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Published in:
Maandblad voor Accountancy en Bedrijfseconomie

DOI:
10.5117/mab.98.136951

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version
Publisher's PDF, also known as Version of record

Publication date:
2024

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):
Brouwer, T., & ter Hoeven, R. (2024). Impact of climate-related matters on financial instruments’ reporting: An examination of disclosure quality in the annual reports of banks in the European Union. *Maandblad voor Accountancy en Bedrijfseconomie*, *98*(6), 339-352. https://doi.org/10.5117/mab.98.136951

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MAB MAANDBLAD VOOR ACCOUNTANCY EN BEDRIJFSECONOMIE

Maandblad voor Accountancy en Bedrijfseconomie 98(6) (2024): 339–352
DOI 10.5117/mab.98.136951

Research Article

Impact of climate-related matters on financial instruments' reporting: An examination of disclosure quality in the annual reports of banks in the European Union

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Received 12 September 2024 | **Accepted** 26 September 2024 | **Published** 27 November 2024

Abstract

This study examines the disclosure quality in the 2023 annual reports of the impact that climate-related matters have on the reporting of financial instruments within banks. The sample contains the 44 largest banks supervised by the European Central Bank. We find that banks have high quality disclosures regarding their objectives, policies and processes for managing the climate-related risk arising from financial instruments. In addition, the exposure to climate related risks is also disclosed, which is mostly fuelled by regulatory disclosure requirements. Banks can improve the quality of their disclosures regarding ESG features embedded in financial instruments and the impact of climate-related risk on the allowance for expected credit losses.

Relevance to practice

This study provides the reader with an overview of the disclosure quality of the 44 largest banks supervised by the European Central Bank. The study provides a comprehensive analysis, showing on which topics banks provide high quality disclosures and which disclosures might require additional attention. In addition, good practices are highlighted which can serve as an example for preparers of financial statements.

Keywords

Climate-related matters, IFRS 9, IFRS 7, Financial Instruments, Banks, SPPI, Solely Payment of Principal and Interest, ECL, Expected Credit Loss, Provision for Credit Losses, Loan Loss Provision

1. Introduction

The climate is changing and this also has its effect on the operating models of companies. How the companies are impacted, differs per sector. One of the sectors that is (mostly) indirectly impacted is the financial sector. The financial sector itself does not have a large environmental footprint.[1] However, through their financing activities the financial institutions can facilitate polluting activities.[2] The financial sector is therefore in the position to play a pivotal role in the transfer to a more sustainable economy.

In order to nudge clients to behave more sustainably and to facilitate a timely transfer to a sustainable economy, financial institutions put environmental, social and governance (ESG) features in their contracts (Brogi et al. 2022). The set-up of the features varies widely, but usually a discount on the interest rate is offered when the client meets certain conditions set out in the contract. These ESG features serve multiple purposes, next to nudging clients. Henisz and McGlinch (2019) show, for instance,

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Amsterdam University Press

that there is a link between ESG performance and credit risk. Hence, when a client is meeting the ESG conditions set out in the contract, the client is also perceived to have a lower credit risk. Moreover, Shen et al. (2016) show that banks that incorporate social responsibility in their strategy show a stronger financial performance.

The incorporation of ESG features in the contracts complicates the financial reporting. It is currently unclear whether the ESG features can be seen as credit risk reducing factors, or a value transfer from the financial institution to the client to stimulate certain behaviour. To help the preparers of the financial statements, the International Accounting Standards Board (IASB 2024b) has completed the project 'Amendments to the Classification and Measurement of Financial Instruments'. The amendments will become effective from 1 January 2026. In the application guidance of the amendments, examples are included on how ESG features should be treated. Please note that the preceding Exposure Draft was published in March 2023 and, hence, was available when the banks prepared their financial statements (IASB 2023b). It is therefore interesting to investigate whether banks already disclose information included in the application guidance of the amendments.

Climate-related risks also affect credit risks borne by the banks. If a bank has a large mortgage portfolio near an area where wildfires are common, this can affect the credit risk that the bank is exposed to. Such exposures are an important piece of information for stakeholders in determining the extent to which the bank is exposed to climate-related risks. Moreover, Campiglio et al. (2023) show that this is an important input in the determination of asset prices. Therefore, the disclosures regarding risk management of climate-related risks on financial instruments and the exposure of climate-related risks on financial instruments are also investigated in this paper.

Banks are required to form an allowance for loan losses, and hence these climate-related risks should also be incorporated in determining the allowance (ECB 2020). This, in turn, has an impact on the financial reporting, given that banks are required to disclose their inputs, assumptions and measurement techniques for measuring their allowance for loan losses.[3] Research has found that the exposure to climate risks affects the creditworthiness of counterparties (Capasso et al. 2020). Hence, we expect that banks incorporate climate risk in the models for measuring the allowance for loan losses. We will examine the quality of the related disclosures in this paper.

This study is structured as follows; in section 2 the reporting framework and disclosure requirements for financial instruments under the International Financial Reporting Standards (IFRS) are described, along with the connection with academic research. In section 3 the sample of this study, the descriptive statistics and the disclosure index used to measure the disclosure quality are described. The outcomes of our analysis on the disclosure quality of the impact of climate-related matters on financial instruments is described in section 4. This study is concluded by section 5, in which we provide concluding remarks and give recommendations to further improve the quality of financial reporting.

2. Financial reporting for financial instruments

To apply for a banking licence within the European Union[4], a bank must prepare its financial statements using IFRS or an equivalent standard.[5] In practice, this means that all banks with a banking licence within the European Union prepare their financial statements in accordance with IFRS, endorsed by the European Union.[6] In the IFRS standards a financial instrument is defined as any contract that gives rise to a financial asset of one entity and a financial liability or equity instrument of another entity.[7] Loans meet this definition and therefore need to be accounted for using IFRS 9 'Financial Instruments'. Disclosures of financial instruments need to be made in accordance with IFRS 7 'Financial Instruments: Disclosures'. The remainder of this section is subdivided in the three topics of this paper: the accounting treatment of ESG features, risk management of climate-related risks and the measurement of the allowance for expected credit losses.

2.1. ESG features and their accounting treatment

In IFRS 9 the classification and measurement of financial assets, including debt instruments held, are dependent on two criteria, namely the entity's business model for managing the financial assets and the contractual cash flow characteristics of the financial asset.[8] If the objective of the business model is to hold financial assets in order to collect contractual cash flows and the contractual terms of the financial asset give rise to cash flows that are '*solely payment of principal and interest*' (SPPI), the financial instrument can be measured at amortised cost.[9] This measurement is preferred by banks, because if the criteria are not met, the fair value[10] of an instrument needs to be determined on each reporting date, which requires more effort and also causes volatility in the income statement. Hence, unless part of a trading portfolio, banks preferably want to measure their debt instruments held on amortised cost.

Due to the inclusion of the ESG features embedded in the loan contracts the classification and measurement of financial instruments becomes more complicated. In the proposed (IASB 2023b) and finalised (IASB 2024b) amendments to the classification and measurement of financial instruments, clarifications were given. In the application guidance of these amendments to IFRS 9 it is mentioned that in assessing whether the contractual cash flows of a financial asset are consistent with a basic lending arrangement, an entity may have to consider the different elements of interest separately.[11] The IASB refers to the ESG features as contingent events, i.e. the interest of a loan is reduced contingent on the achievement of the ESG target set in the contract. Under a strict interpretation of IFRS 9, such contracts are not eligible for amortised costs measurement. However, in the assessment of the different elements the focus should be on what the entity is compensated for, rather than how

much the compensation is. An important clarification in the final amendments is that even if the nature of the contingent event itself does *not* relate directly to changes in basic lending risks and costs (such as a reduction of an interest rate on a loan if a specified decrease in carbon emissions is achieved), the SPPI conditions could still be met.[12] In such a case, the IASB clarifies, the financial asset meets the SPPI criteria if, and only if, in *all* contractually possible scenarios, the contractual cash flows would not be significantly different from the contractual cash flows on a financial instrument with identical contractual terms, but without such a contingent feature. In some circumstances, the entity may be able to make that determination by performing a qualitative assessment; but in other circumstances, it may be necessary to perform a quantitative assessment. If it is clear, with little or no analysis, that the contractual cash flows are not significantly different, an entity needs not perform a detailed assessment.[13] We consider this guidance as a further clarification of the current guidance about '*de minimis'* effects.[14] These are effects that do not affect the classification of a financial asset because of their limited (*de minimis*) possible impact on contractual cash flows, either in a single reporting period or cumulatively over the life of an instrument. An important aspect of the 2024 amendments is the notion (previously not clearly articulated in the standard), that a financial asset with a contingent feature meets the SPPI criteria if, and only if, in *all* contractually possible scenarios, the contractual cash flows would not be significantly different from the contractual cash flows on a financial instrument with identical contractual terms, but without such a contingent feature.

