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# The EU Taxonomy, sustainability reporting and financial institutions: understanding the elements driving regulatory uncertainty

Nicolas Garcia-Torea <sup>a</sup>, Mercedes Luque-Vílchez <sup>b</sup> and Pablo Rodríguez-Gutiérrez <sup>c</sup>

<sup>a</sup>Department of Economy and Business Administration, Universidad de Burgos, Burgos, Spain; <sup>b</sup>Department of Agricultural Economics, Finance and Accounting, Universidad de Córdoba, Córdoba, Spain; <sup>c</sup>Department of Business Organization, Universidad de Córdoba, Córdoba, Spain

## ABSTRACT

The EU Taxonomy Regulation relies on sustainability reporting to channel financial resources to sustainable activities. Financial institutions are key actors in the Taxonomy setting because they operate as financial intermediaries and have a dual role as both users and preparers of sustainability information. This paper investigates the perceived uncertainty that characterizes the sustainability reporting regulatory environment of a particular type of financial institution, banks, to identify the elements that generate that perception. Drawing on literature on regulatory uncertainty, this paper conducts a case study of the Spanish banking industry informed by interviews and complemented by other data sources. The analysis unveils two significant elements driving regulatory uncertainty: the Taxonomy's lack of clarity regarding the operationalization of its measures and rules and the timeline and oversight of its implementation. The study also documents that the Taxonomy induces uncertainty in the non-regulatory environment due to its unpredictable impact on banks' reputation and market competition, as well as to the changes it provokes in banks' internal structures and processes to address regulatory requirements. As the perception of regulatory uncertainty represents an impediment to compliance, understanding the elements giving rise to it can help to mitigate such perception and facilitate the fulfillment of regulatory demands. This investigation offers implications for policy and practice to facilitate the production of the sustainability information banks must disclose according to the EU Taxonomy, particularly the green asset ratio.

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## 1. Introduction

Consistent with the recognition of finance's pivotal role in leveraging ecological transitions (Crona et al., 2021), the European Union (EU) adopted the Sustainable Finance

**CONTACT** Nicolas Garcia-Torea  [ngtorea@ubu.es](mailto:ngtorea@ubu.es)

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Strategy (SFS)<sup>1</sup> in line with the EU Green Deal (European Commission, 2019). These regulatory initiatives aim to support the transition to a sustainable economy and underscore the functionality of sustainability information for this endeavour (EFRAG, 2021). The EU Taxonomy Regulation<sup>2</sup> (Taxonomy) is one of the most relevant pieces in the SFS because it is decisive in governing the organizations' access to financial resources by directing investments towards green activities (Mundy, 2022) to incentivize sustainable change in business models (Slevin et al., 2020). To inform and mobilize finance, the Taxonomy requires firms<sup>3</sup> to disclose to what extent their activities are sustainable.

However, regulatory processes are contested (Ahlström & Monciardini, 2022), and whether a regulation achieves its objectives hinges upon how organizations implement its requirements (Johansen & Plenborg, 2018). Previous studies highlight that regulation does not always increase the level of sustainability reporting (SR) (Chauvey et al., 2015; Korca et al., 2021), which may impede the Taxonomy's ultimate goal of sparking sustainable organizational change. Firms' responses to regulation are shaped by several factors related to how they perceive regulatory demands (Johansen & Plenborg, 2018; Oliver, 1991). One of the most relevant factors influencing organizational decisions is the perception of environmental uncertainty (DiMaggio & Powell, 1983; Milliken, 1987) and, particularly, of *regulatory uncertainty* (i.e. uncertainty about the state of regulation) (Hoffmann et al., 2008; Rodriguez-Lopez et al., 2017), which can erode organizations' compliance with the mandated requirements (Engau & Hoffmann, 2009; Oliver, 1991).

This paper investigates which elements drive the perception of regulatory uncertainty surrounding the Taxonomy of a particular type of financial institution (FI), banks. FIs play a critical functionality within the Taxonomy's apparatus. As financial intermediaries, they are central actors in supporting change toward sustainable development (International Banking Federation & Deloitte, 2022). Further, they play a dual role in SR as both preparers and users because not only do they have to publish sustainability information, but they also need sustainability information produced by other organizations to elaborate their own disclosures (EFRAG, 2021). Finally, the Taxonomy has particular requirements for FIs. FIs must report specific indicators on their exposure to sustainable economic activities depending on their business model. Specifically, credit institutions, such as banks, must report the green asset ratio (GAR). Shedding light on the elements banks perceive as most uncertain concerning the Taxonomy has important implications for the regulatory process, as it helps us understand how firms may face new SR requirements.

We mobilize Hoffmann et al.'s (2008) taxonomy<sup>4</sup> of regulatory uncertainty and Milliken's (1987) typology of uncertainty to analyze the perception of uncertainty about the Taxonomy in a case study of the Spanish banking industry. Although the 2008 financial crisis heavily affected Spanish banks and forced them to restructure (Alter & Schüler, 2012), they continue to be significantly engaged in SR (Aguado-Correa et al., 2023;

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<sup>1</sup>See: [https://finance.ec.europa.eu/publications/sustainable-finance-package\\_en](https://finance.ec.europa.eu/publications/sustainable-finance-package_en)

<sup>2</sup>Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment and amending Regulation (EU) 2019/2088. See: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32020R0852>

<sup>3</sup>The requirement applies to all firms mandated to publish a sustainability report by the EU.

<sup>4</sup>Here, the term taxonomy is used to refer to the classification of the different elements that represent potential sources of regulatory uncertainty. The use of the word taxonomy can be, to a certain extent, confusing, as it overlaps with the regulation we are investigating: the EU Taxonomy. However, we decided to keep the term Hoffmann et al. (2008) used to coin their framework.

Bollas Araya et al., 2014; Pérez-Ruiz & Rodríguez del Bosque, 2012). This situation reduces the likelihood of finding extreme positive (because banks are already engaged in SR) or negative views about SR (because banks may be unwilling to invest in SR due to the crisis' impact on their business) that influence the perception of regulatory uncertainty. Further, focusing on one EU country mitigates the effect of divergences among member states' banking industries despite their integration into a unified EU system (Deos et al., 2015; Santillán-Salgado, 2011). The case study is informed by semi-structured interviews with 16 banks' SR, accounting, and risk management managers, three auditors, and seven relevant actors in the EU SR regulation arena; and completed by the analysis of documents and the attendance at public events on the Taxonomy's implementation.

The findings show that two elements in Hoffmann et al.'s (2008) taxonomy are the most relevant for understanding the perception of regulatory uncertainty: the Taxonomy's lack of clarity on how to operationalize its measures and rules, and the timeline and oversight of its implementation. Furthermore, we document that the Taxonomy also induces uncertainty in the non-regulatory environment. This regulation-induced uncertainty relates to the Taxonomy's effects on banks' reputation and market competition, and their internal responses to face its requirements.

The contribution of this paper is threefold. First, it adds to research on SR regulation in two ways. On the one hand, it extends the literature on SR regulation (Chauvey et al., 2015; Esteban-Arrea & Garcia-Torea, 2022; Pedersen et al., 2013) by unravelling the elements driving the perception of regulatory uncertainty. Disentangling these elements enables a better understanding of how organizations address regulatory demands and the challenges they encounter in doing so (Engau & Hoffmann, 2011). Given that regulatory uncertainty is expected to erode compliance (Engau & Hoffmann, 2009; Oliver, 1991), identifying how these elements unfold is pivotal in designing SR regulation. On the other hand, most prior research investigates the implementation of the Non-Financial Reporting Directive (NFRD) (Christensen et al., 2021; Korca et al., 2021). The Taxonomy is one of the latest steps in the EU SR regulatory development. It introduces a novel approach to SR as its requested disclosures directly connect the sustainability and financial corporate reporting fields (Hummel & Bauernhofer, 2024). Furthermore, the SR literature tends to focus on environmentally sensitive industries, which produce direct environmental impacts. By analyzing the banking industry, this paper extends research by exploring a sector with important indirect environmental impacts via its loaning and investment activities (O'Sullivan & O'Dwyer, 2015).

