

Taxonomy-Aligned Insurance Products

Christian Frinken

Abstract

This paper aims to provide insights into the regulatory framework for insurance undertakings under the Taxonomy Regulation in the context of their own direct contribution to the climate goals set by the European Union through their insurance activities. The technical screening criteria were found to be subject to different interpretations and in addition impose requirements on insurance products that trigger internal processes as well as additional external reporting obligations. It was also concluded that taxonomy-eligible insurance premiums may not be constant over time as in other industries due to a Q&A published by the EU Commission. The information provided are of interest to stakeholders in order to better understand the figures published from 2024 onwards and may be used to define criteria that will enable future analysis of the reported KPI for scientific purposes.

Zusammenfassung

Dieser Beitrag gibt einen Einblick in den regulatorischen Rahmen der Taxonomie-Verordnung von Versicherungsunternehmen zur Taxonomiekonformität ihres eigenen Schaden-/Unfallversicherungsgeschäfts. Es kann festgestellt werden, dass die technischen Bewertungskriterien unterschiedlich interpretiert werden können und diese darüber hinaus Anforderungen an Versicherungsprodukte stellen, die sowohl zusätzliche interne Prozesse als auch externe Berichtspflichten auslösen. Ferner kann auch festgestellt werden, dass die Bezugsgrüße der taxonomiefähigen Versicherungsprämien konzeptionell aufgrund einer von der EU-Kommission veröffentlichten Q&A im Zeitverlauf möglicherweise nicht in gleicher Weise konstant bleiben, wie in anderen Branchen. Die bereitgestellten Informationen sind für Stakeholder von Interesse, hinsichtlich eines besseren Verständnisses und Bewertung der ab 2024 veröffentlichten Zahlen. Die Ergebnisse können darüber hinaus zu einer zielgerichteteren Analyse der gemeldeten KPI für wissenschaftliche Zwecke verwendet werden.

JEL classification: G22, M41, O52, Q56

Keywords: Insurance, EU-Taxonomy, ESG, sustainable insurance products

Christian Frinken
Universität zu Köln
Email: cfrinken@outlook.com

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1. Introduction

Climate change poses unprecedented challenges to global economic stability (Dafermos et al. 2018), environmental resilience (Nelson et al. 2007), and social well-being (Pecl et al. 2017). As the frequency and intensity of extreme weather events escalate, such as flood risks (Knittel et al. 2024; Tesselaar et al. 2022; R. J. Nicholls et al. 2008), there is a need for innovative solutions to build resilience and adapt to the changing climate (see recital 46 (EU) 2021/2139). In response, the intersection of insurance and sustainable finance has given rise to regulations regarding taxonomy-aligned insurance products, which hold promise for advancing climate adaptation efforts. This paper focuses on taxonomy-aligned insurance products designed to specifically address “climate change adaptation”. It delves into the technical screening criteria (TSC) utilized to assess the eligibility and alignment of insurance activities within the context of “climate change adaptation”. Furthermore, the paper provides a comprehensive analysis of current regulatory frameworks governing these products, exploring their implications for application and differences in interpretation.

The concept of taxonomy-aligned insurance products is set in with the broader area of sustainable finance by integrating environmentally sustainable considerations into insurance activities. However, in the context of “climate change adaptation”, the emphasis shifts towards identifying and supporting activities that enhance resilience to climate-related perils. This necessitates a nuanced understanding of the technical criteria which may also be used in further research to access how the regulations were implemented in the market. Moreover, the regulatory framework Solvency II may play a critical role in shaping the landscape for taxonomy-aligned insurance products. However, differences in taxonomy related regulatory interpretation and application across jurisdictions may present challenges for stakeholders to compare the presented KPIs within the insurance industry.

This paper seeks to explore the technical intricacies of taxonomy-aligned insurance products aimed to contribute to “adaptation climate change”. By examining the TSC used to assess eligibility and alignment, it is aimed to provide insights into the challenges and opportunities associated with integrating climate considerations into insurance underwriting processes.

Through an examination of TSC and its corresponding regulatory framework, this paper contributes to the growing body of knowledge on sustainable finance and climate resilience. By elucidating the complexities of taxonomy-aligned insurance products, it is aimed to inform policymakers, insurers, and other stakeholders on how the figures presented may be understood and which limitations they are expected to have during the period of its initial and subsequent application.

The paper is structured as follows:

After this introduction, the requirements for the eligibility of insurance products presented and considerations regarding the applicable accounting framework are made in Chapter 2. Subsequently, the five alignment – as well as the “do no significant harm” – criteria (DNSH) are examined and possible differences in interpretation are discussed in Chapter 3. The paper closes with a summary of the results in Chapter 4.

2. Eligibility of Insurance Products

2.1 Reporting Background

Insurance undertakings are obliged by the Disclosures Delegated Act¹ (DDA) to publish the defined key performance indicators following Annex IX and XI using the templates set out in Annex X of the DDA² in their non-financial statements starting in the financial year 2023³. The DDA is a result of the specification that the EU Commission had to adopt by Art. 23 of the Taxonomy Regulation⁴ for specifying the reporting obligations under Art. 8 of the Taxonomy Regulation. These reporting obligations will shift into the sustainability statement as part of the management report from the financial year 2024 onwards due to the Corporate Sustainability Reporting Directive⁵ (CSRD). Regarding insurance undertakings, the requirements of Annex IX DDA mainly comprise two templates for the Underwriting- and Investment KPI, respectively, as well as specific additional qualitative disclosure requirements following Annex XI. The remainder of this paper, except for Chapter 2.2, will focus on the particular reporting obligations of the Underwriting-KPI following Annex IX DDA.

