6b86d3-a8a8-42a0-b10c-a87585398cb7&consumer=E-Library.

Elmaghrabi, Mohamed Esmail. 2021. “CSR Committee Attributes and CSR Performance: UK Evidence.” *Corporate Governance: The International Journal of Business in Society* 21 (5): 892–919. https://doi.org/10.1108/CG-01-2020-0036.

Enriques, Luca, and Sergio Gilotta. 2015. “Disclosure and Financial Market Regulation.” In *The Oxford Handbook of Financial Regulation*, edited by Niamh Moloney, Eilís Ferran, and Jennifer Payne, 511–36. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199687206.013.19.

Ferrarini, Guido. 2022. “OECD Principles on Corporate Governance: Who Wrote Chapter VI?” *ECGI Blog* (blog). 10 2022. https://www.ecgi.global/publications/blog/oecd-principles-on-corporate-governance-who-wrote-chapter-vi.

Gipper, Brandon, Christian Leuz, and Mark Maffett. 2020. “Public Oversight and Reporting Credibility: Evidence from the PCAOB Audit Inspection Regime.” *The Review of Financial Studies* 33 (10): 4532–79. https://doi.org/10.1093/rfs/hhz149.

Glass Lewis. 2020. “Board Skills.” https://www.glasslewis.com/wp-content/uploads/2018/03/BoardSkillsAppendixEurope.pdf.

———. 2024. “2024 Benchmark Policy Guidelines - Continental Europe.” https://www.glasslewis.com/wp-content/uploads/2023/11/2024-Continental-Europe-Benchmark-Policy-Guidelines-Glass-Lewis.pdf.

Gordon, Jeffrey N. 2022. “Systematic Stewardship.” *Journal of Corporation Law* 47:627–73. https://doi.org/10.2139/ssrn.3782814.

———. 2023. “Systematic Stewardship: It’s Up to the Shareholders a Response to Profs. Kahan and Rock.” *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4521822.

Grossman, Sanford J. 1981. “The Informational Role of Warranties and Private Disclosure about Product Quality.” *The Journal of Law & Economics* 24 (3): 461–83.

Homroy, Swarnodeep, and Aurelie Slechten. 2019. “Do Board Expertise and Networked Boards Affect Environmental Performance?” *Journal of Business Ethics* 158 (1): 269–92. https://doi.org/10.1007/s10551-017-3769-y.

Iliev, Peter, and Lukas Roth. 2023. “Director Expertise and Corporate Sustainability.” *Review of Finance* 27 (6): 2085–2123. https://doi.org/10.1093/rof/rfad012.

Jackson, Howell E., and Mark J. Roe. 2009. “Public and Private Enforcement of Securities Laws: Resource-Based Evidence.” *Journal of Financial Economics* 93 (2): 207–38. https://doi.org/10.1016/j.jfineco.2008.08.006.

Kraakman, Reinier, John Armour, Paul Davies, Luca Enriques, Henry Hansmann, Gerard Hertig, Klaus Hopt, et al. 2017. *The Anatomy of Corporate Law: A Comparative and Functional Approach*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780198739630.001.0001.

La Porta, Rafael, Florencio Lopez-De-Silanes, and Andrei Shleifer. 2006. “What Works in Securities Laws?” *The Journal of Finance* 61 (1): 1–32. https://doi.org/10.1111/j.1540-6261.2006.00828.x.

Leuz, Christian, and Peter D. Wysocki. 2016. “The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research.” *Journal of Accounting Research* 54 (2): 525–622. https://doi.org/10.1111/1475-679X.12115.

Milgrom, Paul. 2008. “What the Seller Won’t Tell You: Persuasion and Disclosure in Markets.” *Journal of Economic Perspectives* 22 (2): 115–31. https://doi.org/10.1257/jep.22.2.115.

OECD. 2015. *G20/OECD Principles of Corporate Governance 2015*. OECD Publishing. https://doi.org/10.1787/9789264236882-en.

———. 2023. *G20/OECD Principles of Corporate Governance 2023*. OECD. https://doi.org/10.1787/ed750b30-en.

Pástor, Ľuboš, Robert F. Stambaugh, and Lucian A. Taylor. 2021. "Sustainable Investing in Equilibrium." *Journal of Financial Economics* 142 (2): 550–71. https://doi.org/10.1016/j.jfineco.2020.12.011.

———. 2022. "Dissecting Green Returns." *Journal of Financial Economics* 146 (2): 403–24. https://doi.org/10.1016/j.jfineco.2022.07.007.

———. 2023. "Green Tilts." *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4464537.

Shapira, Roy, and Yaron Nili. 2024. "Specialist Directors." *Yale Journal on Regulation* 41 (2): 652–716.

Spierings, Merel, and Paul Washington. 2023. "The Roles of the Board in the Era of ESG and Stakeholder Capitalism: Overview and Key Insights." *The Conference Board*. https://www.conference-board.org/pdfdownload.cfm?masterProductID=44892.

Vanguard. 2024. "Proxy Voting Policy for European and U.K. Portfolio Companies." https://corporate.vanguard.com/content/dam/corp/advocate/investment-stewardship/pdf/policies-and-reports/europe_uk_proxy_voting_policy_2024.pdf.

Velte, Patrick, and Martin Stawinoga. 2020. "Do Chief Sustainability Officers and CSR Committees Influence CSR-Related Outcomes? A Structured Literature Review Based on Empirical-Quantitative Research Findings." *Journal of Management Control* 31 (4): 333–77. https://doi.org/10.1007/s00187-020-00308-x.

Ventoruzzo, Marco, Pierre-Henri Conac, Gen Goto, Sebastian Mock, Mario Notari, and Arad Reisberg, eds. 2015. *Comparative Corporate Law*. American Casebook Series. St. Paul, Minn: West Acad. Publ.

Walls, Judith L., and Andrew J. Hoffman. 2013. "Exceptional Boards: Environmental Experience and Positive Deviance from Institutional Norms." *Journal of Organizational Behavior* 34 (2): 253–71. https://doi.org/10.1002/job.1813.

Zingales, Luigi. 2009. "The Future of Securities Regulation." *Journal of Accounting Research* 47 (2): 391–425.

about ECGI

The European Corporate Governance Institute has been established to improve *corporate governance through fostering independent scientific research and related activities.*

The ECGI will produce and disseminate high quality research while remaining close to the concerns and interests of corporate, financial and public policy makers. It will draw on the expertise of scholars from numerous countries and bring together a critical mass of expertise and interest to bear on this important subject.

The views expressed in this working paper are those of the authors, not those of the ECGI or its members.

Electronic Access to the Working Paper Series

The full set of ECGI working papers can be accessed through the Institute's Web-site (https://ecgi.global/content/working-papers) or SSRN:

Finance Paper Series	http://www.ssrn.com/link/ECGI-Fin.html
Law Paper Series	http://www.ssrn.com/link/ECGI-Law.html