Second, we contribute to the literature on regulatory uncertainty (Engau & Hoffmann, 2011; Marquis et al., 2011) by responding to calls for investigating the emergence of regulation-induced uncertainty (Hoffmann et al., 2008). Research has studied the relationship between regulation-induced uncertainty and organizational outcomes, treating the former as a single indivisible construct (see Rodríguez-Lopez et al., 2017). By relying on Milliken's (1987) typology of uncertainty, our results show that regulation induces two types of uncertainty: effect uncertainty regarding the regulation's consequences on the non-regulatory environment and response uncertainty about the internal changes organizations adopt. Moreover, although regulation-induced uncertainty can be perceived in the absence of regulatory uncertainty (Hoffmann et al., 2008; Rodríguez-Lopez et al., 2017), the analysis points to a relationship through which elements generating regulatory uncertainty reinforce elements related to regulation-induced response uncertainty.

Third, we add to interdisciplinary research on regulation by investigating the perception of uncertainty about SR mandates. Previous studies have examined the uncertainty of environmental protection regulations and how it affects investment decisions and strategies (Engau & Hoffmann, 2011; Hoffmann et al., 2008; Marquis et al., 2011; Rodriguez-Lopez et al., 2017). We extend this literature by examining how SR regulation may also be subject to regulatory and regulation-induced uncertainties that can impact whether and how organizations produce the requested disclosures. Given the importance of this information in supporting decision-making about sustainability investments (Crona et al., 2021; European Commission, 2019), studying the perceived uncertainty of SR regulation is central to achieving the EU objective of transitioning to a greener economy.

The rest of the paper is structured as follows. Section 2 presents the theoretical perspective informing the study. Section 3 describes the Taxonomy regulatory context. Section 4 explains the research method. Sections 5 and 6 document how uncertainty is perceived in the Taxonomy setting. Finally, section 7 presents the concluding remarks and develops practical implications for regulators, enforcement agencies and banking authorities.

## 2. Regulatory uncertainty and regulation-induced uncertainty

Organizations are not passive actors that necessarily conform to institutional pressures; instead, they have agency that allows them to actively respond to those pressures, even by defying them (Oliver, 1991). In this respect, the literature demonstrates that organizations can implement varied responses beyond effective compliance when faced with new financial accounting (Canning & O'Dwyer, 2013; Shapiro & Matson, 2008) and SR regulations (Criado-Jiménez et al., 2008; Esteban-Arrea & Garcia-Torea, 2022; Pederesen et al., 2013).

Institutional theorists argue that environmental uncertainty is a relevant factor shaping organizations' responses to external changes (DiMaggio & Powell, 1983). According to Pfeffer and Salancik (1978), environmental uncertainty represents "the degree to which future states of the world cannot be anticipated and accurately predicted" (p. 67). Among the different sources of environmental uncertainty, this study explores the uncertainty stemming from the regulatory context (Greenwood & Hinings, 1996; Hoffmann et al., 2008). Hoffmann et al. (2008) define *regulatory uncertainty* as "an individual's perceived inability to predict the future state of the regulatory environment" (p. 714). This definition emphasizes the perceptual nature of uncertainty that depends on whether individuals are provided with sufficient information for adequate predictions (Milliken, 1987), in this case, about the state of regulation.

Focusing on regulatory uncertainty requires adapting the conceptualization of environmental uncertainty to the field of regulation to understand its relevance in influencing organizational responses to regulatory demands (Canning & O'Dwyer, 2013). Notably, regulatory uncertainty is considered to obstruct compliance (Engau & Hoffmann, 2009; May, 2004; Oliver, 1991). The lack of common definitions and agreements characterizing uncertain regulatory environments impedes isomorphic responses that help organizations cope with regulatory demands (Walters, 2012). In this situation, firms are expected to engage in symbolic compliance by unfolding avoidance strategies to conceal their reluctance to comply and meet only minimum requirements (Oliver, 1991).

For example, Canning and O'Dwyer (2013) found that regulatory uncertainty led Irish professional financial accounting bodies to adopt defiance and manipulation strategies to overcome the changes in a new regulation governing the accounting profession. Furthermore, regulatory uncertainty may generate a *means-end decoupling* (Bromley & Powell, 2012) in which organizations are more concerned about implementing the measures that regulation establishes to achieve its goal rather than the goal itself. Thus, they deviate their attention from the end to the mean of the regulation, thereby impeding effective compliance. To face uncertain regulatory contexts, firms may increase their investments to mitigate regulatory pressures (Hoffmann et al., 2009) and cope with the ambiguity characterizing regulation (Cadez et al., 2019; Rodriguez-Lopez et al., 2017).

Hoffmann et al. (2008) developed a 4-category taxonomy to understand the different elements driving the perception of regulatory uncertainty. They applied their taxonomy in the context of the European Emission Trading Scheme regulation that governs the EU carbon market. The first category deals with the uncertainty surrounding the regulation's *basic direction*. This category focuses on the level of broad agreement on the regulations' goal and whether it is supported by objective and subjective claims (Hoffmann et al., 2008). In this case, regulatory uncertainty may arise when the regulation's goal is at odds with stakeholder preferences, political interests, or scientific evidence, which could challenge it and eventually provoke unpredictable changes in its direction. In this regard, the misalignment between regulatory and organizational goals represents a source of regulatory uncertainty that obstructs effective compliance because, if organizations perceive that regulation constrains their decision-making capacity, they may try to avoid complying by creating the impression of meeting regulatory demands without actually doing so (Oliver, 1991). Indeed, Pedersen et al. (2013) showed that competing priorities regarding disclosure requirements (i.e. whether regulatory information requests are incompatible with the organization's internal logic) erode compliance.

The second category addresses the *measures and rules* for operationalizing a regulation's basic direction. Hoffmann et al. (2008) explain that these measures and rules must be clearly defined so that regulatees can adequately execute them. Therefore, regulatory uncertainty may emerge when the definitions of such measures and rules are ambiguous and there is no consensus on how they should be correctly interpreted, as this situation may lead to potential changes in their future development. For instance, the lack of clear guidance to address regulatory accounting requirements (Johansen & Plenborg, 2018) or adopt IFRS standards (Albu et al., 2020) represents sources of regulatory uncertainty that can impede compliance.

The third category focuses on the *implementation process* that a regulation defines for adopting its measures and rules. Hoffmann et al. (2008) argue that regulations should establish a known or at least predictable timeline for their implementation and be supported by strong enforcement to guarantee their adoption. Otherwise, individuals can perceive regulatory uncertainty if the regulation does not implement an adequate oversight process, if the implementation timeline is unclear (Hoffmann et al., 2008), or if the regulation's development is staggered (Rodriguez-Lopez et al., 2017). Uncertainty about the regulation's implementation process can deter compliance (Johansen & Plenborg, 2018; Oliver, 1991). In this regard, Pedersen et al. (2013) found that adopting SR may be hindered when regulatees have diverse interpretations of enforcement due to unclear regulatory implementation and when the timeline is perceived as challenging.

The fourth category deals with the *interdependence* of a regulation with other (existing and future) regulations in a field. According to Hoffmann et al. (2008), it is important to understand how a regulation connects with others as their interaction may influence their implementation. Uncertainty may derive from a situation in which a regulation governs a similar issue to others, and there needs to be more consistency among their requirements, especially if there are no clear explanations on how they connect. SR literature has discussed the importance of considering that organizations operate in a regulatory setting determined by requirements stemming from multiple regulations (Fallan, 2016; Senn & Giordano-Spring, 2020). In this respect, the congruence of a rule with the regulatory framework where it is integrated is critical to ensuring that organizations follow its prescriptions (Bebbington et al., 2012; Larrinaga & Senn, 2021).

Hoffmann et al. (2008) suggest that regulation can also induce uncertainty in elements of the non-regulatory environment, what they name as *regulation-induced uncertainty* (p. 714). Elements of the non-regulatory environment refer to those conditions and variables that regulation affects despite not being within its direct scope (e.g. competition, market conditions) (Rodriguez-Lopez et al., 2017). In this regard, Hoffmann et al. (2008) explain that regulation-induced uncertainty can emerge even if the future state of the regulation is certain. However, they note that exploring what types of regulation-induced uncertainty can arise is beyond their study.

