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The Green Asset Ratio (GAR) - a new KPI for credit institutions

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Volker Brühl

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The Green Asset Ratio (GAR) – a new KPI for Credit Institutions

Volker Brühl[1]

Abstract:

The financial sector plays an important role in financing the green transformation. Various regulatory initiatives in the EU aim to improve transparency in relation to the sustainability of financial products and the sustainability of economic activities of non-financial and financial undertakings. For credit institutions, the Green Asset Ratio (GAR) has been established by the European regulatory authorities as a KPI for measuring the proportion of Taxonomy-aligned on-balance-sheet exposure in relation to the total assets. The breakdown of the total GAR by type of counterparty, environmental objective and type of asset provides in-depth information about the sustainability profile of a credit institution. This information, which has not been available to date, may also initiate discussions between management and shareholders or other stakeholders regarding the future sustainability strategy of credit institutions. This paper provides an overview of the regulatory background and the method of calculating the GAR along different dimensions. Finally, the potential benefits and limitations of the GAR are discussed.

JEL Classification: G10, G20

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1. Introduction

The European Climate Law has been an important milestone in implementing the European Green Deal (EGD, European Commission 2019), which entered into force on 29 July 2021 (Regulation (EU) 2021/1119). The agreement sets a 55% net greenhouse gas emission reduction target compared to 1990 for 2030 and an EU-wide climate neutrality target for 2050. This entails a fundamental transformation of basically all economic sectors, requiring enormous investment volumes. Against this background, the EU has developed the European Action Plan on Sustainable Finance (European Commission 2018) to enhance transparency for investors, avoid greenwashing and channel more capital into sustainable economic activities. Therefore, disclosure and reporting requirements have been enhanced by various regulatory initiatives which have to be adopted by financial market participants in the coming years.

In this context, new key performance indicators (KPIs) have been introduced for corporates and financial institutions to measure the proportion of sustainable economic activities in relation to their overall economic activities. For banks, the Green Asset Ratio (GAR) has been established by the European regulatory authorities. This paper provides an overview of the regulatory background and the method of calculating the GAR along different dimensions. Finally, the potential benefits and the limitations of the GAR are discussed.

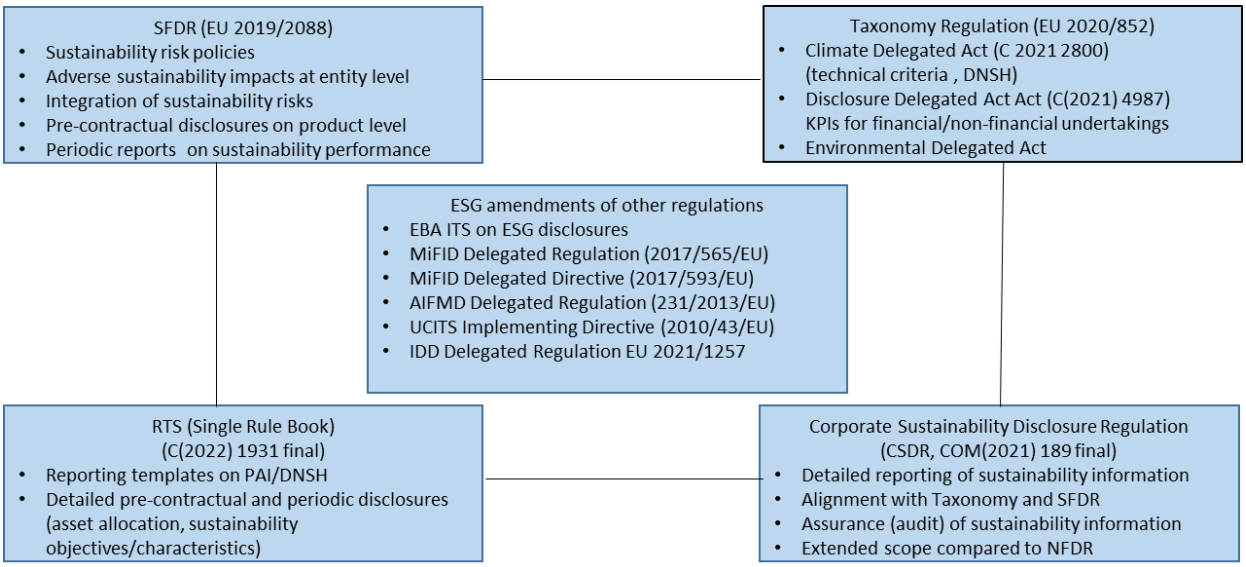
2. The regulatory framework of sustainable finance in Europe