Currently, most ESG features are limited to a couple of basis points discount on the contractual interest rate, if the client meets specified ESG targets. The ESG feature is therefore expected to have a limited impact on the contractual interest rate being paid and hence the 'not significantly different' criterion as mentioned above could be met. In other words, the contractual cash flows of a financial asset are then still consistent with a basic lending arrangement. However, with the heterogeneity of ESG features in contracts, there will likely be situations where judgements should be made in the application of these amendments. In this regard, it is good to note that IFRS 7 'Financial Instruments: Disclosures' has been expanded as well (paragraphs 56A-C) and requires disclosures for contingent events that do not relate directly to changes in basic lending risks and costs, such as the effect on the contractual cash flows of meeting a certain reduction in carbon emissions.

It has been shown that there is a connection between credit risk and ESG performance (Henisz and McGlinch 2019), where better ESG performance is reducing credit risk. Due to the longer-term horizon and focus on downside risk entities benefit from a broader enterprise risk management capability, which reduces credit risk. It is therefore assumed that if companies meet ESG targets set in contracts (ESG features), their credit risk is reduced compared to a similar company where it is not bound to the ESG features. Moreover, research has shown that the investments in ESG that firms make, are also priced by the credit market (Attig et al. 2013; Höck et al. 2023; Li et al. 2022). The research by Barth et al. (2022) shows that the CDS spread[15] of companies in the United States and Europe is lower for firms with higher ESG ratings. This effect is also shown in the study of Goss and Roberts (2011), where it was found that banks charge higher credit spreads to low-quality borrowers with a poor ESG-performance compared to similar peers with a better ESG-performance. This differentiating effect reduces gradually when the quality of the borrowers increases. In addition, the country in which the company operates also moderates whether firms with good ESG ratings are perceived as having a lower credit risk (Stellner et al. 2025; Abdul Razak et al. 2023). In countries with high corporate social performance, higher ESG ratings are deemed to be risk-reducing, while this effect is not present for countries with low corporate social performance.

When a financial instrument includes ESG targets, usually the contractual interest rates are contingent on meeting the ESG targets. Hence, the income of financial instruments (the financial instruments being assets) is dependent on these targets. As indicated before, in the amendments to the classification and measurement of financial instruments (IASB 2024b) disclosure requirements are included regarding ESG features. Entities should disclose a qualitative description of the nature of the contingent event, quantitative information about the possible changes to contractual cash flows that could result from those contractual terms and the gross carrying amount of financial assets and the amortised cost of financial liabilities subject to those contractual terms.[16] Please note that these disclosure requirements were also part of the Exposure Draft (IASB 2023b) and hence banks could have been aware of these upcoming disclosure requirements when they prepared their annual reports. Although these requirements are not yet effective as part of the IFRS standards endorsed by the European Union, we believe it offered and offers an opportunity for banks to adopt these requirements early by voluntarily disclosing this information. Hence, we consider our assessment as a gap analysis where we will analyse what banks already disclose compared to what is required to disclose when the amendments become effective.

The European Securities and Markets Authority (ESMA) expects preparers of financial statements to disclose the significant accounting judgements used when accounting for financial instruments with ESG features (ESMA 2023a, 2023b). The ESMA considers the current IFRS standards fit-for-purpose to provide sufficient basis for issuers to account for and to disclose climate-related matters in financial statements. In order to help preparers of financial statements in making disclosures, the ESMA has published a report in which best-practices for several topics are highlighted.

2.2. Climate-related risks arising from financial instruments

The ESMA has addressed financial institutions in that climate-related matters are a European common enforcement priority (ESMA 2023a, 2023b). For the 2023 financial statements ESMA expects financial institutions to disclose information on their engagement in green financing (including loans with ESG features), so that users can understand the impacts and assess the nature and extent of the specific risks associated with these financial instruments.[17] The climate-related risks are divided into two categories, transition risk and physical risk. The transition risk refers to a financial loss that can result, directly or indirectly, from the process of adjustment towards a lower-carbon and more environmentally sustainable economy (ECB 2020). This may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change. This risk will mainly manifest when banks have concentrated exposures to industries that are susceptible to transition risk. Physical risk refers to the impact of a changing climate, including more frequent extreme weather events and gradual changes in climate, as well as of environmental degradation, such as air, water and land pollution, water stress, biodiversity loss and deforestation. This risk can be subdivided into two subcategories, namely acute physical risk and chronic physical risk. Acute physical risk is driven by extreme climate events (e.g., wildfires or floods) and chronic physical risk is driven by longer-term shifts in climate patterns (e.g., rising sea levels or increasing temperatures).

The European Central Bank (ECB) has published a report on the supervisory expectations relating to risk management and disclosure of climate-related and environmental risks (ECB 2020). In the report the ECB describes that it expects financial institutions to consider climate-related risks in the monitoring of risks in their portfolios (e.g., effect on collateral values, concentration analyses). In addition, it is expected that financial institutions publish meaningful information on climate-related risks (e.g., disclose the methodologies, definitions and assumptions). As an example, the ECB mentions that the probability of defauts (PD) and loss given defaults (LGD) of exposures within sectors or geographies vulnerable to climate-related risks may be impacted. It is therefore expected by the supervisor that banks include climate-related risks in the measurement of the expected credit loss (when deemed material) and disclose information on the method and assumptions used in the measurement. In follow-up studies performed by the ECB it was found that, although there is improvement over time, a sizable share of banks do not meet the expectations of the ECB (ECB 2022, 2023).

2.3 The impact of climate-related risks on expected credit losses

The climate-related risks can also have an impact on the credit risk that a bank faces, which is also established in the literature (Capasso et al. 2020; Battiston et al. 2021). If for instance a wildfire takes place which destroys a house, there is a chance that the house-owner will default on its mortgage. Though the credit risk can be considered as a subcategory of the climate-related risks arising from financial instruments, we will treat this topic separately because of its importance for banks and the detailed current credit risk disclosure requirements that are included in IFRS 7 'Financial Instruments: Disclosures'.

The credit risk that financial instruments are subjected to is either reflected in the fair value of the instrument or in the allowance for credit losses. For instruments that are measured on amortised cost or fair value through other comprehensive income a loss allowance for expected credit losses (ECL) needs to be formed.[18] Although the IFRS standards do not prescribe a method to measure the ECL, it is industry practice to calculate the ECL as the product of the PD, exposure at default (EAD) and LGD. The ECL consists of three stages:

- Stage 1 contains the financial instruments that are *performing*, and the ECL in this stage is equal to the 12-month ECL.[19]
- Stage 2 contains financial instruments where there has been a significant increase in credit risk (SICR)[20] since initial recognition. In stage 2 the ECL is equal to the lifetime ECL.[21]
- Stage 3 contains financial instruments that are deemed to be credit-impaired. In this stage the ECL is also equal to the lifetime ECL.

The ESMA notes that climate risk is becoming a significant factor affecting banks' ECL. The ESMA therefore strongly encourages banks to disclose sufficient and transparent information regarding the incorporation thereof (ESMA 2023a, 2023b).