Following Milliken's (1987) typology of uncertainty, Hoffmann et al. (2008) conceptualize regulatory uncertainty as state uncertainty (i.e. the inability to predict changes in the components of the regulatory environment in itself). In addition to state uncertainty, Milliken (1987) proposes two other types of uncertainty: while *effect uncertainty* refers to an individual's capacity to anticipate and forecast the repercussions of environmental events or alterations on their organization, *response uncertainty* relates to an individual's ability to comprehend the array of response options accessible to the organization, as well as to evaluate the value or utility associated with each option. While regulatory uncertainty relates to state uncertainty (Hoffmann et al., 2008), we argue that effect uncertainty and response uncertainty can emerge as forms of regulation-induced uncertainty. These types of uncertainty are driven by the difficulty in predicting the consequences that companies may experience due to the enactment of regulation and regarding the internal responses they adopt to face regulatory demands.

Based on this classification of regulatory uncertainty and regulation-induced uncertainty, this study seeks to respond to the following research question:

What elements drive regulatory uncertainty in the Taxonomy's setting and what (if any) types of regulation-induced uncertainty do banks perceive concerning SR?

To address this question, we first describe the main aspects of the Taxonomy and its SR requirements in the next section.

### **3. The Taxonomy Regulation reporting requirements: the green asset ratio**

The purpose of the EU sustainable finance agenda is to foster sustainable organizational change by mobilizing the role of finance as a catalyst of this transition (Ahlström & Monciardini, 2022). The logic behind the EU regulatory apparatus is to create financial

incentives to promote the integration of sustainability into organizations' business models (Chiu, 2022). The Taxonomy is central to enabling this process as it aims to inform other EU regulations supporting that purpose by determining what economic activities are considered sustainable to guide investing and financing decision-making. As Brühl (2022, p. 253) notes, the Taxonomy connects to other SFS regulations: its classification of economic activities is instrumental in producing the sustainability information that financial market participants must report under the Sustainable Finance Disclosure Regulation (SFDR), while its Article 8 is compulsory for firms under the NFRD and the Corporate Sustainability Reporting Directive (CSRD) adopted in 2023.

The Taxonomy's development is organized through the staggered enactment of a series of delegated acts (DAs) specifying the eligibility and alignment criteria<sup>5</sup> of economic activities with environmental and social objectives, as well as the disclosures that organizations must provide. Although the Taxonomy refers to sustainable economic activities, only the classification regarding environmental objectives has been delivered,<sup>6</sup> while the definition of sustainable social activities is still under debate. This situation reflects investors' focus on climate and environmental risks, which has narrowed the regulatory attention to environmentally related aspects (Ahlström & Monciardini, 2022).

The production of indicators measuring firms' sustainability impacts and exposures is key to informing capital market participants and mobilizing finance (Chiu, 2022). The Taxonomy's Article 8 obliges companies mandated to publish a non-financial/sustainability report to inform about the extent to which their activities qualify as environmentally sustainable through the disclosure of three indicators: CapEx, OpEx, and turnover. The Disclosure DA (DA2) specifies the methodology firms should apply to produce these indicators. DA2 notes that CapEx, OpEx, and turnover are inadequate to assess the extent to which FIs align with sustainability objectives. Therefore, it defines specific indicators for FIs depending on their business model. For credit institutions, such as banks, DA2's Article 4 introduces the GAR as the required metric to measure the extent to which these entities are exposed to Taxonomy-aligned economic activities (Brühl, 2022). According to the European Banking Authorities' estimates, around 150 banks are mandated to disclose the GAR (Wass, 2022).

As explained in DA2's Annex V,<sup>7</sup> rather than consisting of the production of a single indicator, the GAR requires the calculation of several indicators assessing the value of certain Taxonomy-aligned elements of financial statements (numerator) compared to the total value of such elements (denominator) (Brühl, 2023). For on-balance sheet assets, credit institutions shall provide a total GAR resulting from integrating indicators for different counterparties: (i) non-financial undertakings, (ii) financial undertakings, (iii) retail customers, (iv) local governments for house financing and other specialized

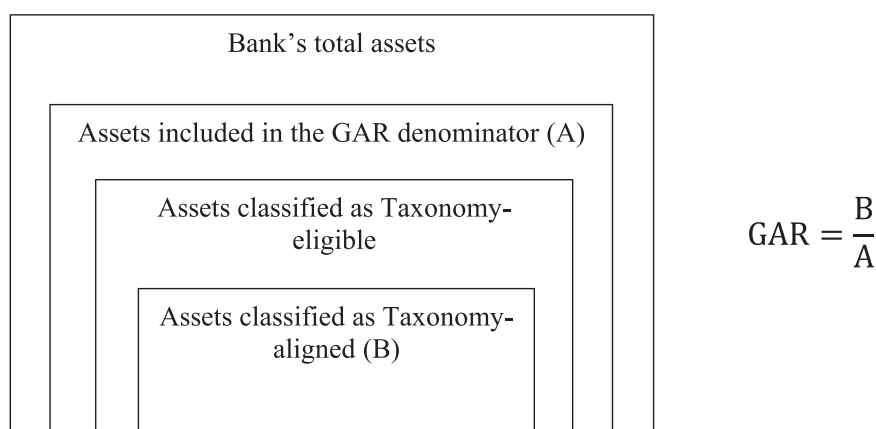
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<sup>5</sup>A *taxonomy-eligible activity* is an economic activity that substantially contributes to at least one of the Taxonomy's environmental and social objectives. A *taxonomy-aligned activity* is an eligible activity that (i) substantially contributes to one of the objectives, (ii) complies with the do-no-significant-harm (DNSH) principle regarding the other objectives, and (iii) meets the minimum social safeguards (MSS) set by the Taxonomy. Therefore, taxonomy-aligned activities are a subset of eligible activities.

<sup>6</sup>The Taxonomy establishes six environmental objectives. In addition to climate change mitigation and climate change adaptation, it considers four other objectives: the sustainable use and protection of water and marine resources, the transition to a circular economy, pollution prevention and control, and the protection and restoration of biodiversity and ecosystems. In June 2023 the EU approved the criteria for the last four environmental objectives.

<sup>7</sup>DA2 offers a detailed explanation of the GAR production (Annex V) and templates for its presentation (Annex VI) (see also Brühl, 2023).





**Figure 1.** Graphic representation of the GAR basic calculation.

lending, and (v) repossessed real estate collaterals. Credit institutions shall also report indicators on their off-balance sheet exposures as well as on their fees and commissions other than from lending services. Additionally, if their trading portfolio is significant for their business model, they must disclose a quantitative indicator evaluating the extent to which it aligns with environmental criteria. These indicators must be disaggregated for each Taxonomy's environmental objective, while the effect of the stock and flow shall also be disclosed for on-balance sheet elements. Gathering data and meeting technological needs for producing the required indicators is highly complex, primarily because of the granularity of data needed for their calculation (Brühl, 2022). Furthermore, credit institutions should specify the proportion of their assets excluded from the numerator and denominator because DA2 prescribes that some exposures must be omitted in their computation (i.e. exposures to central governments, central banks and supranational issuers, derivatives, firms not mandated to publish a sustainability report, in-demand interbank loans, and assets held for trading). Figure 1 provides a representation of the basic idea of how to calculate the GAR.

DA2 is partly compulsory from 1 January 2022 until 31 December 2023 (i.e. reports published in 2023 covering 2022). Credit institutions must only report their assets' exposure to eligible activities during this period.<sup>8</sup> Additionally, they must inform about the exposures excluded from the GAR numerator and provide the qualitative information required in DA2's Annex XI. From 1 January 2024 onwards (i.e. reports published in 2025), credit institutions must fully comply with the requirements and also report their GAR on taxonomy-aligned activities.

#### 4. Research design

We performed an exploratory interpretive case study of the Spanish banking industry to investigate the research question. This method is appropriate when the knowledge about

<sup>8</sup>Some banks voluntarily published estimates of their eligibility ratio for the year 2021, showing significant variability among entities: the highest ratio was 54% (Groupe BPCE), while the lowest was 18.4% (Société Générale SA) (Wass, 2022).

the phenomenon under study is limited because it allows delving into interpretations of that phenomenon in a real context (Yin, 2018). Below, we describe the case study's setting and the sources for the empirical material informing the analysis.