In general, sustainable finance refers to the process of taking environmental, social and governance **(**ESG) considerations into account when making investment decisions in the financial sector. Green finance is usually defined as a subset of sustainable finance, i.e. the financing of investments that contribute to the attainment of one or more environmental objectives, which include “climate change mitigation” and “climate change adaptation” (Berrou et al 2019, Brühl 2021, European Commission 2021a, European Commission 2017, Hong et al 2020, IFC 2017, Schoenmaker 2019). While many asset managers and investment firms have expanded their offering of ESG products in recent years, an increasing number of cases of “greenwashing” have been identified in the recent past, i.e. financial products have been positioned as sustainable, only for it to emerge upon closer examination that at least part of their investment portfolio was not compatible with their claimed sustainability objectives (Brühl 2022).

Therefore, sustainability objectives need to be formulated clearly, usually along the three dimensions of sustainability, i.e. environmental, social and governance (ESG). Furthermore, detailed ESG criteria need to be established, according to which economic activities to be financed through a particular financial product can be classified as sustainable. Such a classification system (taxonomy), including science-based indicators and metrices, forms the basis for labelling financial products as more or less sustainable with regards to one or more ESG criteria (Brühl 2022).

In the EU the regulatory framework for sustainable financial products consists of different legislative components that are closely interconnected (figure 1). The Sustainable Finance Disclosure Regulation (SFDR, EU 2019/2088) provides the disclosure framework for sustainability information to be reported by financial market participants and financial advisors. The SFDR has been amended by the Taxonomy Regulation (TR, EU 2020/852), which has established a classification scheme for categorising economic activities in terms of their environmental sustainability.

Figure 1: Sustainable Finance – Regulatory Framework in the EU



Source: Own illustration

Due to the close link between the SFDR and the TR, a “Single Rule Book” (SRB), i.e. a uniform set of regulatory technical standards (RTS) for both regulations has been established (C(2022) 1931 final) which provide the detailed requirements in terms of methodology, indicators, metrics and reporting templates.

However, the aforementioned regulations can only unfold their impact if the required sustainability information is generated by the non-financial reporting standards for corporates and financial institutions. So far the Non-Financial Reporting Directive (Directive 2014/95/EU, NFRD), amending the Accounting Directive 2013/34/EU, provides the framework for disclosing non-financial information on large companies. The NFRD applies to large public-interest entities (PIE) with an average number of employees in excess of 500. PIEs include companies listed on a regulated stock exchange, credit institutions and insurance companies. Such companies have to provide within their management report a non-financial statement containing information on their position and performance in terms of ESG issues, respect for human rights, anti-corruption and anti-bribery. Companies have to comply with the principle of “double materiality”, which states that companies have to report both on how sustainability issues affect their performance, position and development (the “outside-in” perspective) and on the impact of their business activities on sustainability issues (the “inside-out” perspective).

However, the current non-financial reporting measures are not sufficiently granular and are partly inconsistent with the reporting requirements on sustainability issues generated by other regulations, e.g. the SFDR and the TR including the respective delegated acts. Therefore, the Corporate Sustainability Reporting Directive (COM(2021) 189 final, CSRD) will broaden the scope and the level of detail of sustainability information disclosed so that the reporting needs according to the SFDR, TR and RTS are taken into account. The CSRD will enter into force on 1 January 2023 and will apply to reports published in 2024, covering fiscal year 2023. The corresponding EU Sustainability Reporting Standards (ESRS) will be developed by the European Financial Reporting Advisory Group (EFRAG) that will finally be adopted by way of delegated acts. Furthermore, various capital market-oriented regulations such as MIFID II, IDD, AIFM and UCITS have been amended as of 1 August 2022 to ensure that investors’ sustainability preferences are being integrated into the investment selection and advisory processes.