It should be noted that the Underwriting-KPI was never required to be reported under the original template. The EU implemented an amendment to the template via the Environmental Delegated Act⁶ (EDA) before it was first applied. Figure 1 shows the template before the amendment, while Figure 2 shows the current template.

¹ Commission Delegated Regulation (EU) 2021/2178 of 6 July 2021.

² See Art. 6 DDA.

³ See Art. 8 (3) DDA.

⁴ Regulation (EU) 2020/852 of 18 June 2020.

⁵ Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022.

⁶ Commission Delegated Regulation (EU) 2023/2486 of 27 June 2023.

Economic activities (1)	Absolute premiums, year t (3)	Proportion of premiums, year t (4)	Proportion of premiums, year t-1 (5)	Climate change adaptation (6)	Climate change mitigation (7)	Water and marine resources (8)	Circular economy (9)	Pollution (10)	Biodiversity and ecosystems (11)	Minimum safeguards (12)	Category (transitional activity) (T) (13)	Category (transition al activity (T)) (14)
A.1. Non-life insurance and reinsurance underwriting Taxonomy-aligned activities (environmentally sustainable)	Currency	%	%	%	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	E	T
A.1.1 Of which reinsured											E	
A.1.2 Of which stemming from reinsurance activity											E	
A.1.2.1 Of which reinsured (retrocession)											E	
A.2 Activities not included in A1											-	
Total (A.1 + A.2)											-	

“Premiums” in columns (3) and (4) shall be reported as gross premiums written or, as applicable, turnover relating to non-life insurance or reinsurance activity.

The information in column (5) shall be reported in disclosures in the year 2024 and thereafter.

Non-life insurance and reinsurance can only be aligned with Regulation (EU) 2020/852 as activity that enables climate change adaptation. The information reported in column (5) is therefore the same for all insurance and reinsurance undertakings with non-life and/or reinsurance activities.

Fig. 1: Original template of the Underwriting-KPI from the first version of the DDA

Economic activities (1)	Substantial contribution to climate change adaptation			DNSH (Do No Significant Harm)					Minimum safeguards (10)
	Absolute premiums, year t (2)	Proportion of premiums, year t (3)	Proportion of premiums, year t-1 (4)	Climate change mitigation (5)	Water and marine resources (6)	Circular economy (7)	Pollution (8)	Biodiversity and ecosystems (9)	
	Currency	%	%	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N
A.1. Non-life insurance and reinsurance underwriting Taxonomy-aligned activities (environmentally sustainable)									
A.1.1. Of which reinsured									
A.1.2. Of which stemming from reinsurance activity									
A.1.2.1. Of which reinsured (retrocession)									
A.2. Non-life insurance and reinsurance underwriting Taxonomy-eligible but not environmentally sustainable activities (not Taxonomy-aligned activities)									
B. Non-life insurance and reinsurance underwriting Taxonomy-non-eligible activities									
Total (A.1 + A.2 + B)		100 %	100 %						

"Premiums" in columns (2) and (3) shall be reported as gross premiums written or, as applicable, turnover relating to non-life insurance or reinsurance activity. The information in column (4) shall be reported in disclosures in the year 2024 and thereafter. Non-life insurance and reinsurance can only be aligned with Regulation (EU) 2020/852 as activity that enables climate change adaptation.

Fig. 2. Original template of the Underwriting-KPI of the DDA after amendment by the EDA

Before going into the specific criteria set, which insurance activities are considered to be taxonomy-aligned, some significant editorial and content-related changes from the first to the current template will be highlighted.

First, it is noticeable that compliance with the minimum safeguards no longer falls under the category of “do no significant harm” (DNSH) but is listed as a separate category in the new template. The two rightmost columns on “transitional activities” have also been removed. These two changes are to be regarded as purely editorial changes. With regard to the minimum safeguards, only the fact that these constitute an independent criterion according to Art. 3 lit. c Taxonomy Regulation and do not fall under the DNSH-criteria according to Art. 3 lit. b Taxonomy Regulation was considered in the context of the change. The columns on transitional activities were presumably deleted because the execution of insurance activities does not fall under the definition of a transitional activity according to Art. 10 (2) Taxonomy Regulation.

A significant change to the content of the templates is the division of row “A.2 Activities not included in A1” from Figure 1 into the two rows A.2. on eligible insurance underwritings and B. on non-eligible insurance underwritings in Figure 2. This obligates insurance undertakings to be able to differentiate between aligned and eligible underwriting activities in their portfolio management systems. As a result, the definition of an eligible underwriting activity from the two-year transition phase under Art. 10 (3) DDA remains relevant for reporting purposes. The distinction allows the addressee to better assess the “degree of environmental sustainability (DoES)” of the underwriting activities by comparing the ratio of aligned to eligible premiums shown in (1). This distinction is adapted in line with the Annex II DDA templates for non-financial undertakings for which this distinction has already been made since its publication of the DDA in the Official Journal of the European Union (European Union 2021). The corresponding DoES KPI for the non-financial sector is given in (2).

$$(1) \quad \text{DoES}_{\text{underwriting}|t} = \frac{\text{taxonomy} - \text{aligned non} - \text{life premiums}_t}{\text{taxonomy} - \text{eligible non} - \text{life premiums}_t}$$

$$(2) \quad \text{DoES}_{\text{non-financial}|t} = \frac{\text{Turnover of taxonomy aligned activities}_t}{\text{Turnover of taxonomy eligible activities}_t}$$