#### **4.1. The Spanish banking industry**

Spanish banks were significantly affected by the 2008 financial crisis. This crisis was largely driven by a series of short-term decisions motivated by the banks' failure to appreciate the financial and non-financial (e.g. sustainability) risks affecting their industry (Domínguez-Martínez & López-Jiménez, 2021). The Spanish government intervened the banking industry and forced it to restructure (dramatically decreasing the number of banks) (Alter & Schüler, 2012). This situation notwithstanding, the Spanish banking system was still one of the best performers compared to its European peers (Carbó Valverde & Rodríguez Fernández, 2014).

Despite the financial crisis' impact on its business model, the banking industry continued to stand out for its high SR rate. According to KPMG (2020), 78% of the largest financial companies worldwide issue sustainability reports. In Spain, the significant governmental attention to corporate social responsibility (CSR) and SR since the early 2010s (Díaz-Díaz & García-Ramos, 2015) fostered SR in banks. The 2011 Sustainable Economy Law was the first Spanish regulation mandating sustainability disclosure and was cited as a precedent for the NFRD (Luque-Vilchez & Larrinaga, 2016), which was transposed into the Spanish legislation through Law 11/2018. This law is more ambitious than the NFRD in scope, topic coverage, and assurance requirements (García-Torea et al., 2019). This context encouraged banks to integrate sustainability into their businesses, making the sector a leader in CSR (Pérez-Ruiz & Rodríguez del Bosque, 2012) and SR (Aguado-Correa et al., 2023).

#### **4.2. Empirical material**

We gathered data from semi-structured interviews, documentary analysis, and our attendance at workshops and events.

For the interviews, we contacted nine of the largest Spanish credit institutions subject to NFRD as of June 2021, including banks, former saving banks (now commercial banks), and a credit union. Seven out of the nine organizations agreed to participate. Between January 2021 and February 2022, we carried out 24 interviews with 26 individuals who were managers and auditors of the seven institutions (Table 1) and relevant actors in the Taxonomy setting (Table 2).

We interviewed 16 high-level managers with responsibilities related to the Taxonomy's requirements, such as sustainability, business data, regulation, and financial managers. Due to the Taxonomy's connection with risk assessment, managers responsible for monitoring risk were also contacted (although not all banks had one). Additionally, we interviewed three banks' auditors because of their role in helping them comply with accounting regulations as they are experts and evaluate organizational practice externally (Albu et al., 2020; Senn & Giordano-Spring, 2020). The number of interviewees in organization A is higher than the rest because it recently merged with another institution, and some roles were still duplicated.

**Table 1.** Bank managers and auditors.

Organization code	Listed	# interviews (# interviewees)	Interviewee profile (code)	Length
A	Yes	7 (7)	Former sustainability manager (A1)	40 min
			Sustainability manager and vicepresident of a leading sustainable investment non-profit association (A2)	30 min
			Strategic reporting manager (A3)	1 h 8 min
			Reputational risks and services manager (A4)	30 min
			Former CSR manager (A5)	50 min
			Former external auditor (A6)	1 h 3 min
			External auditor (A7)	1 h 11 min
B	Yes	1 (1)	Responsible business data & analytics manager (B1)	1 h 7 min
C	Yes	3 (3)	Sustainability manager (C1)	43 min
			Corporate conduct and regulation area manager (C2)	36 min
			External auditor (C3)	40 min
D	No	1 (2)	CSR manager (D1)	54 min
			Sustainability staff in the reputation and sustainability department (D2)	
E	No	1 (2)	Sustainability manager (E1)	47 min
F	No	2 (2)	Responsible for the sustainability report (E2)	
			Director of ASG department (F1)	52 min
G	No	2 (2)	Financial director (F2)	51 min
			Sustainability, quality, and management systems manager (former risks management manager) (G1)	49 min
			Director of the global risk management department (G2)	28 min

**Table 2.** Other relevant actors.

Code	Profile	Length
O1	Leading non-profit sustainable investment association	52 min
O2	Director of strategy and sustainability of a banking association	1 h 10 min
O3	Independent CSR experts	35 min
O4	Union officer	1 h 15 min
O5	Member of a NGO	55 min
O6	Member of a NGO	47 min
O7	Academic participating in the EU SR regulation process	53 min

Regarding relevant actors, we interviewed seven individuals representing different perspectives on how banks cope with the Taxonomy's SR requirements. While the member of the investor association represents investors' interests, the representatives of NGOs and the Union account for other stakeholders' views. Additionally, we interviewed a member of the banking association to analyze the whole sector's perspective. Finally, the view of academics participating in policymaking processes were valuable to understand the regulatory context (Garcia-Torea et al., 2019).

We used the first two interviews as pilots to validate the protocol (see Appendix 2). The protocol was adjusted for interviewing auditors and other relevant actors. The researchers monitored the number of interviews to achieve informative redundancy (Guest et al., 2006). At least two researchers participated in each interview. One of the researchers acted as the interviewer and the other(s) as observer(s) to ensure consistent interpretation.

The interviews were recorded and transcribed for interpretative analysis (Berg & Lune, 2012). We analyzed them using the Atlas.ti software by creating thematic codes (Miles &

Huberman, 1994) based on prominent emerging topics concerning elements affecting banks' responses to Taxonomy's SR requirements. All authors participated in the analysis, ensuring consistency in the coding via several rounds of comparisons and interactions. A substantial array of codes emerged, which were further amalgamated to facilitate data interpretation (Grodal et al., 2021), as we identified that they were related to specific factors explaining organizational responses to institutional (Oliver, 1991) and regulatory pressures (Johansen & Plenborg, 2018; May, 2004; Pedersen et al., 2013). In a subsequent phase, interviews were re-evaluated, revealing an intrinsic factor that seemed pervasive across the others: uncertainty. Consequently, we reviewed relevant literature on environmental (e.g. DiMaggio & Powell, 1983; Milliken, 1987; Oliver, 1991; Pfeffer & Salancik, 1978) and regulatory uncertainty (Hoffmann et al., 2008; Rodriguez-Lopez et al., 2017) to develop a theoretical framework that provided us with key notions to enhance our comprehension of the data. This theoretical basis allowed us to identify the elements driving regulatory uncertainty in the Taxonomy setting and understand how they can induce uncertainty in the non-regulatory environment (Hoffmann et al., 2008). The interviews were read and analyzed several times, and the researchers' interpretations were compared until saturation in the findings was achieved (Eisenhardt, 1989).

When analyzing the interviews, we paid attention to the diversity of credit institutions represented by the managers we talked to (i.e. listed, cooperative, former savings banks). This distinction could lead to potential differences in how each type engages in SR (Bonifácio Neto & Branco, 2019; Costa et al., 2022). For example, cooperative banks have been found to rely more heavily on SR frameworks than listed banks (Bollas Araya et al., 2014). These differences in prior SR experience may be relevant to understanding how they perceive regulatory uncertainty in the Taxonomy's context.

The insights derived from the interviews were triangulated through a documentary analysis (Bailey, 1994) of public reports on the SFS and Taxonomy. We analyzed the FIs' letters submitted to the EU public consultations on SR regulations (34 responses to the Taxonomy,<sup>9</sup> seven responses to the CSRD,<sup>10</sup> and 18 responses to the SFDR<sup>11</sup>) and reports on the Taxonomy's implementation from different institutions (e.g. EU, EBA, EBF, EFRAG, UNEP FI). These documents were analyzed through an inductive approach that yielded additional information about the findings obtained from the interviews (Adams & McNicholas, 2007).

Finally, the analysis relies on our attendance at public seminars and events on the Taxonomy organized by business associations, rating agencies, and policymakers. Participants in these events include CSR and risk managers, consultants, academics, and people holding senior management positions in international SR standards organizations. Our attendance at these events complements the interview and documentary analysis to enhance the reliability of the findings.

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<sup>9</sup>Joint consultation on Taxonomy-related sustainability disclosures. Available at: [https://www.eiopa.europa.eu/consultations/joint-consultation-taxonomy-related-sustainability-disclosures\\_en#:~:text=The%20joint%20consultation%20launched%20by,to%20an%20environmental%20investment%20objective](https://www.eiopa.europa.eu/consultations/joint-consultation-taxonomy-related-sustainability-disclosures_en#:~:text=The%20joint%20consultation%20launched%20by,to%20an%20environmental%20investment%20objective).