With regard to the disclosure of ESG risks for credit institutions, the Implementing Technical Standards (ITS) prepared by the European Banking Authority (EBA) play an important role. The final draft implementing technical standards (ITS) on prudential pillar 3 disclosures on ESG risks in accordance with Article 449a CRR were published in January 2022 (EBA 2022). The standards propose not only comparable quantitative disclosures on climate-change-related transition and physical risks but also detailed guidance for the calculation and segmentation of the Green Asset ratio (GAR). This ITS addresses large banks that are listed on a regulated stock market in the EU and are obliged to disclose information on ESG risks as defined in Article 98(8) of Directive 2013/36/EU (Credit Institutions Directive) and the Capital Requirements Regulation (Article 449a of CRR, (EU) No. 575/2013).

As this paper focuses on the Green Asset Ratio, the disclosure obligations regarding climate-change-related risks, including transition and physical risks, are not further discussed. However, it should be noted that there are some differences between the technical requirements of the TR, including its delegated acts, regarding the reporting of a GAR and those under the ITS for pillar 3 disclosures on ESG risks. The GAR according to the TR and its Disclosure Delegated Act (C(2021) 4987) covers only exposures towards counterparties subject to disclosure obligations under the NFRD. The scope is going to be broadened with the first application of the CSDR as of 2024 covering fiscal year 2023.

The EBA requires the additional disclosure of a “modified GAR”, called the Banking Book Taxonomy Alignment Ratio (BTAR) for large institutions (according to the definition in the CRR (EU) No 575/2013) that are listed on a regulated stock market in the EU. Hence these additional requirements will only apply to a subset of institutions that are subject to the TR and the Disclosure Delegated Act. In accordance with these regulations, the GAR covers only Taxonomy-aligned exposures towards counterparties that are subject to the disclosure obligations under the NFRD, i.e. PIEs exceeding the average number of 500 employees. However, the denominator of the GAR also includes the exposures of counterparties not subject to the NFRD. Consequently, the reported GAR underestimates the “real” GAR by implicitly assuming that these exposures are altogether not Taxonomy-aligned. In contrast to the GAR, the BTAR includes Taxonomy-aligned exposures towards non-financial corporates not subject to NFRD disclosure obligations both in the numerator and the denominator. The ITS for pillar 3 disclosures on ESG risks, i.e. the disclosure of additional and separate information on the BTAR, will also apply from 1 January 2024.

3. Disclosure requirements for financial products and financial institutions

In order to enable investors to consider ESG aspects in their investment decisions, suppliers of financial products need to disclose whether and in what form they integrate ESG criteria or objectives in their investment strategy (Article 6 SFDR). The comparability of financial products in terms of ESG profile shall be improved by making transparent the activities or investments that are financed by the respective financial product. The disclosure requirements regarding sustainability issues affect both “non-financial undertakings”, i.e. corporates, and “financial undertakings”, i.e. financial market participants. The SFDR distinguishes between financial products that explicitly promote environmental or social characteristics according to Article 8 SFDR (“light green”) and financial products that pursue specific sustainable investment objectives according to Article 9 SFDR (“dark green”).

Therefore, detailed disclosure obligations for financial market participants and financial advisors have been established covering the period before the actual purchase of a financial product (pre-contractual) and the periodic reporting during the tenure of the product. Hence, by 30 December 2022 financial market participants need to provide, for each financial product, a clear and reasoned explanation of whether and, if so, how a financial product considers

principal adverse impacts (PAI) on sustainability factors (Article 7 SFDR). In addition, suppliers of financial products have to provide information on matters such as the investment strategy, the sustainability objectives the financial products promotes or pursues, and detailed information on the intended asset allocation and the selection criteria applied.