Before looking at specific criteria for taxonomy-aligned insurance activities, assessing which insurance activities can significantly contribute to one of the six environmental objectives under Art. 9 of the Taxonomy Regulation is necessary. The EU has adopted two delegated acts for this purpose, namely the Climate Delegated Act⁷ (CDA) and the previously mentioned EDA, which contain the

⁷ Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021.

technical screening criteria (TSC) for various economic activities regarding their respective environmental objective of Art. 9 Taxonomy Regulation in their Annexes. Economic activities in connection with insurance activities can only be found under point 10 of Annex II CDA, which contains the TSC for the environmental objective “adaptation to climate change”, which is also reflected by recital 46 of the CDA. This paper will focus on the TSC for the primary insurance market listed under point 10.1 Annex II CDA. However, it should not go unmentioned that reinsurance premiums can also be taxonomy-aligned under the TSC following section 10.2 Annex II CDA, which share many similarities to those of the primary insurance market. By only having screening criteria located in Annex II CDA insurance activities, i. e., the transfer of a significant insurance risk from the policyholder to the insurance undertaking, which adversely affects the policyholder (IFRS 17 Appendix A “insurance contract”), or in other words, the transfer of a probability distribution of losses to the insurance undertaking (Farny 2011, p. 22), they cannot contribute positively to any other environmental objective except “adaptation to climate change”. This circumstance has also been made more apparent in the new template shown in Figure 2 by having introduced a corresponding headline.

To classify which type of insurance activity is suitable for positively contributing to the environmental objective, the regulator has focused in the section “Description of the activity” in point 10.1 Annex II CDA, which defines the eligibility criteria, exclusively on eight specific lines of business⁸ (LoB) from the non-life sector in the Solvency II supervisory regime. Potential taxonomy-eligible and non-eligible LoBs can be seen in Table 1. Therefore, any insurance activity arising from businesses from non-eligible LoBs, including all life insurance LoBs, cannot be reported to contribute to any environmental objective set out by the Taxonomy Regulation. For example, premiums from the insurance of a credit default on a loan used to finance economic activities which contribute positively to one or more of the economic objectives under Art. 9 of the Taxonomy Regulation shall not be included in the calculation of the Underwriting-KPI, whilst still being connected to an environmental objective.

⁸ Those Lines of Business as well as the corresponding numbers used, are being set out in Annex I of the SII Regulation (EU) 2015/35 of 10 October 2015.

Table 1

Taxonomy-eligible and non-eligible LoBs in the non-life sector

Eligible LoBs		Non-eligible LoBs	
Medical expense insurance	LoB 1	General liability insurance	LoB 8
Income protection insurance	LoB 2	Credit and suretyship insurance	LoB 9
Workers' compensation insurance	LoB 3	Legal expenses insurance	LoB 10
Motor vehicle liability insurance	LoB 4	Miscellaneous financial loss	LoB 12
Other motor insurance	LoB 5		
Marine, aviation and transport insurance	LoB 6		
Fire and other damage to property insurance	LoB 7		
Assistance	LoB 11		

In addition to the eligibility requirement that only specific LoBs may be considered, these must be related to the underwriting of climate-related perils set out in Appendix A to Annex II CDA. The content of Appendix A is shown in Table 2.

Table 2

Classification of climate-related hazards from Appendix A Annex II CDA

	Temperature-related	Wind-related	Water-related	Solid mass-related
Chronic	Changing temperature (air, freshwater, marine water)	Changing wind patterns	Changing precipitation patterns and types (rain, hail, snow/ice)	Coastal erosion
	Heat stress		Precipitation or hydrological variability	Soil degradation
	Temperature variability		Ocean acidification	Soil erosion
	Permafrost thawing		Saline intrusion	Solifluction
			Sea level rise	
			Water stress	

	Temperature-related	Wind-related	Water-related	Solid mass-related
Acute	Heat wave	Cyclone, hurricane, typhoon	Drought	Avalanche
	Cold wave/frost	Storm (including blizzards, dust and sandstorms)	Heavy precipitation (rain, hail, snow/ice)	Landslide
	Wildfire	Tornado	Flood (coastal, fluvial, pluvial, ground water)	Subsidence
			Glacial lake outburst	

Climate hazards shown in Table 2 are “non-exhaustive and constitutes only an indicative list of most widespread hazards that are to be taken into account as a minimum in the climate risk and vulnerability assessment” (Footnote to Table 2 Appendix II CDA). From this can be concluded that, in justified cases, covered climate-related hazards that are not included in Table 2 may be considered whilst not neglecting any hazards already mentioned. In the event of a possible extension, however, it can also be reasonably expected that these must comply with the principles under which the requirements for the TSC were forged following Art. 19 of the Taxonomy Regulation. Therefore, a classification of a supplementary climate-related hazard should also be based on scientific findings (see Art. 19 lit.f. and recital 38 and 40 Taxonomy Regulation). Based on the structure of Appendix A, it recommended itself that the classification from “Chronic” to “Acute” is retained, since hazards listed under “Chronic” may be understood to causally inflict those from the “Acute” category.

Such an extension should be conscientiously documented for the purpose of the audit obligation due from the 2024 financial year.

As is well known, a distinction is made between premiums written or premiums earned, either gross or net, with net representing the exclusion of reinsurance-related matters. With regard to the question of which premiums are to be used, below the template for the underwriting KPI Annex IX DDA (Figure 2), it states that gross written premiums shall be reported. Thereby no information on premiums for any future reporting periods is neglected. However, it is not possible to publicly determine which premiums are attributable to the reporting period.