<sup>10</sup>Feedback and statistics: Proposal for a directive. Available at: [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12129-Corporate-Sustainability-Reporting/feedback\\_en?p\\_id=24211898](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12129-Corporate-Sustainability-Reporting/feedback_en?p_id=24211898)

<sup>11</sup>Joint ESA consultation on ESG disclosures. Available at: <https://www.esma.europa.eu/press-news/consultations/joint-esa-consultation-esg-disclosures>

## 5. The Taxonomy's regulatory uncertainty

The analysis is structured in two sections. This first section explores the elements driving banks' perception of regulatory uncertainty in the Taxonomy setting. The second section analyzes whether the Taxonomy induces uncertainty in banks' non-regulatory environment.

### 5.1. Basic direction

According to Hoffmann et al. (2008), the extent to which individuals agree with the regulation's goal and whether they perceive it is adequately supported influence their perception of regulatory uncertainty. The interviewees perceive that the main goal behind the Taxonomy is to promote the economy's green transition. Most of them view this regulation as an opportunity to integrate sustainability into their business models, showcasing an alignment between the Taxonomy and banks' objectives in terms of committing to sustainable development, suggesting they agree with the regulation's objective. This alignment, as some interviewees explained (A1, C1), is particularly strong for banks originating from former saving banks due to the socially responsible nature of these entities (Pérez-Ruiz & Rodríguez del Bosque, 2012).

“For us, nothing of this is new. Sustainability is in our organization's DNA.” (A2)

“We are already so committed and realize that it [sustainability] is the way.” (F1)

Other stakeholders also support the Taxonomy's goal. Interviewees, both bank managers and experts, highlight that investors are increasingly aware of the relevance of sustainability for their investments and are pressing FIs to adopt policies:

“[T]he priority is for investors. [...], the big investment funds are pushing hard in this regard.” (A5, similar assertions B1, C3, O6)

The SFS, especially the Taxonomy, gives FIs a central role in promoting the EU green transition, as they are the primary vehicle to direct financial resources to economic activities. Interviewees, both corporate managers and other relevant actors, underscore the banks' role as promoters of sustainability, creating a “*domino effect*” (A7) in non-financial organizations.

“[T]he FIs' role is indeed very important. [I]t is no longer just what we as an entity can do and how we control our impact, but also how, through financing projects, companies ... we will help to [...] decarbonize towards a more sustainable economy.” (D1, similar assertions A7, B1, G2, F2, O2)

Although banks are willing to assume that responsibility, they warn that they cannot do it alone and ask for the support of other relevant actors, especially the public sector, to lead “*the head of the demonstration*” (O2) to deploy the Taxonomy's objective.

Despite banks' call for support to mobilize their role as actors financing sustainable transitions (F1), the level of uncertainty about the Taxonomy's basic direction is relatively low. There seems to be widespread agreement on the Taxonomy's goal, with banks and stakeholders, especially investors, sharing this view.

## 5.2. Measures and rules

Hoffmann et al. (2008) posit that whether the regulation clearly defines the measures and rules to operationalize its basic direction determines how individuals perceive regulatory uncertainty. In this regard, the Taxonomy could alleviate such perception by offering clear guidance on how to address the technical aspects of producing the mandated disclosures. However, bank managers underscore that the Taxonomy “*lacks clarity*” for its application (A2, A7, C1, C2, D1, E1). As one of the interviewees expresses:

“We’ve been talking about the Taxonomy for a long time, but we are not yet ready because *there is not enough clarity and guidance* on how to respond.” (A1, emphasis added)

Other actors also point to the Taxonomy’s limited clarity. For instance, the manager of an NGO monitoring firms’ SR practices highlights the need for “*greater precision regarding requirements, as it is fundamental for compliance*” (O5, similar assertions O2). Interviewees maintain that the Taxonomy provides “*more chaos than clarity*” to calculate the GAR (E1, similar assertions G1, G2). The regulation fails to clarify the “*basic aspects*” to produce this ratio (event note, April 2022, also O2). For instance, interviewees express uncertainty about the distinction between “*being sustainable and being Taxonomy-aligned*”, a key factor in determining the economic activities that should be considered for the GAR calculation (A3, similar assertions O1, O2). The Taxonomy’s ambiguity regarding the scope of activities included in the GAR’s calculation is also a pressing issue for banks because they perform and fund activities. This ambiguity led one interviewee to wonder whether the Taxonomy “*refers to the activity I do or the activity I finance*” (F1). Similar to other sustainability issues (Antonini et al., 2020), concerns about the Taxonomy’s scope relate to determining reporting boundaries:

“I have a subgroup in Turkey, which is a parent company of a firm in the Netherlands in the EU. [...] Do I have to include my Turkish Group? Or shouldn’t I because it’s Turkish? What about the subsidiary in the Netherlands?” (B1)

To manage the high regulatory uncertainty emerging from the Taxonomy’s lack of clarity about its measures and rules, banks collaborate in industry associations to discuss their doubts on how to address the Taxonomy’s requirements. In line with DiMaggio and Powell’s (1983) expectation of managers participating in professional associations to deal with uncertainty, these associations operate as platforms for sharing information with peers facing similar challenges (Milliken, 1987).

“[I]n that working group of the European Banking Federation, many of the doubts I had [were shared by other European banks], because this forum is open and collaborative, and you have to contribute. This is not a strategy of you going alone [...], this has to be a strategy of all banks, because if not, it is impossible.” (B1, similar assertions G2)

Overall, the Taxonomy creates a highly uncertain regulatory environment due to its limited clarity on how to adopt the measures and rules it establishes. As it happened with financial accounting requirements (Albu et al., 2020; Johansen & Plenborg, 2018), this situation generates doubts about how these measures and rules may evolve, which could eventually obstruct effective compliance once banks are requested to produce all Taxonomy’s disclosures.

### 5.3. Implementation process

Regulatory uncertainty may emerge from a regulation's implementation process if individuals perceive the timeline for adopting the rules and measures or the oversight over its application are vague or incongruent (Hoffmann et al., 2008). Most interviewees are worried about the Taxonomy's challenging implementation timeframe. Their concerns focus on two issues. First, the Taxonomy's implementation schedule will not allow them to be ready to comply with its information requirements as they will need input data from other organizations that is most likely not to be available. EFRAG shares a similar concern and notes that "[FIs] *need time to access, process and disclose information on indirect impacts*" (2021, par. 165).

"One incoherence is that we are already obliged to report on our portfolios' impact risks when a significant part of the firms are still not generating this information because they are not obliged yet. So, when you talk to the regulators about this inconsistency, they say, 'ok, but do it'". (G2)

"It is a bit hasty for FIs to start publishing the percentage of Taxonomy-eligible assets when non-financial firms have *not published it yet*. Only if their clients publish data will FIs be able to report." (B1, emphasis added, similar assertion G1)

The second concern regarding the Taxonomy's timeline is its staggered development. As outlined in Section 2, the Taxonomy currently encompasses six environmental objectives. The EU released the DA developing the requirements for the climate change mitigation and adaptation objectives in 2021, but it was not until June 2023 that the EU approved the DA on the remaining four objectives. This DA not only elaborates on those objectives but also amends the previous DA on climate objectives and incorporates changes in DA2's disclosure requirements timeline. This multiple-step process creates uncertainty among banks regarding how the enactment of the pending DAs (especially those on social objectives) may affect them:

"[T]he Taxonomy is not yet closed and clear, [...] there are many things that we are already being demanded when they are not even wholly finalized." (D2, similar assertions B1, F1)

Concerning oversight, interviewees perceive that the Taxonomy is too strict, pointing to an absence of a facilitative enforcement style (Johansen & Plenborg, 2018). Although this situation suggests that regulatory uncertainty could be low, there is an overall view that such stringent oversight over disclosures generates uncertainty between banks as to whether they will be able to comply adequately. Indeed, some individuals think that regulators should have made more efforts to solve the Taxonomy's lack of clarity, rather than on developing supervision.