In this Exposure Draft and also in the preceding staff paper[22] (IASB 2024a) several examples are included on how preparers of financial statements can disclose different effects on the entities. One of the examples discusses the effect of climate related risks on the ECL provision. An entity should first investigate whether the climate-related risks on ECL is material. In determining the materiality of the climate-related risks on ECL an entity should consider:

- The magnitude of portfolios affected by climate-related risks relative to the entity's overall lending portfolio;
- The significance of the effects of climate-related risks on the exposure to credit risk compared to other factors affecting that risk; and
- External climate-related qualitative factors that make the information more likely to influence primary users of financial statements, such as climate-related market, economic, regulatory and legal developments.

According to the Exposure Draft, the entity should provide an explanation of the entity's credit risk management practices related to climate-related risks and how those practices relate to recognition and measurement

of expected credit losses, including SICR triggers.[23] In addition, an entity should disclose an explanation of how climate-related risks were incorporated in the inputs (including forward-looking information), assumptions and estimation techniques used to apply the ECL requirements set out in IFRS 9. Entities should also disclose information about collateral held as a security and other credit enhancements, including collateral that is subject to flood risk and whether that risk is insured. Finally, entities should provide information about concentrations of climate-related risk, if this information is not apparent from other disclosures the entity makes. From Brouwer et al. (2021) it became clear that banks provide high disclosure quality regarding the concentration of credit risk. However, it remains unknown what the quality of disclosures is regarding the concentration of climate-related credit risk.

The investigation of ESMA (2023c) has shown that there is significant room for improvement in relation to disclosures of climate-related matters. We would expect banks to incorporate some sort of climate-related matters on financial instruments in their financial statements, which might be partly fuelled by the introduction of the Corporate Sustainability Reporting Directive. There is currently limited guidance on how entities should address the reporting of financial information about climate-related and other uncertainties in the financial statements. Therefore, the IASB (2023a) has commenced a project, referred to as climate-related risks in the financial statements. This project was initiated to explore whether and, if so, how targeted actions could improve the quality of reporting. Moreover, the project also includes the ECL, given that climate-related matters may affect a lender's exposure to credit losses, as recognized by the ECB and ESMA. In July 2024, an Exposure Draft of the project has been published (IASB 2024c) containing eight examples illustrating how an entity could apply the requirements in IFRS Accounting Standards to report the effects of climate-related and other uncertainties in its financial statements.[24] Because the guidance is assumed to reflect the current set of rules embodied in the IFRS standards, we will investigate to which extent these considerations are already part of the financial statements of banks.

3. Data and research method

The banks in this study are selected from the list of significant entities directly supervised by the European Central Bank[25], with the measurement date of 31 December 2023. We chose this subset of banks to make sure that the banks apply the same set of regulations and are supervised by the same supervisor. We decided to include all banks with a total balance sheet of 100 billion euro or more. This results in a sample of 44 banks, among which are also the European subsidiaries of large global banks such as JP Morgan and Goldman Sachs. The full list of banks included in this study can be found in Appendix 1.

The banks included in the sample are seated in various countries, as can be seen in Table 1. More than half of the banks are coming from Germany, France or Italy. The size of the banks, measured by total assets, differs significantly. This can also be observed in Table 2, where the banks are split in the categories that are also applied by the ECB. Unsurprisingly, the larger banks earn on average a higher net interest income, higher net fee income and a higher net profit. In Table 3 it can also be observed that the larger banks have lower CET1 ratios.[26] As can be seen from the minima and maxima stated in Table 2, the observations on net interest income, net fee income and net profit are dispersed and no unambiguous conclusion can be drawn regarding individual banks.

Table 1. Geographical overview of banks included in the sample.

Country of establishment of group entities	Amount of banks included in the sample
Austria	2
Belgium	2
Finland	2
France	9
Germany	10
Ireland	4
Italy	6
Spain	5
The Netherlands	4
Total	**44**

Table 2. Descriptive statistics of the sample in millions of Euros. The figures shown are the averages, with the minima and maxima presented within the square brackets.

Category	Count	Net Interest Income	(Net) Fee Income	Net Profit	Total Assets
> EUR 1.000 billion	6	17.961	9.203	7.019	1.831.412
		[7.289, 43.261]	[5.588, 12.057]	[2.841, 12.183]	[1.312.311, 2.591.499]
EUR 500–1.000 billion	11	11.486	4.169	5.196	738.071
		[4.333, 23.089]	[2.028, 7.801]	[1.265, 9.534]	[517.166, 975.583]
EUR 300–500 billion	5	4.669	2.005	2.540	363.259
		[1.540, 7.229]	[589, 2.664]	[996, 3.921]	[333.305, 421.006]
EUR 150–300 billion	11	3.115	1.156	1.331	214.080
		[185, 5.683]	[454, 3.042]	[466, 2.578]	[155.708, 291.130]
EUR 100–150 billion	11	1.458	699	925	121.290
		[65, 3.841]	[26, 1.986]	[104, 2.058]	[100.367, 142.644]
Total Average	**44**	**6,995**	**2,989**	**3,109**	**559,378**

The dispersion is partly attributed to the European subsidiaries of foreign (meaning non-European) banks. Most of these European subsidiaries handle financial market transactions (e.g., derivatives and repurchase agreements), and do not have large lending activities. This effect can also be seen in Table 3, where the credit risk, measured by the ECL, is depicted. The low ECLs of the European subsidiaries result in skewed comparisons across the different categories. However, on average the ECLs of the banks are sizable where most allowances are over 1 billion euro. Needless to say, the ECLs are material for stakeholders and therefore require a thorough understanding by disclosing the composition and calculation methodology.

information on the nature and extent of specific climate-related risks associated with financial instruments. This includes the exposures to climate related risks, its concentrations and how the risks arise. In addition, the ESMA also expects banks to disclose their objectives, policies and processes for managing the climate-related risks arising from these financial instruments.

The third topic relates to the impact of climate-related risks on the ECL. Although the credit risk management is part of the second topic, the third topic investigates the methodology of measuring climate-related credit risk in the financial statements. The topic has been addressed by the ESMA and ECB in their aforementioned papers, but in the IASB staff paper (IASB 2024a) and Exposure Draft (IASB 2024c) there is a draft example included. Although these publications were published in 2024, we expect that banks have been informed by the IASB staff on the development of the contents. Moreover, the disclosures included in the draft example can also be drafted under the current set of rules embodied in the IFRS standards. Hence, the disclosure from the draft example is mainly used for the disclosure quality benchmark. These three topics are combined in one disclosure index, which is included in Appendix 2.

Table 3. Credit risk statistics of the sample in millions of Euros. The figures shown are the averages, with the minima and maxima presented within the square brackets.

Category	CET1 Ratio	Total ECL	Total ECL/Total equity	Total ECL/CET1
> EUR 1,000 billion	13,28%	14.216	15,15%	21,66%
	[11,77%, 15,57%]	[5.285, 22.788]	[7,06%, 21,86%]	[11,00%, 29,81%]
EUR 500–1,000 billion	15,52%	6.191	12,44%	16,11%
	[12,39%, 18,54%]	[1.531, 12.504]	[5,29%, 21,46%]	[6,99%, 27,55%]
EUR 300–500 billion	15,72%	2.136	9,34%	11,24%
	[14,27%, 18,57%]	[216, 4.556]	[0,85%, 18,00%]	[0,96%, 19,86%]
EUR 150–300 billion	18.26%	1.751	12,82%	16,01%
	[13,19%, 35,71%]	[130, 3.927]	[1,00%, 28,37%]	[1,01%, 30,95%]
EUR 100–150 billion	21.12%	950	9,79%	11,63%
	[12,30%, 42,68%]	[1, 2.721]	[0,01%, 27,34%]	[0,01%, 31,18%]
Total Average	**17.32%**	**4,404**	**11.89%**	**15.17%**

In section 2, we have described areas that would require disclosures for a better understanding of climate-related risks impacting financial instruments. To examine the disclosure quality in a structured manner, a disclosure index is constructed according to Beattie et al. (2004). The disclosure index is subdivided into three topics that we have identified in the reports of the ESMA, ECB and IASB to which we have referred in section 2. The first topic relates to the ESG features embedded in new contracts. The ESMA report (ESMA 2023a) states that ESG features might require significant judgement and therefore the treatment of these features must be disclosed as part of the accounting policies. In addition, in the Exposure Draft of the amendments to the classification and measurement of financial instruments (IASB 2023b), which have been finalized as amendments to IFRS 9 in May 2024, paragraphs are included that encourage the disclosure of the contractual climate-related terms, which are deemed contingent upon a target. Although this was still an Exposure Draft during the time the 2023 financial statements of our sample were prepared, we hope to see some banks already disclosing information on this matter.