2.2 General Considerations Regarding Accounting Framework

One question that is not answered explicitly in the TSC as well as the regulations of the DDA is the question of which accounting framework shall be used for calculation of both investment and underwriting KPI.

For the purposes of non-financial sustainability reporting, the use of different reference values through different reporting frameworks leads to a different understanding of the KPI. Similar to IFRS or consolidated financial statements not subject to IFRS, the requirements for reporting in connection with sustainability issues fulfill the main purpose of providing information, be it to the public, shareholders or stakeholders. This circumstance is reflected by the fact, that a group exemption can always be taken for sustainability statements except for public interest entities subject to Art. 2 (1) lit. a Accounting Directive⁹ (see Art. 19a (10) and Art. 29a (9) Accounting Directive). Accordingly, KPIs that use a reference basis that is generally without the reservation of prudence or impartiality principles best satisfy this need for information.

As far as the accounting standard is concerned, two relevant options are available. Valuations from annual financial statements under national law or IFRS, if applicable, and those that have to be publicly disclosed in the Solvency and Financial Condition Report (SFCR) under international supervisory law (Solvency II). Each of these two options can, in principle, be used in the absence of further (explicit) regulation. Usage of both valuation methods has already been observed during the two year eligibility transition period where disclosures have been made according to national law, supervisory law or IFRS standards (Frinken 2023). An argument in favor of using valuation methods under national law or IFRS is that the information in the Taxonomy Regulation concretizes parts of the content of non-financial reporting under the Accounting Directive, which is transposed into national law by EU Member States. In anticipation of the application of the (new) non-financial reporting following Art. 19a and 29a of the Accounting Directive after amendment by the CSRD, information on taxonomy-aligned KPIs will be provided in a separate section of the national (consolidated) annual report, namely the sustainability statement in accordance with the European Sustainability Reporting Standards (ESRS), as adopted by Art. 29b of the Accounting Directive. An application of the provisions of the ESRS is generally excluded for the purposes of the Taxonomy Regulation, as their application is not permitted under ESRS 1 (113)¹⁰. Application of national valuation methods is therefore a logical consequence. However, the application of national legislation to underwriting and investment KPI is not without its drawbacks.

⁹ Directive 2013/34/EU of 26 June 2013.

¹⁰ Delegated Regulation (EU) 2023/2772 of 31 July 2023.

On one hand, it cannot be ruled out that, apart from reports subject to IFRS, the valuation methods for the disclosures are the same in all EU member states, which would ensure that the reported figures would not be internationally comparable or would only be comparable with an increased data collection and transformation effort. This is an obstacle since the Taxonomy Regulation was adopted with the globally significant aim of creating a uniform EU-wide framework to facilitate sustainable investments.

Second, for insurance undertakings that are required by law to use IFRS, the application of IFRS 17 creates the problem that insurance premiums received by the undertaking during the reporting period are no longer recognized as such in the statement of profit or loss. The insurance revenue to be reported in profit or loss under IFRS 17 can no longer be understood as premiums that a policyholder has paid to insure against, for example, events occurring in connection with climate change. Rather, in simplified terms, insurance revenue under IFRS 17 is a pro-rata reversal of the contractual service margin over the term of the insurance contract in the reporting year, in which the total expected premiums and total expected expenses, as well as a risk adjustment, have already been taken into account. Using actual insurance premiums, premiums shown in the underwriting KPI would therefore no longer be reconcilable with the figures shown in profit or loss due to the conceptual difference.

The usage of valuations as reported in the SFCR under Solvency II would not be subject to the issues above. A uniform adoption of the premiums, as defined in template S.05.01.02, and assets, as defined by S.02.01.02, of the Implementing Regulation (EU) 2023/895 on quantitative risk templates (QRTs), as to be reported in the SFCR, would provide an international consistency of presentation that would not be equally obvious under national legislation. A further advantage of using premiums from the mentioned QRT is the fact that premiums in the template are already reported broken down according to the relevant LoBs from Table 1. The classification of risks by line of business according to national regulations, which require the approval of the national supervisory authority, see Art. 15 2009/138/EG (Solvency-II Directive), does not necessarily represent a one-to-one relationship with the LoBs according to Table 1, as is the case in Germany (see Anlage 1 VAG¹¹). Accordingly, premiums from the national lines of business must either be mapped to the LoBs according to Table 1 and, if necessary, delimited or the premiums from template S.05.01.02 must be subjected to the national valuation, if any differences are given. In principle, using premiums as to be reported under Solvency II would undoubtedly entail the least implementation effort, since the TSC are already defined in terms of these LoBs.

¹¹ Versicherungsaufsichtsgesetz last amended by the law from the 22.12.2023 (BGBl. 2023 I Nr. 411).

3. Alignment of Insurance Products

3.1 *Implications for Alignment From Q&A No. 67*

With the third Commission Notice (C/2024/6691 from 08.11.2024, former draft: European Commission 2023), the European Commission has published clarifications for financial undertakings, also covering taxonomy-alignment and taxonomy-eligibility of insurance products. More precisely, the answer to question No. 67 sets out specific conditions to what extent an insurance undertaking may report a portion of the premium for an insurance product covering several risks at once as taxonomy-aligned. Furthermore, the Q&A sets out under which circumstances premiums can first be considered taxonomy-eligible. It clarifies that insurance undertakings should only report the portion of premiums pertaining to the coverage of climate-related perils (Table 2) as taxonomy-aligned. This is requiring insurance undertakings to split their premiums.