"[The Taxonomy] is a regulatory expectation [...] with high compliance standards that are *very stringent in a very short period*. It is unlikely we will be able to meet the expectations." (G2, similar assertion A1)

"Instead of so much supervision, it would have been more interesting to focus efforts on a clear regulation." (C3)

In conclusion, the Taxonomy's implementation generates high regulatory uncertainty due to its timeline and strong oversight. The regulation's adequate timing is a crucial

factor driving the regulatees' ability to comply (Johansen & Plenborg, 2018). Also, the segmented process through which the Taxonomy is developed makes the regulatory environment uncertain (Rodriguez-Lopez et al., 2017). Therefore, the constraining and simultaneously uncertain Taxonomy's implementation schedule and its significant supervision may impede compliance (Pedersen et al., 2013).

#### 5.4. Interdependence

The fourth element driving regulatory uncertainty is the interdependence between regulations because the implementation and compliance with one may depend on its connection to others in the same regulatory environment (Hoffmann et al., 2008). The Taxonomy directly relates to other SFS regulations with SR implications. As abovementioned, the Taxonomy affects banks bound by the CSRD (also the NFRD), requiring them to disclose the GAR. Additionally, the Taxonomy is instrumental in reporting information on the sustainability impacts of banks' investment products requested by the SFDR. Consequently, the interviewees perceive that the Taxonomy participates in a growing and intricately regulated setting that creates a complex environment that “*drives FIs mad*” (D1) due to their multiple disclosure obligations. This situation makes it difficult for banks to be updated and hinders their capacity to address the requirements correctly.

“[T]here is so much detail in the regulations. [...] [I]t is impossible to follow the whole issues [SR requirements] individually.” (A6, similar assertion G2)

The Taxonomy represents the peak of the SR regulatory “*tsunami*” (as many interviewees call it) because of its centrality within the SFS. The Taxonomy's classification of sustainable economic activities guides the disclosures requested by the other regulations by offering a benchmark for banks to categorize their investments.

“[T]he Taxonomy is *the basis for doing everything else*. If you don't develop a taxonomy, you can't do all the targeting part, all the disclosure part, and so on.” (F2, emphasis added)

“The three regulations [Taxonomy, CSRD, SFDR] are important [...], *but if I had to pick one, it would be Taxonomy*.” (C3, emphasis added)

The interdependence among regulations also feeds into the implementation schedule as a source of regulatory uncertainty due to the rapid application and interrelationships between the SFS regulations. Firms mandated to publish a sustainability report by the EU must disclose Taxonomy-related sustainability data, which is required for the GAR calculation. Therefore, there is a need for greater coherence between the timeframes of the SFS regulations with SR implications.

“Responding well to all of them [regulations] is very difficult due to their complexity, time pressure, and poorly coordinated relationships between them.” (A5)

In addition to the connection to the other SFS regulations, interviewees emphasized the need to understand the Taxonomy in an already complex regulatory context (O2, O5), which may be “*suffocating*” (O3). They note that other regulations affecting the banking industry further exacerbate the uncertainty of the regulatory environment:

“An important issue is the stress tests. They will stop the Taxonomy a bit. Once we pass the tests, we will return to the Taxonomy.” (A1, similar assertions C3, F1, G1, O2)



Banks operate in an already “*hyperregulated*” (O1) sector. Therefore, they can handle high levels of supervision better than firms from other industries because their “[employees] *are already used to so much regulation ... , it is [their] day-to-day life*” (A2). This situation allows them to build capabilities to cope with challenging settings (Helfat, 1994), such as the uncertainty resulting from the Taxonomy’s interdependence with other regulations. However, the interviewees argue that what is problematic is not the number of regulations, but rather the consistency and harmonization among them to mitigate that uncertainty hinders compliance:

“I must study four syllabi [regulations]. You are telling me to look at yours [the Taxonomy], but I must look at the other syllabi at the same time. *Are you [the regulator] helping us? Well, objectively not.*” (F2, emphasis added, similar assertions A1, G1)

“The important thing is to conclude the regulatory scaffolding and clean it up to *reduce inconsistencies* and provide clarity.” (O2, emphasis added)

The multiple and interrelated regulations affecting the banking industry create an overwhelming and uncertain regulatory context (Hoffmann et al., 2008) that may obstruct meeting the Taxonomy’s requirements adequately. Banks’ experience managing an already “hyperregulated” environment can allow them to handle that uncertainty. Yet, greater consistency among regulatory requirements and clear explanations of their relationships are needed.

To sum up, the evidence points to a perception of high regulatory uncertainty surrounding the Taxonomy. Although the four elements of Hoffmann et al.’s (2008) taxonomy generate this perception (see Table 3, panel A), two of them are the most relevant: (i) the Taxonomy’s lack of clarity on how to apply its measures and rules and (ii) the Taxonomy’s challenging implementation timeline and oversight.

## 6. The Taxonomy’s regulation-induced uncertainty

In addition to regulatory uncertainty, the Taxonomy induces uncertainty in the non-regulatory context. Following Milliken (1987), we observe that regulation-induced uncertainty materializes in two ways: (1) concerning the *effects* the Taxonomy may generate in the banks’ non-regulatory environment, and (2) regarding banks’ internal responses to address the Taxonomy’s requirements. Table 3 (panel B) summarizes the main results on the elements related to regulation-induced uncertainty.

### 6.1. Regulation-induced effect uncertainty

Banks’ reputation and market position are the most uncertain non-regulatory elements resulting from the Taxonomy. On the one hand, managers consider that being more transparent about banks’ exposures to sustainability can improve their reputation:

“It gives us benefits, such as greater credibility and transparency towards the outside, towards the market.” (A3, similar assertions A4, A6, C1, C3)

The interviewees explain that the Taxonomy’s SR requirements will also help banks enhance their business model and strategy. The integration of sustainability resulting from the Taxonomy’s implementation will allow them to better understand their risks, making them more prepared to compete.

**Table 3.** Elements influencing the perception of uncertainty.

Panel A: Regulatory uncertainty	
<i>Basic direction</i>	<i>Alignment with banks' sustainability objective</i> <i>Role of FIs as mobilizers of capital</i> <i>Support from public administration</i>
<i>Measures and rules</i>	<i>Lack of clarity</i> <i>Cooperation among banks</i>
<i>Implementation process</i>	<i>Implementation schedule</i> <i>Taxonomy's gradual development</i> <i>Stringent oversight</i>
<i>Interdependence</i>	<i>Growing and intricate regulatory setting</i> <i>Experience in a hyperregulated context</i>
Panel B: Regulation-induced uncertainty	
<i>Effect</i>	Potential consequences of Taxonomy's adoption (Improving vs. damaging reputation, market position, and business model)
<i>Response</i>	Changes in governance and organizational structures Data complexity Speed for adopting operational changes

Note: Normal font indicates driving elements of uncertainty while italics indicate mitigating elements.

"Integrate [the Taxonomy] into prudential frameworks and risk appetites when granting loans to companies [...]. *Not simply the solvency and viability, but also other types of risks, including environmental risks, regulatory pressures* [...]. To me, it is a real-value contribution." (G1, emphasis added; similar assertions A7, D1, D2, G2)

However, some interviewees stress that it is too soon to understand the consequences of producing the Taxonomy's disclosures. They argue that the public scrutiny driven by reporting the GAR may also generate adverse reputational effects. In this regard, although banks have a certain level of maneuver, it is unclear how society may react and what could be the best strategic decision on how to disclose the GAR:

"Society is not prepared to understand the message. If we disclose a GAR of 10%, maybe people say 'these banks, sons of \*\*\*\*, only 10% of your financing relates to green activities'." (F2)

"It could be an [impact] in reputational terms, which is what worries us because the GAR is such an open and simple measure, but at the same time, so complex and interpretative [...]. Is it convenient to disclose a high ratio demonstrating commitment, with the risk that [...] it will reduce and look bad? Or on the contrary, they [banks] should produce a reasonable, cautious, low GAR; surely there will be critiques for being so unsustainable, but [...] the ratio can increase [in the future] and demonstrate that things are done better." (O2)

Managers also question whether disclosing banks' exposures could reduce competitiveness. Providing that information could make the EU banking industry less competitive than its non-EU peers (A5, similar assertions A2, O1). However, there could also be negative consequences in terms of competitiveness and reputation if banks fail to comply:

"If you do not comply, investors will punish your behavior. They are watching what you do. It is a critical reputational and public issue." (C3)

The interviewees' multiple views about how banks' reputation and market position will be affected show high uncertainty about the potential consequences of the Taxonomy. As Rodriguez-Lopez et al. (2017) explain, understanding regulation-induced uncertainty is complex because it depends on other elements outside the firms' influence. In the case of

the Taxonomy, the regulation-induced effect uncertainty hinges on how society and investors interpret the information. Therefore, this type of uncertainty may deter banks from compliance as they cannot predict whether fulfilling the Taxonomy's requirements will benefit or worsen their position.