The second topic relates to the climate-related risks arising from financial instruments. As part of the ESMA enforcement priorities for the 2023 financial statements (ESMA 2023b), the ESMA expects the banks to disclose

4. Analysis on the disclosure quality of the impact of climate-related matters on financial instruments

This section on the disclosure quality of the impact of climate-related matters on financial instruments is divided into three subsections following the aforementioned three research topics. In the first subsection the disclosure quality of ESG features embedded in financial instruments and their accounting treatment is discussed. In the second subsection the disclosure quality of climate-related risks arising from financial instruments is discussed. Finally, in the third subsection the disclosure quality of the impact on climate-related risks on ECLs is discussed.

4.1. Disclosure quality of ESG features and their accounting treatment

Banks spend a relatively large number of pages highlighting their involvement in green financing including the number of green financing arrangements closed in the past year. These arrangements contain ESG features, where the interest paid is dependent on achieving certain ESG targets. The ESG features are described as a climate-related contingent event by the IASB (IASB 2023b). As mentioned in Section 2, depending on the structure of the ESG features embedded in the contract, the measurement of the financial instrument may be impacted. Hence, we expect that the treatment of these ESG features is disclosed as part of the accounting policies. Moreover, we also expect that the ESG features itself are disclosed, so that stakeholders can determine what the possible future impact could be. The results of our investigation are shown in Table 4.

Disclosure item 1 covers the treatment of ESG features set out in the accounting policies. In our sample only 36% of the banks discloses how ESG features are treated, while a large majority of banks disclose their involvement in these types of financing in the management board report. This treatment is mostly discussed in the SPPI section of the accounting policies. Most accounting policies do not mention the treatment of ESG features and the treatment of contingent events. These accounting policies are boilerplate and very brief. An example where the treatment of the ESG features is discussed in detail can be found in the 2023 annual report of Société Générale. Refer to Figure 1 for the disclosure. In this disclosure Société Générale clearly states how the ESG features impact the SPPI test of the financial instruments. In addition, the exposure to these loans is also mentioned, which can give an impression of the materiality. Lastly, in the final paragraph of the disclosure Société Générale explicitly states that the application guidance regarding SPPI qualification criteria is taken into account. Although these criteria were not yet effective at the moment the annual report was issued, it does showcase that Société Générale is agile in the application of these rules. It must be stated that in most accounting policies that did disclose the impact of ESG features, it is mentioned that the impact of these ESG features is deemed to be immaterial. Hence, these ESG features might qualify for the 'de minimis' effect as explained in section 2.1.

Figure 1. Best practice disclosure on the accounting treatment of ESG features: Société Générale Universal Registration Document 2024, p. 463.

The Basic financial assets (SPPI) held by the Group include the financing of sustainable development projects (labelled Environment Social and Governance) in the form of Sustainability-linked bonds, social bonds and Green bonds with SPPI-compliant contractual cash flows.

Non-basic financial assets (non-SPPI) include the structured instruments whose cash flows are indexed, in whole or in part, to an index that is not specific to the issuer, such as an ESG market index.

Impact loans have been granted by the Group to support enterprises in their Sustainability approach through an incentive mechanism that reviews the margin according to ESG criteria specific to the borrower or to the achievement by the latter of sustainable development goals (Sustainability-linked loans). At the end of 2023, the outstanding amount of impact loans valued at amortised cost reached approximately EUR 6 billion and came jointly with financing commitments of EUR 24 billion. The Sustainability objectives set can be, for example, the reduction of greenhouse gas emissions, the development of cultivated areas with alternatives to synthetic plant protection products, the increase in the representation of women in management bodies, the reduction of water use. As a result of their analysis, these loans have been classified as basic financial assets (SPPI) provided that their flows meet the SPPI criteria and the ESG component fulfills the *de minimis* criterion.

During the second half of 2022, the IASB decided to propose amendments to the IFRS 9 "Implementation Guidance" regarding classification as SPPI as well as new information to be disclosed for the financial instruments whose contractual conditions may change the timetable or the amount of contractual cash flows depending on a potential event. The objective of the project is to clarify how the SPPI qualification criteria apply to financial assets with ESG factors or similar characteristics. Societe Generale followed the IASB proposals included in the exposure draft published in 2023. To date, these proposals will not significantly change the classification of the assets concerned.

Disclosure items 2–5 cover the disclosure of the nature of the contingent climate-related events and the exposure to these contingent climate-related events. As can be seen from Table 4, very few banks disclose information regarding the ESG features that are embedded in their financial instruments. The exposure to these features is disclosed by 11% of the banks, but very seldomly the contingent climate-related event itself and the possible range of outcomes is discussed (5% and 7%, respectively). This is surprising given that banks spend a lot of words describing their ESG strategy, risk analysis and their involvement in green financing, but this is very rarely backed up by data on exposures and possible outcomes or calculation methods. It is therefore difficult to make the link be-

Table 4. Results on the disclosure quality of ESG features and their accounting treatment.

Disclosure item	Description of disclosure items	No. banks disclosed	Percentage
1	Treatment of ESG features is set out in the accounting policies or notes of financial instruments.	16	36%
2	For each class of financial assets the following is disclosed [split in financial assets]:	2	5%
3	a qualitative description of the nature of the contingent (climate-related) event.	2	5%
4	quantitative information about the range of changes to contractual cash flows that could result from those contractual (climate-related) terms.	3	7%
5	the gross carrying amount of financial assets and the amortised cost of financial liabilities subject to those contractual (climate-related) terms.	5	11%

tween which assets might be affected by possible contingent climate-related events and what the magnitude might be. In Figure 2 the disclosure of Nordea in their 2023 annual report is included. In the relatively brief disclosure Nordea mentions what type of contingent climate-related events are included in their loan portfolio. In addition, the exposure to these loans is disclosed and also the range of impacts when clients meet their ESG targets. This gives stakeholders a clear understanding of the extent of ESG features embedded in the loan portfolios and the impact it might have on the income statement of a bank.

Figure 2. Best practice disclosure on the exposure and range of outcomes of the contingent climate-related events: Nordea Bank Annual Report 2023, p. 134.

Lending with ESG targets

Some loan contracts in Nordea include terms linking contractual cash flows to the customer's achievement of environmental, social and governance (ESG) targets (so-called sustainability-linked loans). The most common targets in these sustainability linked loans are environmental, such as CO_2 emission. At the end of the year the carrying amount of the sustainability-linked loans recognised on the balance sheet amounted to EUR 9,194m. 59.2% of the carrying amount was connected to so-called transition risk, meaning the risk of losses when the customers transfer their business to become more green, with the targets generally applied being Greenhouse Gas (GHG) emissions, carbon intensity and energy intensity. The nominal amount of unutilised and off-balance sheet loan commitments regarding sustainability-linked loans was EUR 10,661m at the end of the year of which EUR 64.4% is related to transition risk. The impact on the interest rate is typically within the 2.5-5bp range if the targets for the sustainability-linked loans are met. The average term of these loans is 3 years. For more information about the risk associated with these loans, see section 2.1 "Credit risk definition and identification" in Note G11 "Risk and liquidity management". The ESG targets are material to the counterparty and generally entity specific.

Nordea also issues green mortgage loans where the customer gets a discount of 10 bp if they fulfil specific energy requirements. The carrying amount of these loans was EUR 1,165m at the end of the year. The volatility of the cash flows during the term of the loans is expected to be insignificant.