This concept shall be presented in the following example. In a hypothetical 100 €/month Homeowner's insurance, where 30 % is attributable to the coverage of climate-related perils, such as tornadoes or fire through lightning, 30€ should therefore be reported as taxonomy-aligned. Other covered risks, such as earthquakes and damages arising from human error, may not be considered as taxonomy-aligned. With this approach, which lies within the boundaries set out by the text of the CDA, insurance undertakings may be expected by the European Commission to take into account the risks arising from climate change directly. It can therefore be expected that implicit coverage of climate-related perils will not be sufficient to meet the requirement of a substantial contribution to the climate objective of "climate mitigation" for the reason that if climate-related perils are implicitly covered, they represent a minor proportion of the insured risk to begin with and are therefore insignificant compared to the risks actually insured.

The EU Commission's response to the premium split generally leaves insurance undertakings with two options for determining the portion of risk attributable to coverage of climate-related perils, e.g. the 30 % from the previous example. They can either incorporate climate-related perils directly and prospectively into their underwriting process or determine their respective portion retrospectively.

The first option, to incorporate the climate-related perils into their respective taxonomy-aligned underwriting processes in order to be able to declare them as such for reporting purposes, is a valid approach for carrying out a premium split. This approach implements a requirement that is not explicitly provided for in the TSC. Precisely because this extension in the EU Commission's response is not explicitly linked to the requirements for "Leadership in modeling and pricing

ing of climate risks” (see chapter 3.1), it can be seen as reasonable to implement the premium split not with the prospective approach, but with a retrospective approach. For a taxonomy-aligned insurance product, all TSC must nevertheless be met. Without harm of the TSC the premium split could be determined on the basis of historical loss ratios, as the requirements of chapter 3.1 do not necessarily extend to splitting premiums in the underwriting process. When using this approach, peaks due to single or large losses should be smoothed in order to avoid excessive fluctuations in the ratio. A combination of the two approaches, in compliance with the TSC, is also a possible course of implementation.

The text of the Q&A No. 67 even further concretizes that if an insurance undertaking is “*unable to obtain the data on written premiums related to climate-related perils for a given insurance contract, they should report those premiums as non-eligible and enter a ‘zero’ value when calculating the numerator of the KPI*”. With this requirement, the European Commission excludes a qualitative analysis of the insurance portfolio on climate-related perils by reference to the data to be obtained in the standard case. The standard case is an interpretation aid by the author and is based on the use of the word “should”. Furthermore, through this concretization, the property of taxonomy-eligibility is linked to taxonomy-alignment criteria, which is a specific requirement for the insurance industry since in other areas of taxonomy regulations interaction of alignment to eligibility is handled very differently.

In the automotive sector, for example, car manufacturers are allowed to report all revenues in connection with car sales as taxonomy-eligible for the purpose of the Turnover KPI, even if they were generated with the sale of combustion vehicles (see European Commission 2022 FAQ 8 & 9). Such conceptual unequal treatment is not an isolated case in taxonomy-reporting at the present time, as an analysis of reports from non-financial undertakings from the EURO-STOXX 50 revealed that no or only limited comparability between sectors and between reporting periods is given (Mühlberger 2024).

The interaction between alignment and eligibility can result significant fluctuations in the measure of taxonomy-eligible gross premiums written over time. This is evidenced by changes in eligibility assessment observed in Frinken 2023, which led to notable differences between reporting periods. These changes naturally influence the DoES (1). This can make it difficult for external stakeholders to monitor the evolution of sustainable underwriting at the insurance undertaking over time and limits comparability within the industry due to the different individual data collection methods that may be used.

3.2 Leadership in Modeling and Pricing of Climate Risks

The wording given in Annex II 10.1 CDA on “Leadership in modeling and pricing of climate risks” is as follows:

“1.1. The insurance activity uses state-of-the-art modelling techniques that:

- (a) properly reflect climate change risks;*
- (b) do not only rely on historical trend;*
- (c) integrate forward-looking scenarios.*

1.2. The insurer publicly discloses how the climate change risks are considered in the insurance activity.

1.3. With the exception of legal restrictions on contractual conditions and insurance premiums, the insurance activity provides incentives for risk reduction by setting out the (pre)-conditions for the insurance coverage of risk and by acting as a price signal of risk. For the purpose of this point, reduced premiums or deductibles, possibly based on supportive information on existing/possible actions, to policyholders who protect an asset or activity against natural catastrophes damages may be considered an incentive for risk reduction.

1.4. After a climate risk event, the insurer provides information on the conditions under which coverage under the insurance activity could be renewed or maintained and in particular the benefits of building better in that context.”

The first of the five topics (Leadership in modeling and pricing of climate risks) that concretize taxonomy-compliant insurance activities follows the general requirement that climate-related risks should be estimated and priced as precise as possible. To this end, point 1.1 sets out framework conditions that deviate from a pure average consideration of past loss events. This is obviously intended to encourage insurers to develop prospective calculation and pricing methods that are capable of reflecting the risks of rapid climate change in a way that current scientific forecasts do (Auffhammer 2018, Hsiang et al. 2017, Diaz and Moore 2017). Point 1.1 (a) is fundamentally in the best interests of the insurance undertakings by stating to have a risk-appropriate premium (gross premium, including a safety margin). As the risk premium is an essential part of the gross premium it covers the expected losses arising from the insured risk, together with other components such as operating costs, profit mark-ups, and taxes (Farny 2011, 62f.). The two points 1.1 (b) and (c) together implement the prospective aspect of pricing. In principle, several scenarios are conceivable that fulfill the two requirements but entail different implementation costs.