## 6.2. Regulation-induced response uncertainty

The Taxonomy also induces uncertainty surrounding the responses that banks internally adopt to comply with its requirements. As explained above, the Taxonomy is perceived as the SFS central piece. This regulatory package increases banks' SR obligations substantially, requiring them to make significant decisions to adapt their business:

“[W]e are facing a regulatory tsunami since the 2008 financial crisis, and *the last wave of the tsunami is precisely sustainability*, [...] it is forcing all entities [...] to *take a series of measures*.” (C2, emphasis added)

The Taxonomy's focus on monitoring and reporting sustainability risks calls banks to assess their strategies (EBF & UNEP FI, 2021). It forces them to revisit and adjust their business model, something that could be challenging because it requires changes that go beyond the production of information:

“*If you touch risks, you touch everything*. [...]. Therefore, it affects the entire financial entity.” (A6, emphasis added)

On the one hand, the Taxonomy provokes high-level modifications to promote, or at least show, the embeddedness of sustainability in the banking business. Banks must adjust their organizational structures to manage the incoming SR requirements because they “*cannot implement a standard affecting the entire organization from one department; we need everyone's collaboration*” (C2). Therefore, banks are making changes to integrate sustainability into their organizational and governance structures:

“We are designing changes in governance structures. How sustainability issues are governed and how they are supervised. [...], so it has impacts on and requires efforts at many levels.” (G2, similar assertions A2, B1, F1)

In addition to high reorganizing costs (D1, G2), integrating sustainability into organizational structures creates internal tensions and conflicts between departments, as some may be reluctant to recognize the relevance of sustainability. This situation generates the perception of uncertainty, not only in terms of managing these tensions but also the resources needed to coordinate and communicate between organizational units:

“In the CSR [department], we have always been the organization's ‘Jiminy Cricket’. [...] [M]y role is to try to make the financial department aware of the need to integrate sustainability information in the financial report.” (B1, similar assertion F1)

On the other hand, more profound operational changes are needed to fulfill the Taxonomy's requirements. Implementing these changes is problematic, partly because of the regulatory uncertainty about the Taxonomy's measures and rules:

“When a regulation is enacted, it remains at a very high level, but *1000 doubts arise when you have to make its requirements operational* and calculate the data.” (B1, emphasis added, similar assertion G2)

The most significant source of uncertainty regarding the banks’ internal changes is the technical complexity of gathering data to calculate the GAR. Interviewees, and even the EBA, recognize that the Taxonomy “*is crazy at the data level!*” (C3) because banks need information that does not exist yet or will be arduous to obtain. Producing the GAR forces FIs to assess their diverse operations individually to adjudicate whether they are sustainable. This situation exacerbates their concerns on how to correctly redesign their internal control systems to gather the granular data for that assessment:

“Obtaining data is difficult. We will have to *get* some data, some *don’t exist* yet, and we will have to *buy* other.” (G1, emphasis added, similar assertions D1, G2)

“[The Taxonomy] requires revisiting our computer systems to record loans to enable marks or labels to say “this loan aligns with the Taxonomy or not.” (B1)

The GAR seeks to inform about the extent to which banks’ operations relate to sustainable activities. This requirement implies that FIs must collect information from other actors (e.g. investee companies, individual, entities receiving financing) to “*identify, measure and monitor its overall indirect sustainability impacts*” (EFRAG, 2021, par. 147) with sufficient quality and relevance. This dual role of FIs as users and preparers of sustainability information complicates the GAR production because sometimes data from other firms may be inaccessible (EBA, 2021a):

“We need information that is currently unavailable and that even firms do not have. So, *it is complicated that FIs will get it.*” (D2, emphasis added, similar assertions A1, B1, C3, E1)

The need to evaluate whether banks’ operations with SMEs are Taxonomy-aligned aggravates uncertainty about data collection. Although SMEs are not strictly mandated to publish sustainability information, they will be indirectly obliged to do so if they wish to access financial resources. In this regard, interviewees and participants in public meetings highlight the difficulty of obtaining sustainability information from these organizations, as most are unfamiliar with it.

“[W]hen we talk about smaller companies or individuals, data is more difficult to obtain. [...] It won’t be easy because this data doesn’t exist and producing the information won’t be easy.” (G1, similar assertions B1, E1, E2, F1)

“SMEs are not in the Taxonomy scope and a lot of the information requirements have knock-on consequences for SMEs. *SMEs will be requested to provide data* to support the Taxonomy’s reporting.” (Event note, April 2022, emphasis added)

Banks are resorting to proxies as an immediate action to manage the uncertainty related to data accessibility. However, using proxies raises some skepticism (Chiu, 2022). As some interviewees expressed:

“We must differentiate in the portfolio the operations I have already granted, which I must classify somehow and work with proxies, from the new operations, for which I need to capture more data for their classification.” (F1, similar assertion A6)

The Taxonomy's constraining deadlines also generate uncertainty at an operational level when organizing the "*many things we need to do*" to address the SR requirements (C1). The limited time banks are given to adjust their organizational structures and data management systems to elaborate proper disclosures would expose them to public scrutiny by asking them to "*undress before they could go to the gym for the beach-body plan*" (A6, similar assertions A7, B1, C7, F2, G2). Furthermore, banks fear that the future requirements, once DAs on social objectives are enacted, will force them to modify the changes they have already adopted to abide by the current Taxonomy's SR implications. Therefore, regulation-induced response uncertainty stems from the regulatory uncertainty about the Taxonomy's implementation timeframe.

"[N]ot everything is clear; [regulators] will release it in 6 months. Meanwhile, we do not know what we will do [...]. It discredits the effort of FIs to do everything strictly." (E1)

To mitigate these problems, banks must train employees to broaden their abilities. The need for improving employees' training is not limited to "*sustainability metrics specialists*" (A6) to produce the Taxonomy's disclosures. Banks must also guarantee that the whole organization, from the board of directors to the commercial staff, has adequate skills (E1, G2). However, as one of the relevant actors explained, "*as things change so fast, it is not even sure what needs to be taught*" (O1).

In summary, the Taxonomy induces uncertainty about the internal changes banks must implement to meet its requirements due to the complexity of accessing and managing the data to produce the mandated disclosures and the tensions that may arise from those changes. This uncertainty about data management and complexity could eventually erode compliance (Johansen & Plenborg, 2018; May, 2004). The difficulties of data complexity could have been mitigated by providing guidance on how to address the technical aspects for producing the mandated disclosures, as well as by enabling a more gradual implementation timeline. Therefore, the perceived regulatory uncertainty about the Taxonomy's measures and rules and its implementation process seems to reinforce regulation-induced response uncertainty.