4.2. Disclosure quality of climate-related risks arising from financial instruments

Banks disclose a large amount of information regarding their ESG strategy, climate-related risks and their objectives and policies for managing these risks. These results are also reflected in Table 5, where it can be seen that the overall scores of disclosure items 7, 8 and 9 are high. A large number of banks disclose information regarding their objectives, policies and processes for managing climate-related risk arising from financial instruments. In most financial statements there is a separate subsection in the risk management section devoted to climate-related risks. What is however often missing are the methods used to measure the risk.

The exposures to climate-related risks and the concentrations of these risks are often disclosed. This disclosure is mandated by the supervisor[27], and the disclosure forms part of the pillar III disclosures.[28] The ECB has templates on both transition risk and physical risk. In these templates the total exposure to these risks is outlined, together with the allowance for credit losses, based on different sectors. These tables therefore offer a vast amount of information to the stakeholders regarding the exposure to and concentration of climate-related risks. It is however confusing that some banks include these templates in their financial statements and other banks only disclose these templates in their Pillar III reports. In addition, these tables show the exposure to the overall risks. Only the overall acute physical risks are disclosed but not which specific risks the bank is exposed to. For example, are these wildfires, floods or other risks? Therefore, the score on disclosure item 6 is relatively low compared to the other scores.

In the 2023 annual report of Monte Dei Paschi Di Siena an overview is presented where it is shown to which extent the residential mortgages are exposed to different types of acute physical risks. In the annual report the three largest climate-related risks are defined as flood risk, landslide risk and seismic risk. Next, in the pie charts, refer to Figure 3, it is shown to which extent the residential mortgages are exposed to these three risks. With this disclosure stakeholders can estimate what the overall exposure to physical risks is for the residential mortgages' portfolio.

The exposure in the Pillar III tables is split according to different industries. The exposure is however not split in different geographies. As one can expect, certain geographies are more prone to climate-related risks than others. Hence, it can be very valuable to stakeholders to illustrate the exposure to climate-related risks in different geographies. Such a disclosure is made by Bank of Ireland Group in their 2023 annual report, refer to Figure 4. In this figure the most important market of the Bank of Ireland is graphically depicted, together with the exposure per region in the United Kingdom and Ireland. Moreover, also the lending at risk within these regions is presented. This illustration gives stakeholders a clear picture of where the exposure and risks are concentrated.

Table 5. Results on the disclosure quality of climate-related risks arising from financial instruments.

Disclosure item	Description of disclosure items	No. banks disclosed	Percentage
6	For each type of climate-related risk arising from financial instruments,the following is disclosed [split in risks]:	6	14%
7	the exposures to climate-related risk arising from financial instruments and how they arise	40	91%
8	its objectives, policies and processes for managing the climate-related risk arising from financial instruments and the methods used to measure this risk	41	93%
9	For each type of climate-related risk arising from financial instruments the concentration of these risks is disclosed.	38	86%

Figure 3. Best practice disclosure on the exposures to climate-related risks: Monte Dei Paschi Di Siena Annual Report 2023, p. 480.

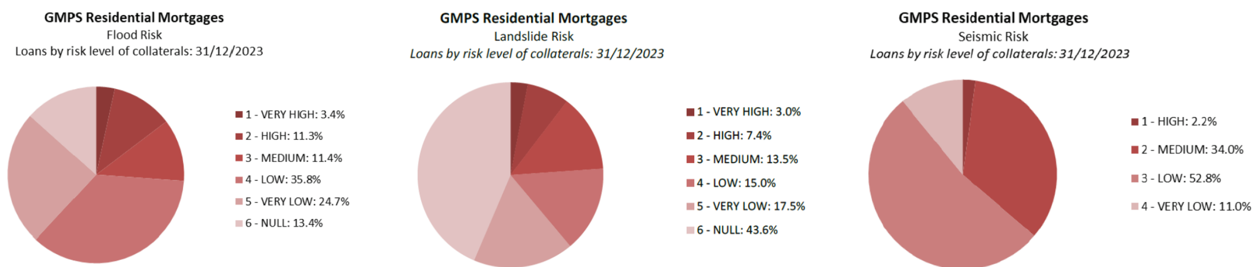
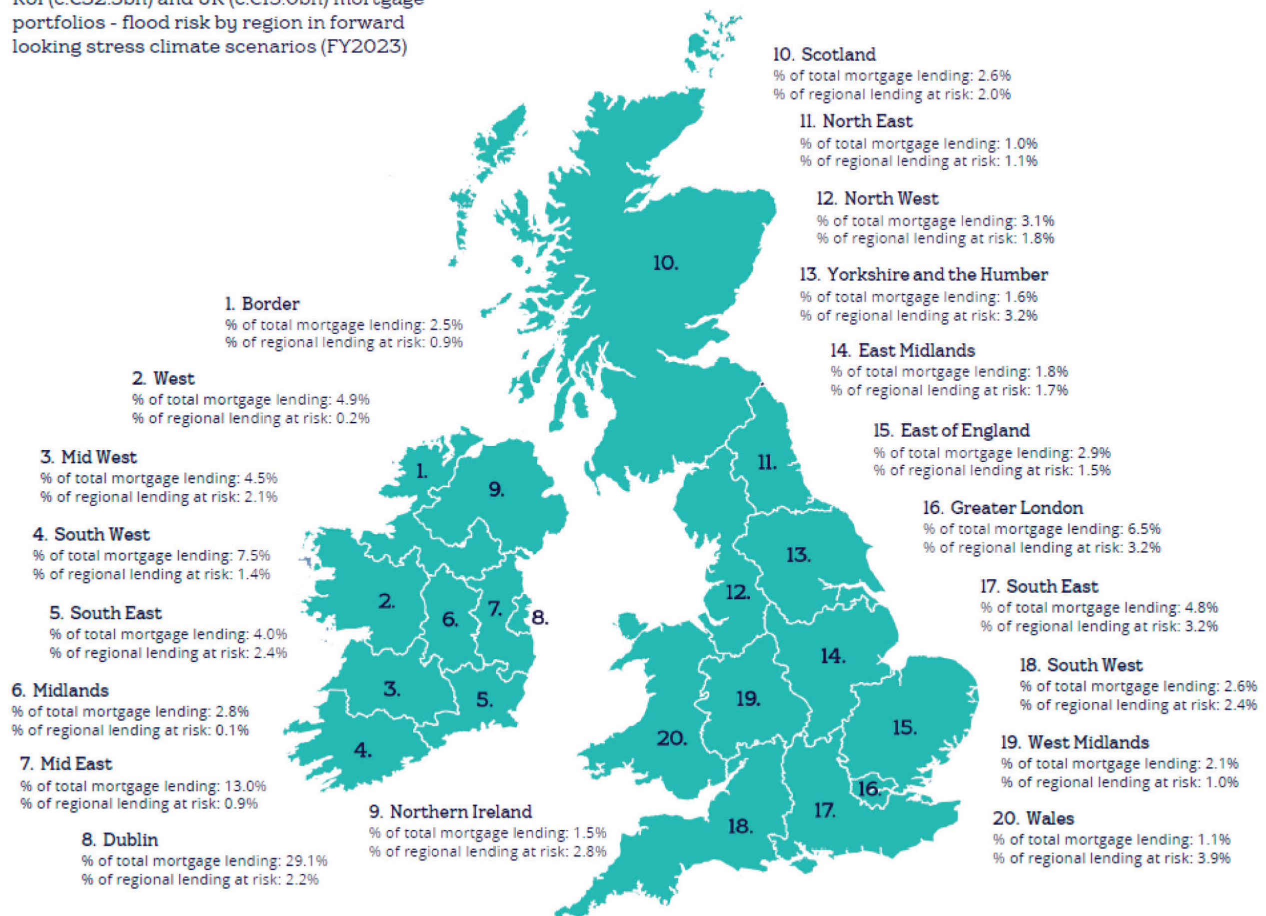


Figure 4. Best practice disclosure on the concentration of climate-related risks: Bank of Ireland Group Annual Report 2023, p. 36.