A less ambitious interpretation could result in calculated premiums being subject to a fixed risk markup onto the risk premium, which on its own reflects the expected losses based on historical data. The risk markup is the part of the premium which is then dependent on climate factors, such as the general average degree of expected global warming. This risk markup could be determined

based on publicly available studies that have established a correlation between the loss intensity in the climate hazards shown in Table 2 and a climate-related indicator (for example correlations see Li et al. 2023, Sannigrahi et al. 2020, McCarthy et al. 2006, Schneider and Chen 1980). By adding the risk markup onto the risk premium, it would be possible to determine a premium that could meet the requirements of points 1.1 (a) through (c).

A more ambitious interpretation could result in the integration of risk modeling more deeply into the underwriting process. It is conceivable that, for example, such an integration can be given if simulations of the insured climate-related risk from Table 2 is carried out using Monte Carlo methods, which then determine the risk-premium directly.

Furthermore, it is not specified whether the insurance undertaking itself must model its insurance premiums in accordance with point 1 or whether it may leave this to a third party, such as other underwriters or a reinsurance undertakings. In the event of using a risk markup, those other parties may, for example, provide for sufficiently estimated, taxonomy-aligned event loss tables that would provide the needed markup.

A trend towards a fundamentally stricter interpretation can be seen through Q&A No. 67 published in December 2023 as a draft and adopted in November 2024 as a final Commission Notice (see Chapter 01). Even if more lenient interpretations of the TSC suffice at the start of application, it cannot be ruled out that the legislator will further expand upon the TSC or concretize their intentions through further Q&As.

Point 1.2 basically stipulates that the insurance undertaking must report on how it implements point 1.1. The wording only specifies that the place of publication must be publicly accessible. However, as this is a qualitative information that explains a quantitative KPI of the DDA, it is reasonable to conclude that this information is to be included under the reporting obligations listed in Annex XI DDA. It fulfills the requirements of the first and third indents of the qualitative information listed in Annex XI (see also Frinken 2023 Table 1 No. 8 & 10). The information may therefore be expected to be included in the sustainability statement in the management report together with the other qualitative disclosures.

The differences between point 1.3 and point 2.1 of the delegated regulation are not trivial. For this reason, they are covered together in subchapter 3.2.

Point 1.4 interferes with the insurance undertakings communication with the policyholder. In the author's opinion, there are two prerequisites for its application. First being the identification of a (single) climate event that has an impact on the risks with an existing linked policy. A "climate event" is not precisely defined in the regulatory texts. Broadly interpreted, it could include any climate

event resulting from the climate-related hazards, and their possible expansion, in Table 2, including the “Chronic” categories. However, the elements of the “Chronic” category are difficult to determine based on a “single” event. By their very nature, they represent processes that increase in intensity over time as man-made climate change progresses. Since these conditions are in fact always present as a result of climate change, it may be more useful to limit the identification of a climate event as a consequence of the risks set out in the “Acute” category from (the expanded) Table 2 (narrower interpretation). The second prerequisite states that the insurance undertaking no longer wishes to continue the contractual relationship due to the realization of a climate event. In this case, the policyholder must be informed about options for continuing or renewing the policy. These conditions may be monetary, e. g. an increase in the insurance premium or an increase in the deductible, or non-monetary, e. g. the requirement to take construction measures to reduce risk. In any case, the policyholder has to option to renew or maintain coverage under the insurance activity.

The last half-sentence reads that the insurer, as part of this communication with the policyholder, should in particular point out “the benefits of building better in this context”. These “benefits” are not conclusively listed and no further design specifications can be derived from regulations associated with the Taxonomy Regulation. Accordingly, the insurance undertaking is given a wide range of design options as long as they relate to the context discussed above.

3.3 Product Design

The wording given Annex II 10.1 CDA on “Product design” is as follows:

“2.1. Insurance products sold under the insurance activity offer risk-based rewards for preventive actions taken by policyholders.

For the purpose of this point, where a policyholder has invested in adaptation measures, lower premiums may be considered as a risk-based reward for preventive actions taken by policyholders.

By way of derogation from this point, where legal restrictions on contractual conditions and insurance premiums prevent the insurance or reinsurance company from providing risk-based rewards, insurance products may instead provide to customers measures in relation to an asset, an activity, or people that prevent or protect against natural catastrophes. Such measures may be provided as information or advice to customers on climate risks and preventive measures that customers could take.

2.2. The distribution strategy for such products covers measures to ensure that policyholders are informed on the relevance of preventive measures that they could take, for the terms and conditions of the insurance coverage, including any impact of such measures on the insurance coverage or the premium level.”

The product design requirements listed under point 2 are intended to create incentives for the policyholder through the design of the insurance product, in

which the policyholder takes measures in his own interest to minimize the risk of a claim occurring. This problem is already known and discussed in the industry under the term of moral hazard (see also Chen et al. 2022, Laffont 1995, Pauly 1968, Shavell 1979).

Point 1.3 and point 2.1 overlap to a large extent in content and statement of the requirements. A possibility of differentiating between the separate requirements shall now be presented here. The overarching structure of the TSC provides a point of reference for differentiation. The requirements listed under point 1., without regard of point 1.4., relate to processes that take place solely internally at the insurance undertaking. There is no external impact, as the title refers to the modeling and pricing of climate risks, which are not necessarily transparent on the policyholder side on a contractual basis. Point 2.1 can therefore be intended to ensure that the risk-appropriate pricing listed under 1.3 is stringently reflected in the products actually sold. If this understanding turns out to be in line with that of the EU Commission, then risk-based rewards can also be understood to mean the use of a deductible, as this is explicitly mentioned in point 1.3. This differentiated view is supported by the interaction of the exception in the last subparagraph of point 2.1 with the proviso in point 1.3. Accordingly, in cases where risk-based discrimination through risk-based rewards is not possible due to legal restrictions, policyholders must at least be informed about measures that contribute to an improvement in “climate change adaptation” and thus to a reduction in the corresponding risk.