## 7. Concluding remarks and implications

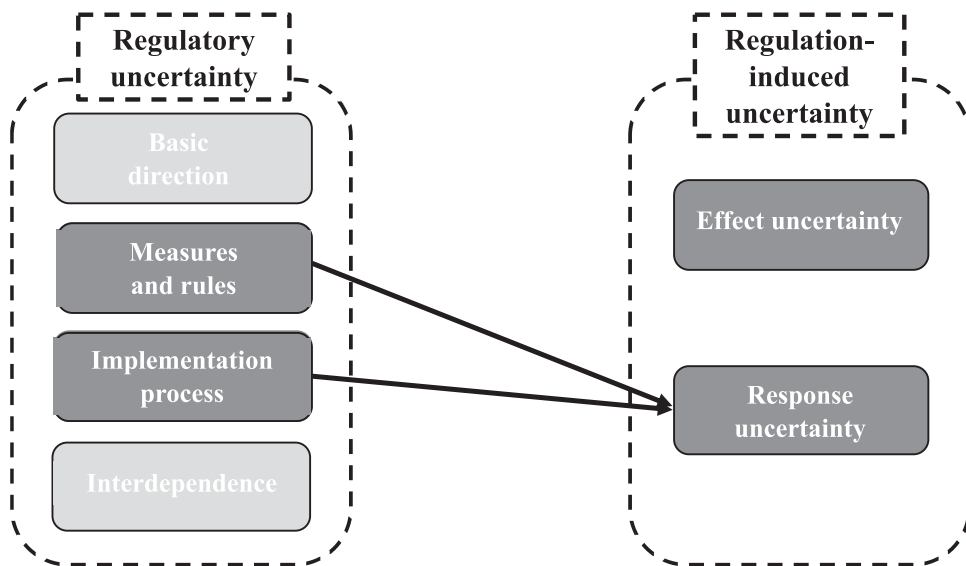
The Taxonomy regulation seeks to promote the EU economy's green transition by mandating firms to engage in SR to govern organizations' access to financial resources. In this context, FIs, particularly banks, play a key role as financial intermediaries. The Taxonomy requires these organizations to produce a specific indicator, the GAR, to evaluate the extent to which they relate to sustainable economic activities. However, the uncertainty surrounding the Taxonomy (EBA, 2021b) may eventually hinder banks' compliance with the mandated requirements (Engau & Hoffmann, 2009; Oliver, 1991), which may obstruct the Taxonomy's goal. Informed by Hoffmann et al.'s (2008) taxonomy of regulatory uncertainty and Milliken's (1987) typology of uncertainty, we performed a case study of the Spanish banking industry to understand the elements that generate the perception of regulatory uncertainty in the Taxonomy setting.

The results underscore the significant regulatory uncertainty that the four categories of elements proposed by Hoffmann et al. (2008) provoke about the Taxonomy. Two

elements stand out as the most relevant in driving regulatory uncertainty: the lack of clarity to operationalize the Taxonomy's measures and rules and the timeline of and oversight over its implementation. Moreover, the Taxonomy induces uncertainty in the non-regulatory environment. Specifically, regulation-induced uncertainty stems from the unpredictability of the Taxonomy's effect on banks' reputation and market competition, as well as from the internal reorganization and adjustments banks must adopt to respond to its requirements. Previous research argues that regulation-induced uncertainty can be perceived even if the future state of regulation is certain (Hoffmann et al., 2008; Rodriguez-Lopez et al., 2017). Interestingly, our findings indicate a relationship in which regulatory uncertainty feeds into regulation-induced uncertainty. Certain elements generating the perception of regulation-induced uncertainty, specifically those related to response uncertainty, are reinforced by the regulatory uncertainty surrounding the Taxonomy's measures and implementation (see Figure 2).

Additionally, although the diversity of credit institutions (e.g. listed, cooperative) was expected to generate differences in how each type perceives uncertainty in the context of the Taxonomy (Bollas Araya et al., 2014), the analysis did not unravel significant divergences. The Taxonomy introduces SR requirements that differ from the information commonly provided in sustainability reports and necessitate the integration between financial reporting and SR (i.e. disclosing financial indicators to account for sustainability-related exposures) (Hummel & Bauernhofer, 2024). Because of this novelty, the Taxonomy generates a similar perception of regulatory uncertainty across banks, regardless of their type.

This study responds to recent calls to conduct research with policy impact (Haslam et al., 2018) in the face of the evolving EU SR regulatory process (Giner & Luque-Vílchez, 2022). It provides relevant implications that can help enforcement agencies



**Figure 2.** Summary of findings: Elements driving regulatory and regulation-induced uncertainties. Note: Dark grey indicates primary elements generating the perception of each type of uncertainty.

and banking authorities enhance the effectiveness of regulation in meeting its goal. Regulatory uncertainty operates as a barrier to compliance as it obstructs organizational responses to manage regulatory expectations (Engau & Hoffmann, 2009; May, 2004; Oliver, 1991; Walters, 2012). In addition to hindering compliance, uncertain regulatory environments are likely to drive a means-end decoupling (Bromley & Powell, 2012) in which organizations may be more worried about implementing the measures that regulation establishes to achieve its goal rather than by the goal in itself, hence deviating their attention from the end to the mean. Reflecting more on the issues driving uncertainty could improve the regulation's design phase to eventually promote complete and adequate compliance (Wijen, 2014). In this regard, the identified Taxonomy's elements giving rise to perceived regulatory uncertainty and how they interact with regulation-induced uncertainty are relevant for policymakers to promote effective compliance to support the Taxonomy's goal of governing the EU green economic transition. Particularly, policymakers and enforcers should offer clear guidance and design the implementation coherently and harmonized with other regulations to which regulatees are subject.

Furthermore, it is crucial to note that the calculation of the GAR will significantly affect banks' business models. It will influence how they construct their investment portfolios and manage their loans. Therefore, the uncertainty related to the construction of the indicator may have substantial implications for bank managers in determining which assets are included in its computation and how to structure their balance sheet to manage the reported figure.

Finally, this study paves the way for future research to deepen our understanding of the Taxonomy's role in promoting organizations' sustainable disclosure and behaviour. Investigating banks' disclosures to address the Taxonomy's SR demands can illuminate their responses to regulatory pressures (Oliver, 1991). These investigations can help us better understand to what extent and how organizations comply in a context of regulatory uncertainty. Additionally, the Taxonomy presents challenges for non-financial companies (Hummel & Bauernhofer, 2024), which are providers of information for FIs to compute the GAR. Therefore, exploring the tensions driven by the dual role of FIs as preparers and users of sustainability information when producing the disclosures requested by the Taxonomy could be insightful. Finally, future research could also delve into the performative role of the GAR as a new calculative practice that informs organizational decisions and the challenges related to it.

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## ORCID

Nicolas Garcia-Torea  <http://orcid.org/0000-0003-4301-3517>

Mercedes Luque-Vílchez  <http://orcid.org/0000-0001-8392-8573>

Pablo Rodríguez-Gutiérrez  <http://orcid.org/0000-0001-9849-6873>

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## Appendices

### Appendix 1. List of acronyms

CapEx: Capital expense or capital expenditure  
 CSR: Corporate Social Responsibility  
 CSRD: Corporate Sustainable Reporting Directive  
 DA: Delegated act  
 EBA: European Banking Authority  
 EBF: European Banking Federation  
 EFRAG: European Financial Reporting Advisory Group  
 EU: European Union  
 FI: Financial Institution  
 GAR: Green Asset Ratio  
 NFRD: Non-Financial Reporting Directive  
 NGOs: Non-Governmental Organizations  
 Opex: Operating expense or operating expenditure  
 SFDR: Sustainable Finance Disclosure Regulation  
 SFS: Sustainable Finance Strategy  
 SMEs: Small and medium-sized enterprises  
 SR: Sustainability Reporting  
 Taxonomy: EU Taxonomy Regulation  
 UNEP FI: Financial Initiative of the United Nations Environment Program

### Appendix 2. Interview protocol

1. What are the origins of your organization?
2. What are the main activities undertaken by your organization?
3. How does your organization approach CSR and SR?
4. What are the key challenges your organization face nowadays?

5. How would you define your organization's sustainability/non-financial reporting practices?
6. Are you kept abreast of the developments introduced by the SFS? What are the main implications for your organization?
7. Do you believe that the reform that the SFS proposes for financial entities is important and necessary? Has the SFS promoted (or will promote) any change in your organization (for example, in terms of practices or strategies)?
8. Do you think the sector's view has been considered in the design of the SFS?
9. Do you think that reporting this information is among the priorities of your organization and the demands of its different stakeholders?
10. Which of the different regulations included in the SFS seems most relevant to you, or which will lead you to make major changes to your organization? In your opinion, do you think the number and diversity of sources of regulation in the SFS area are excessive? Do you think they are in any way contradictory or confusing?
11. What changes has your organization made or plans to make to address the different requirements of the SFS regulations?
12. Do you think the new requirements connect somehow with what your organization is doing, or on the contrary, does it represent an important change?
13. Would you implement those changes even if they were not mandatory? Do you think this is the case for all the SFS regulations? Do you find limitations to meeting the SFS requirements?