4.3. Disclosure quality of the impact of climate-related risks on ECLs

Climate-related risks may overlap with traditional credit risks. In the case that a house is destroyed by a wildfire, it is a possibility that the home-owner might default on its mortgage, also due to the fact that damage by natural disasters is often not an insurable risk. Therefore, climate-related risks can have credit implications. The regulator also emphasised this in their report climate-related risk (ECB 2020). In the report the regulator also expressed its expectations regarding the interaction between climate-related risks and credit risks. For example, the climate-related risk should be monitored for concentrations and their effect on collateral valuations. Although the ECB did not explicitly mention that climate-risk should be included in the allowance for credit losses, it is expected that banks take these risks into account when measuring the allowance for ECL.

In Table 6 the results on the disclosure quality of the impact of climate-related risks on ECL are presented. Most banks disclose the credit risk management practices related to climate-related risks. Moreover, the majority of banks also discloses how the climate-related risks relate to the recognition and measurement of ECL, as is represented by disclosure item 10. In their disclosures most banks state that the climate-related risks are not yet part of their models, but their assessed risk is deemed to be immaterial. As a result, it is currently not included in the measurement of the ECL.

Few banks disclose how climate-related risks are incorporated in the inputs, assumptions and estimation techniques used to measure the ECL, as is demonstrated by the

Table 6. Results on the disclosure quality of the impact of climate-related risks on ECLs.

Disclosure item	Description of disclosure items	No. banks disclosed	Percentage
10	The credit risk management practices related to climate-related risks are disclosed and how they relate to the recognition and measurement of ECL (including SICR).	34	77%
11	The climate-related risks that are incorporated in the inputs, assumptions and estimation techniques used to apply the requirements in Section 5.5 of IFRS 9 are disclosed (incl. forward looking information).	6	14%
12	Information is disclosed about the effect of collateral and other credit enhancements on the amounts arising from ECL, including information about properties held as collateral that are subject to natural disasters and whether these risks are insured.	1	2%

results of disclosure item 11. As mentioned above, most banks acknowledge that currently the climate-related risks are not yet part of their inputs and estimation techniques to measure the ECL. There are however multiple banks that record climate-related post model adjustments to capture this effect, which are sometimes also referred to as top level adjustments or overlays. Other banks account for the climate-related risks by tweaking the outlook for the macroeconomic variables in the multiple scenarios that are used in the calculation of the ECL. One of the banks that record post model adjustments related to climate-related risks is Rabobank. Rabobank records multiple climate-related post model adjustments for different geographies and different risks. One of the post model adjustments is presented in Figure 5. In the figure it can be seen that Rabobank records the post model adjustment regarding physical and transition risks that can materialize in their loan portfolio. This disclosure clearly outlines the reason for booking the top-level adjustment and the uncertainty surrounding it. Therefore, it gives the stakeholder an impression of the risks, how these risks are quantified and what the impact might be.

The auditor of Rabobank identified the post model adjustment as a key audit matter (as part of the impairment allowance). In the independent auditor's report, additional information can be found regarding the treatment of climate-related risks. In the report the auditor describes that sectors which are considered to be vulnerable to climate risk are moved to stage 2 to reflect the long-term challenging conditions and reflect the significant increase in credit risk. However, none of the banks actually disclose the effect of climate-related risks on the SICR triggers. This is therefore an area where disclosures can be improved and clarified. Another point of attention is information regarding the effect of climate-related risks on collateral and other credit enhancements on the amounts measured as part of the ECL. This is also demonstrated by disclosure item 12, where only one bank disclosed such information. This disclosure was however brief and hence not reproduced in this study. Given that the collateral and other credit enhancements can have large effects on the ECL calculation, through the LGD parameter, it is advisable to disclose more information on the impact of climate-related risks on collateral and other credit enhancements.

5. Conclusion

In this study the climate-related matters impacting the reporting of financial instruments was investigated for the 44 largest banks supervised by the ECB. Currently, there are no explicit rules dictating the treatment of climate-related matters in financial instruments but additional guidance has recently been published with a permission for early application (IASB 2024b) or by an expectation that the guidance will improve the reporting of climate related uncertainties including effects on credit risk (IASB 2024c). Moreover, the ESMA and ECB have published expectations regarding the treatment and disclosures of climate-related matters in the financial statements. Therefore, this is a rapidly changing environment where in terms of disclosure quality of climate-related matters the bar will be raised by the combination of revised standards and expectations. This study had the intention to measure the disclosure quality of climate-related matters impacting financial instruments to define the baseline measurement before the implementation of aforementioned guidance.

Figure 5. Best practice disclosure on assumptions and estimation techniques used for determining the ECL: Coöperatieve Rabobank annual report 2023, p. 187.

TLA Climate Risk: New

Previously Rabobank did not have any provisions for a chronic increase of future Climate & Environmental (C&E) risks. Both transition and physical risks are expected to mainly materialize in the future as regulation becomes more stringent and the climate warms and becomes more extreme, increasing the probability and intensity of events (such as droughts and floods). This C&E risk TLA covers this chronic increase in future (forward looking) C&E risks for which a new TLA of EUR 14 million is recognized as at December 31, 2023.

The TLA covers the mortgage portfolio and sectors defined as climate risk sensitive in the non-mortgage portfolio. The scope of the climate risk sensitive sectors is based on the C&E Risks Heatmaps, where the five most relevant climate risk events (drought, wildfire, heavy precipitation, water scarcity and flooding) with a 5-10 year time-horizon are used. Based on December figures, EUR 27.6 billion exposure on corporate clients is classified as climate risk sensitive.

Climate-related matters have many angles impacting the treatment and reporting of financial statements. Therefore, disclosures could be found in many different places in the annual report. We have studied the disclosures in the notes to the financial statements, sustainability report, risk management section and in the Pillar III reports. Most of these reports disclosed information on the impact of climate-related matters on financial statements. Hence, to obtain a complete overview many different reports must be studied while the relevant information is also scattered in the annual reports over different sections. This complicates obtaining a comprehensive overview of the impact of climate-related matters on financial instruments.

The results show that the quality of disclosures fluctuates significantly per bank. Some banks disclose hardly any information on climate-related risk, while others disclose a vast amount of information. Moreover, some banks disclose information solely in their risk management section, while others have a more all-encompassing approach to disclosures, connecting the strategy with the risk management and measurement of the financial instruments. In addition, some banks incorporate Pillar III disclosures or their sustainability report in their annual reports, while others have a dedicated Pillar III and sustainability report. This also complicates the comparability among banks.

The results show that disclosures regarding ESG features and their accounting treatment can be improved. This can (in part) be explained by the standard mandating the disclosure not to be effective yet. The amendments will become effective from the 2026 financial statements onwards. This however also shows that, despite encouragements of the ESMA (2023a), there are very few early adopters disclosing this information. Especially the information regarding the exposure to and the range of possible outcomes of ESG features embedded in financial instruments can be improved.

The disclosures regarding climate-related risks arising from financial instruments have a relatively high quality. This high quality is due to the supervisors mandating certain disclosures (as part of the Pillar III reports) and incorporating climate risks as part of the financial risk management. These disclosures also help the stakeholder in understanding the treatment of the climate-related impact on financial instruments, which forms an integral part of the disclosure on the nature and extent of risks arising from financial instruments.[29]

Many banks disclose the impact of climate-related risks on their credit risk management practices. However, banks also mention that the impact is currently deemed to be immaterial. With an accelerating climate-change, this might change in the future. The inputs, assumptions and estimation techniques are poorly described. A few banks mention the incorporation of post model adjustments to account for climate-related impacts. Post model adjustments have a temporary nature, given that they correct for events or risks that are not accurately captured by the model. Therefore, we expect that in the coming years the climate-related impact on allowances for credit losses will be part of the provisioning (ECL) model. Finally, there is currently a lack of disclosures regarding the climate-related impact on collateral. The collateral plays a pivotal role in the computation of the ECL and can be largely impacted by climate-related matters. Therefore, stakeholders benefit from a disclosure on the climate-related impact on collateral and this is deemed to be a point which may require improvements in the future.