Point 2.2 intervenes in the distribution strategy of all insurance products categorized as taxonomy-aligned. Accordingly, the insurance undertaking must ensure that the information described on preventive measures and the impact of these measures reaches the policyholder. The undertaking has complete freedom in terms of implementation. Accordingly, if the insurance undertaking does not have its own distribution structure following a hive-off in accordance with Art. 49 Solvency-II Directive, it can integrate the information mentioned in its pre-contractual information.

3.4 Innovative Insurance Coverage Solutions

The wording given in Annex II 10.1 CDA on “Innovative insurance coverage solutions” is as follows:

“3.1. Insurance products sold under the insurance activity offer coverage for the climate-related perils where the demands and needs of policyholders require so.

3.2. Depending on the demands and needs of individual customers, products may include specific risk transfer solutions such as protection against business interruption, contingent business interruption, other non-physical damage-related loss factors, cascading effects and interdependencies of hazards (secondary perils), cascading impacts of interacting natural and technological hazards, critical infrastructure failures.”

The requirements listed under point 3. can be divided into two categories, requirements for insurance products already sold and requirements for future insurance business, which is accompanied by a responsibility to develop new insurance products where the demands and needs of policyholders require so.

Regarding the insurance products already sold, point 3.1 basically repeats the circumstances already examined in the taxonomy-eligible criteria. Point 3.2 lists non-obligatory possible risk transfer solutions for this purpose in a non-exhaustive manner.

Regarding the development of new insurance products, the TSC require a kind of self-commitment of the undertaking to cover new potential demand for new insurance products arising from ongoing climate change. Here too, point 3.2 provides a non-exhaustive list of non-obligatory possible risk-transfer options. To meet this criterion, insurance undertakings have to monitor their relevant market in order to identify and cover new demand. Sole management of purchased or assumed insurance portfolios would consequently no longer meet the criterion. For valuation consistency, portfolios that met the TSC at the time of underwriting should be able to retain their classification.

3.5 Data Sharing

The wording given in Annex II 10.1 CDA on “Data sharing” is as follows:

“4.1. With due regard to Regulation (EU) 2016/679 of the European Parliament and of the Council, a significant share of loss data related to insurer’s activity is made available, free of charge, to one or several public authorities for the purpose of analytical research. Those public authorities declare to use the data for purposes of enhancing adaptation to climate change by the society in a region, country or internationally and the insurer provides the data at a level of granularity sufficient for the use declared by the respective public authorities.

4.2. Where the insurer is not yet sharing such data with a public authority for the aforementioned purpose, it has declared the intention to make its data available, free of charge, to interested third parties and has indicated under which conditions such data can be shared. That declaration of intention to share available data is easily accessible, including on the insurer’s website, for relevant public authorities.”

With due regard to data protection aspects of the General Data Protection Regulation (EU) 2016/679, provisions have been made under point 4 that allow an insight into the loss data of at least the taxonomy-aligned insurance contracts. Strictly speaking, who has a right to view the aforementioned data depends on whether a public authority has already requested the data from the reporting insurance undertaking or group in accordance with point 4.1. In this case, a purpose for the use of the claims data for the purpose of improving “climate change adaptation” on the part of the public authority is mandatory. The

insurance undertaking must submit the content and presentation in accordance with the requirements of the public authority. It therefore is expected to have a limited degree of freedom of design.

In the event that no public authority has requested the loss data, the insurance undertaking must submit a declaration of intent on at least its website in accordance with point 4.2 that it is prepared to make the data available to interested third parties. No specifications are made regarding the exact content and presentation, which gives the insurance undertaking almost complete freedom of design. There is no provision stating that the insurance undertaking is not permitted to make the data available to interested third parties if it is passed on to public authorities. Voluntary disclosure to research institutions or insurance associations such as insurance Europe is therefore not restricted.

It should be noted with regard to this part that, in addition to the taxonomy-aligned insurance premiums to be reported externally, the associated loss data must be recorded internally, or at least be able to be prepared. The granularity of loss data depends to a considerable extent on the purposes for which the data is intended to be used by one or more public authorities. In this context, it is reasonable for the authorities to choose a uniform approach in which the involvement of national or international associations such as Insurance Europe could be beneficial for the purposes of targeted data collection.

3.6 High Level of Service in Post-Disaster Situation

The wording given in Annex II 10.1 CDA on “High level of service in post-disaster situation” is as follows:

“Claims under insurance activity, both ongoing and those from large-scale loss events resulting from climate risks, are processed fairly with respect to customers, in accordance with high handling standards for claims and in timely fashion in line with applicable law and there has been no failure to do so in the context of recent largescale loss events. Information as regards procedures on additional measures in case of large-scale loss events is publicly available”.

The last point of the TSC is aimed at ensuring that the policyholder receives the insurance benefit promptly in the event of a claim. The requirements outlined should be a matter of course in claims handling processes. However, if prompt claims processing is regularly subject to legal proceedings, due to uncertainties of interpretation in the event of a claim, or other delaying circumstances, such as a consistently high processing backlog, the conformity of the criterion may be compromised.