This study has added to the existing literature in several ways. To our knowledge this is the first study that investigates the disclosure quality related to climate-related matters impacting the financial statements. The study also investigated whether banks are early adopters of the (proposed) amendments regarding climate-related matters impacting financial instruments. In addition, we have selected best practices in order to help accelerate the quality of disclosures going forward and finally we have highlighted the areas where the most impact regarding disclosures can be made.

We encourage other researchers to perform further research on the climate-related impact on other parts of the financial statements, besides financial instruments, or for other sectors that are affected by climate change. In addition, other regions can be investigated to determine whether disclosure quality is congruent across jurisdictions. Finally, the disclosure quality can be investigated in coming years to measure the progress in disclosure quality regarding the climate-related matters impacting financial instruments.

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Notes

1. These emissions are referred to as Scope 1 and Scope 2 emissions.
2. These emissions are referred to as Scope 3 emissions.
3. Refer to IFRS 7, paragraph 35B.

4. Formally banks are referred to as credit institutions as stated in Article 4 of the Capital Requirements Regulation.
5. The equivalent reporting framework is only eligible for the registered office of an issuer in a third country, refer to EU Directive 2004/109/EC article 23(4).
6. The IFRS standards endorsed by the European Union follow the IFRS standards issued by the IASB closely for most topics. The differences for financial instruments (excluding hedge accounting), both IFRS 7 & 9, are minimal and therefore in the remainder of the paper the two are considered equal.
7. Refer to International Accounting Standard (IAS) 32, paragraph 11.
8. Refer to IFRS 9, paragraph 4.1.1.
9. Refer to IFRS 9, paragraph 4.1.2.
10. For the definition of fair value refer to IFRS 13, Appendix A Defined Terms.
11. Refer to IFRS 9, paragraph B4.1.8A.
12. Refer to IFRS 9, paragraph B4.1.10A.
13. Refer to IFRS 9, paragraph B4.1.10A.
14. Refer to IFRS 9, paragraph B4.1.18.
15. The Credit Default Swap (CDS) spread is often used as a proxy to measure credit risk.
16. Refer to IFRS 7, paragraph 20B, 20C and 56B.
17. This enforcement priority is based on IFRS 7, paragraph 31, 33 & 34.
18. Refer to IFRS 9, paragraph 5.5.1.
19. Refer to IFRS 9, paragraph 5.5.5.
20. Refer to IFRS 9, paragraph 5.5.9.
21. Refer to IFRS 9, paragraph 5.5.3.
22. This paper was published on IASB's website at 8 March 2024.
23. Refer to IASB (2024c), paragraph 6.4.
24. The eight illustrative examples embodied in the Exposure Draft were also part of the staff paper published at 8 March 2024 (IASB 2024a).
25. For this list (updated regularly), refer to https://www.bankingsupervision.europa.eu/banking/list/html/index.en.html
26. The Common Equity Tier 1 (CET1) ratio compares the bank's regulatory capital to the risk-weighted assets.
27. Refer to Article 449a of the Capital Requirements Regulation. Please note that subsidiaries of larger banking groups may be exempt from applying this article and hence do not produce such disclosures.
28. Pillar 3 is the market discipline pillar of the Basel III regulations. The market discipline is promoted through disclosure requirements. These disclosures include quantitative and qualitative information regarding, among others, capital and risks exposures.
29. Refer to IFRS 7, paragraphs 31 and 33.

References

- Abdul Razak L, Ibrahim MH, Ng A (2023) Environment, social and governance (ESG) performance and CDS spreads: the role of country sustainability. The Journal of Risk Finance 24(5): 585–613. https://doi.org/10.1108/JRF-10-2022-0278
- Attig N, El Ghoul S, Guedhami O, Suh J (2013) Corporate social responsibility and credit ratings. Journal of Business Ethics 117: 679–694. https://doi.org/10.1007/s10551-013-1714-2
- Barth F, Hübel B, Scholz H (2022) ESG and corporate credit spreads. The Journal of Risk Finance 23(2): 169–190. https://doi.org/10.1108/JRF-03-2021-0045
- Battiston S, Dafermos Y, Monasterolo I (2021) Climate risks and financial stability. Journal of Financial Stability 54: 100867. https://doi.org/10.1016/j.jfs.2021.100867
- Beattie V, McInnes B, Fearnley S (2004) A methodology for analysing and evaluating narratives in annual reports: a comprehensive descriptive profile and metrics for disclosure quality attributes. Accounting Forum 28(3): 205–236. https://doi.org/10.1016/j.accfor.2004.07.001
- Boubaker S, Cellier A, Manita R, Saeed A (2020) Does corporate social responsibility reduce financial distress risk? Economic Modelling 91: 835–851. https://doi.org/10.1016/j.econmod.2020.05.012
- Brogi M, Lagasio V, Porretta P (2022) Be good to be wise: Environmental, Social, and Governance awareness as a potential credit risk mitigation factor. Journal of International Financial Management & Accounting 33(3): 522–547. https://doi.org/10.1111/jifm.12156
- Brouwer T, Huttenhuis J, Ter Hoeven R (2021) Empirical results for expected credit losses of G-SIBs during COVID-19. The proof of the pudding is in the eating. Maandblad voor Accountancy en Bedrijfseconomie 95(11/12): 381–396. https://doi.org/10.5117/mab.95.75980
- Campiglio E, Daumas L, Monnin P, Von Jagow A (2023) Climate-related risks in financial assets. Journal of Economic Surveys 37(3): 950–992. https://doi.org/10.1111/joes.12525
- Capasso G, Gianfrate G, Spinelli M (2020) Climate change and credit risk. Journal of Cleaner Production 266: 121634. https://doi.org/10.1016/j.jclepro.2020.121634
- ECB [European Central Bank] (2020) Guide on climate-related and environmental risks: Supervisory expectations relating to risk management and disclosure. ECB (Frankfurt). https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.202011finalguideonclimate-relatedandenvironmentalrisks~58213f6564.en.pdf
- ECB [European Central Bank] (2022) Supervisory assessment of institutions' climate-related and environmental risks disclosures: ECB report on banks' progress towards transparent disclosure of their climate-related and environmental risk profiles. ECB (Frankfurt). https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.ECB_

Report_on_climate_and_environmental_disclosures_202203~4ae-33f2a70.en.pdf
- ECB [European Central Bank] (2023) The importance of being transparent: A review of climate-related and environmental risks disclosures practices and trends. ECB (Frankfurt). https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.theimportanceofbeingtransparent042023~1f0f816b85.en.pdf
- ESMA [European Securities and Markets Authority] (2023a) The Heat is On: Disclosures of Climate-Related Matters in the Financial Statements. ESMA (Paris). https://www.esma.europa.eu/sites/default/files/2023-10/ESMA32-1283113657-1041_Report_-_Disclosures_of_Climate_Related_Matters_in_the_Financial_Statements.pdf
- ESMA [European Securities and Markets Authority] (2023b) European common enforcement priorities for 2023 annual financial reports. ESMA (Paris). https://www.esma.europa.eu/sites/default/files/2023-10/ESMA32-193237008-1793_2023_ECEP_Statement.pdf
- ESMA [European Securities and Markets Authority] (2023c) 2022 Corporate reporting enforcement and regulatory activities. ESMA (Paris). https://www.esma.europa.eu/sites/default/files/2023-03/ESMA32-63-1385_2022_Corporate_Reporting_Enforcement_and_Regulatory_Activities_Report.pdf
- Goss A, Roberts GS (2011) The impact of corporate social responsibility on the cost of bank loans. Journal of Banking & Finance 35(7): 1794–1810. https://doi.org/10.1016/j.jbankfin.2010.12.002
- Henisz WJ, McGlinch J (2019) ESG, material credit events, and credit risk. Journal of Applied Corporate Finance 31(2): 105–117. https://doi.org/10.1111/jacf.12352
- Höck A, Bauckloh T, Dumrose M, Klein C (2023) ESG criteria and the credit risk of corporate bond portfolios. Journal of Asset Management 24(7): 572–580. https://doi.org/10.1057/s41260-023-00337-w
- IASB [International Accounting Standards Board] (2023a) Climate-related Risks in the Financial Statements (Agenda Paper 14). IASB (London). https://www.ifrs.org/content/dam/ifrs/meetings/2023/march/iasb/ap14-climate-related-risks-in-the-financial-statements-project-commencement.pdf
- IASB [International Accounting Standards Board] (2023b) Exposure draft: Amendments to the Classification and Measurement of Financial Instruments. IASB (London). https://www.ifrs.org/content/dam/ifrs/project/amendments-to-the-classification-and-measurement-of-financial-instruments/iasb-ed-2023-2-amendments-classification-and-measurement-financial-instruments.pdf
- IASB [International Accounting Standards Board] (2024a) Climate-related Risks in the Financial Statements (Agenda Paper 14B). IASB (London). https://www.ifrs.org/content/dam/ifrs/meetings/2024/march/iasb/ap14b-staff-draft-examples.pdf
- IASB [International Accounting Standards Board] (2024b) Amendments to the Classification and Measurement of Financial Instruments. IASB (London). https://www.ifrs.org/content/dam/ifrs/publications/amendments/english/2024/iasb-2024-2-cmfi-ifrs7-ifrs9.pdf
- IASB [International Accounting Standards Board] (2024c) Exposure Draft: Climate-related and Other Uncertainties in the Financial Statements. IASB (London). https://www.ifrs.org/content/dam/ifrs/project/climate-related-other-uncertainties-fs/iasb-ed-2024-6-climate-uncertainties-fs.pdf
- Li H, Zhang X, Zha, Y (2022) ESG and firm's default risk. Finance Research Letters 47: 102713. https://doi.org/10.1016/j.frl.2022.102713
- Shen CH, Wu MW, Chen TH, Fang H (2016) To engage or not to engage in corporate social responsibility: Empirical evidence from global banking sector. Economic Modelling 55: 207–225. https://doi.org/10.1016/j.econmod.2016.02.007
- Stellner C, Klein C, Zwergel B (2015) Corporate social responsibility and Eurozone corporate bonds: The moderating role of country sustainability. Journal of Banking & Finance 59: 538–549. https://doi.org/10.1016/j.jbankfin.2015.04.032

Appendix 1

Tabel A1. Research population.

No	Name	Country of establishment of group entities	Size
1	Deutsche Bank AG	Germany	> EUR 1000 billion
2	Banco Santander, S.A.	Spain	> EUR 1000 billion
3	BNP Paribas S.A.	France	> EUR 1000 billion
4	Crédit Agricole S.A.	France	> EUR 1000 billion
5	Société Générale S.A.	France	> EUR 1000 billion
6	BPCE S.A.	France	> EUR 1000 billion
7	DZ BANK AG Deutsche Zentral-Genossenschaftsbank	Germany	EUR 500–1000 billion
8	Banco Bilbao Vizcaya Argentaria, S.A.	Spain	EUR 500–1000 billion
9	CaixaBank, S.A.	Spain	EUR 500–1000 billion
10	Confédération Nationale du Crédit Mutuel	France	EUR 500–1000 billion
11	Intesa Sanpaolo S.p.A.	Italy	EUR 500–1000 billion
12	UniCredit S.p.A.	Italy	EUR 500–1000 billion
13	Coöperatieve Rabobank U.A.	The Netherlands	EUR 500–1000 billion
14	ING Groep N.V.	The Netherlands	EUR 500–1000 billion
15	Nordea Bank Abp	Finland	EUR 500–1000 billion
16	La Banque Postale	France	EUR 500–1000 billion
17	COMMERZBANK Aktiengesellschaft	Germany	EUR 500–1000 billion
18	KBC Group NV	Belgium	EUR 300–500 billion

No	Name	Country of establishment of group entities	Size
19	J.P. Morgan SE	Germany	EUR 300–500 billion
20	Landesbank Baden-Württemberg	Germany	EUR 300–500 billion
21	ABN AMRO Bank N.V.	The Netherlands	EUR 300–500 billion
22	Erste Group Bank AG	Austria	EUR 300–500 billion
23	Belfius Banque SA ; Belfius Bank NV ; Belfius Bank SA	Belgium	EUR 150–300 billion
24	Bayerische Landesbank	Germany	EUR 150–300 billion
25	Goldman Sachs Bank Europe SE	Germany	EUR 150–300 billion
26	Landesbank Hessen-Thüringen Girozentrale	Germany	EUR 150–300 billion
27	Banco de Sabadell, S.A.	Spain	EUR 150–300 billion
28	HSBC Continental Europe	France	EUR 150–300 billion
29	Banco BPM S.p.A.	Italy	EUR 150–300 billion
30	ICCREA Banca S.p.A. - Istituto Centrale del Credito Cooperativo	Italy	EUR 150–300 billion
31	Raiffeisen Bank International AG	Austria	EUR 150–300 billion
32	OP Osuuskunta	Finland	EUR 150–300 billion
33	Bank of Ireland Group plc	Ireland	EUR 150–300 billion
34	BPER Banca S.p.A.	Italy	EUR 100–150 billion
35	Morgan Stanley Europe Holding SE	Germany	EUR 100–150 billion
36	Norddeutsche Landesbank -Girozentrale-	Germany	EUR 100–150 billion
37	AIB Group plc	Ireland	EUR 100–150 billion
38	Barclays Bank Ireland plc	Ireland	EUR 100–150 billion
39	Citibank Europe plc	Ireland	EUR 100–150 billion
40	Bankinter, S.A.	Spain	EUR 100–150 billion
41	BofA Securities Europe SA	France	EUR 100–150 billion
42	Bpifrance	France	EUR 100–150 billion
43	BANCA MONTE DEI PASCHI DI SIENA S.p.A.	Italy	EUR 100–150 billion
44	BNG Bank N.V.	The Netherlands	EUR 100–150 billion

Appendix 2

Table A2. Disclosure index.

No	Disclosure index item	Reference
1	Treatment of ESG features is set out in the accounting policies or notes of financial instruments.	IAS 1.17(c), 112, 122 & 125
2	For each class of financial assets the following is disclosed [split in financial assets]:	IFRS 7.20C [effective from 2026]
3	a qualitative description of the nature of the contingent (climate-related) event.	IFRS 7.20B (a) [effective from 2026]
4	quantitative information about the range of changes to contractual cash flows that could result from those contractual (climate-related) terms.	IFRS 7.20B (b) [effective from 2026]
5	the gross carrying amount of financial assets and the amortised cost of financial liabilities subject to those contractual (climate-related) terms.	IFRS 7.20B (c) [effective from 2026]
6	For each type of climate-related risk arising from financial instruments,the following is disclosed [split in risks]:	IFRS 7.31 & 33
7	the exposures to climate-related risk arising from financial instruments and how they arise	IFRS 7.33 (a)
8	its objectives, policies and processes for managing the climate-related risk arising from financial instruments and the methods used to measure this risk	IFRS 7.33 (b)
9	For each type of climate-related risk arising from financial instruments the concentration of these risks is disclosed.	IFRS 7.34 (c) & B8
10	The credit risk management practices related to climate-related risks are disclosed and how they relate to the recognition and measurement of ECL (including SICR).	IFRS 7 paragraph 35F
11	The climate-related risks that are incorporated in the inputs, assumptions and estimation techniques used to apply the requirements in Section 5.5 of IFRS 9 are disclosed (incl. forward looking information).	IFRS 7 paragraph 35G
12	Information is disclosed about the effect of collateral and other credit enhancements on the amounts arising from ECL, including information about properties held as collateral that are subject to natural disasters and whether these risks are insured.	IFRS 7 paragraph 35K