Large-scale loss events must be considered individually due to their nature. To comply with the additional reporting requirement in case of such an event, a process must be implemented at the insurance undertaking, in which first, a

large-scale loss event is identified, and second, a reporting is made publicly available in accordance with the intended reporting obligation following occurrence. In most cases, the undertakings own website should be a suitable place for reporting, although the absence of further regulation gives the insurance undertaking a wide range of design options.

3.7 DNSH-Criteria

Criteria related to “Climate change mitigation”:

“The activity does not include insurance of the extraction, storage, transport or manufacture of fossil fuels or insurance of vehicles, property or other assets dedicated to such purposes.”

The third component of compliance with the DNSH-criteria for taxonomy-alignment provides insurers with only one criterion regarding “climate change mitigation”. No DNSH-criteria are stated for the other five environmental objectives. For the purposes of alignment, this excludes insurance of almost all activities associated with fossil fuels, with the exception of their usage. Accordingly, insuring a motor vehicle that necessarily carries fossil fuels for its consumption is not DNSH harmful. Clearly, this requirement is intended to ensure that losses in the value chain associated with fossil fuels are harming the climate goal of “climate change mitigation” and therefore premiums received to insure such losses may not be included in the nominator of the underwriting KPI.

If an insurance undertaking wants to assess its taxonomy-aligned premiums, it may therefore set up a process to ensure that no activities along the value chain of fossil fuels are insured. When insuring certain individual economic activities, such as an oil tanker to cover cost of Damages from an oil spill, the assessment of compliance with the DNSH-criteria is largely trivial. In the case of fleet tariffs, for example, where the insurance undertaking does not know whether insured vehicles are also used by the policyholder, at least in part, for the transportation of fossil fuels for further use, the question may arise as to whether insurance premiums could be assessed at least in part as taxonomy-aligned. In general, the use of estimates is largely restricted under the provisions of the Taxonomy Regulation. They are essentially only permitted if they are used to assess whether economic activities of third country undertakings, not one’s own, are taxonomy-aligned, if no other possibilities for assessments are given, with the exception of the DNSH-criteria (Art. 7 (7) DDA, recital 21 Taxonomy Regulation, ESMA 2023). Therefore, an estimation of compliance with DNSH must not be executed. This rules out the possibility of estimating compliance with the DNSH-criteria in the undertakings own insurance portfolio. As a result, the insurance undertaking must either exclude the DNSH-crite-

tion in the insurance terms and conditions or the risk of a violation in regular business, such as the transportation of small quantities of fossil fuels for private use, is near zero, in order to report taxonomy-aligned premiums.

4. Summary

In this paper, the requirements of the Taxonomy Regulation for the P&C insurance industry in Europe have been presented in detail. The regulatory environment of the Taxonomy Regulation is dynamic, as can be seen from the speed of implementation and changes to the regulations and concretizations made by the EU Commission, which are briefly discussed.

It can be noted that the application of valuations from the Solvency II regulatory framework to non-financial / sustainability statements could bring benefits to stakeholders for the purpose of providing consistent EU wide information. These benefits are reflected in a uniform approach to the fair value of assets in the investment KPI throughout Europe and would already provide the classification into the relevant LoBs for the underwriting KPI, as they are prescribed by the TSC of the Taxonomy Regulation. Moreover, it can be stated that, the underwriting KPI does not show the breakdown of gross premiums earned related to the reporting period, which is otherwise a common disclosure requirement for insurance undertakings.

It was also found that the TSC for insurance undertakings can be understood to include further disclosure requirements for their respective the non-financial/sustainability statement when carrying out taxonomy-aligned insurance activities. These disclosure requirements are not included in the DDA and could therefore be left undisclosed in the course of application.

When insuring climate-related perils, insurance undertakings may extend the classifications of climate-related hazards in accordance with Appendix A Annex II CDA. By doing so, added hazards should be based on scientifically sound and recognized information in accordance with the principles of the scientific requirements of the Taxonomy Regulation and its delegated acts. The classification into chronic and acute hazards should thereby be consistently maintained.

Effective management of these reporting requirements is critical to ensuring compliance and transparency of taxonomy-aligned insurance offerings. Proper documentation plays a key role in facilitating taxonomy compliance and meeting future audit requirements. Insurance undertakings must establish robust documentation practices to track and demonstrate adherence to taxonomy standards, thereby enhancing credibility and regulatory compliance. One way of achieving this goal is suggested by Cohen et al. 2023 by tying such ESG related metrics to executive compensation contracts.

Building upon the qualitative insights gleaned from this study, future research could delve into an analysis of the Underwriting KPIs sourced from (consolidated) non-financial reports. Leveraging the findings of this paper, researchers can build upon this groundwork for a structured approach to analyze these metrics, e.g., of the informative value of the implementation of the specifications from the Q&A No. 67 of the EU-Commission's notice on taxonomy alignment and, in particular, taxonomy-eligibility in comparison to the two-year transition phase. By establishing a robust framework, researchers can facilitate a systematic evaluation of underwriting performance metrics, thereby enhancing understanding and interpretation within the insurance industry.

Furthermore, an investigation into the evolving landscape of sustainability reporting warrants attention. Specifically, examining the valuation methodologies employed in forthcoming Sustainability Statements following the ESRS and/or the last non-financial reports could offer critical insights into ESG related practices from insurers. This exploration could illuminate shifts in corporate sustainability strategies, disclosure practices, and their implications for financial performance and stakeholder engagement.

Such inquiries promise to enrich our understanding of the evolving dynamics within the insurance sector and the broader corporate landscape, informing strategic decisions and fostering sustainable practices in the future.

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