For both types of sustainable financial products periodic reporting of ESG performance parameters is mandatory (§11 SFDR) and is closely aligned with the pre-contractual disclosure obligations. It has to be reported if, and to what extent, the objectives (Article 9 products) or characteristics (Article 8 products) have been attained. A core element of the periodic reporting is the actual versus the planned asset allocation, which includes inter alia a list of the largest investments and a segmentation of the portfolio according to sectors and countries. Furthermore, the proportion of the Taxonomy-aligned investments has to be reported as well as the avoidance of principal negative impacts according to the TR.

The Taxonomy distinguishes between six environmental objectives. An economic activity must substantially contribute to at least one of them in order to be categorised as sustainable. These sustainability objectives comprise “climate change mitigation” (e.g. investments in renewable energies) and “climate change adaptation” (e.g. flood protection). Other objectives include the protection of water and maritime resources, the transition to a circular economy, the prevention of pollution and the protection of biodiversity and ecosystems (Brühl 2021).

An economic activity can only be classified as sustainable according to the Taxonomy Regulation (Article 3 TR) if it contributes substantially to one or more environmental objectives (Article 9 TR) and, at the same time, the activity does not cause a significant negative impact on the other sustainability objectives (so-called Do No Significant Harm (DNSH) principle, Article 17 TR). In addition, the activity has to be carried out in compliance with the minimum safeguards laid down in Article 18 TR (e.g. the alignment with the OECD Guidelines for Multinational Enterprises and the UN Guiding Principles on Business and Human Rights) and it has to comply with the technical screening criteria applicable to the respective activity. Furthermore, the TR distinguishes between economic activities that directly contribute to one of the defined objectives from activities that serve as “enablers” (Article 16 TR) for such direct contributions and those activities that are needed as “transitional” technologies (Article 10(2) TR) as long as a sustainable alternative is not available. Moreover, the TR, together with the corresponding delegated acts and the RTS, define the precise scope of the respective environmental objectives as well as the definition of “substantial” in that regard. The definition of “significant harm” is laid down in Article 17 TR. For instance, all activities that lead to significant greenhouse gas emissions are detrimental to the objective “climate change mitigation”, whereas activities leading to an increased adverse impact on the current climate and the expected future climate are considered to violate the DNSH criteria for “climate change adaptation”.

The Taxonomy Regulation has been amended by various delegated acts so far. Apart from the Climate Delegated Act (C(2021) 2800)) establishing the technical screening criteria for the environmental objectives “climate change mitigation” and “climate change adaptation”, the corresponding technical criteria for the remaining environmental objectives will be set forth in the upcoming “Environmental Delegated Act”. After a controversial political discussion, the Climate Delegated Act and the Disclosure Delegated Act (C(2021) 4987) of the TR have been amended by a Complementary Climate Delegated Act (C(2022) 631/3), which classifies certain gas and nuclear energy activities as transitional activities. In addition, the Disclosure Delegated Act concretizes the disclosure obligations according to Article 8 TR, which requires increased transparency in non-financial statements on how and to what extent the undertaking’s activities are associated with economic activities that qualify as environmentally sustainable under the TR. If all TR-related criteria are met, the respective activity is called Taxonomy-aligned. If the activity per se could be eligible under the TR but violates e.g. the technical screening criteria, the activity may be called Taxonomy-eligible but not Taxonomy-aligned.

In order to enable investors to evaluate the degree of sustainability of a specific non-financial or financial undertaking, it is crucial to disclose the proportion of economic activities that are Taxonomy-aligned, only Taxonomy-eligible or neither. Therefore, suitable KPIs have been introduced measuring the proportion of Taxonomy-aligned economic activities, which we call "Taxonomy ratios" in the following. The Taxonomy ratio of non-financial undertakings can be calculated as the proportion of Taxonomy-aligned turnover, capital expenditure or operational expenditure.

The Taxonomy ratio based on turnover ("Turnover KPI") has to be calculated as the proportion of the net turnover derived from products or services associated with Taxonomy-aligned economic activities (numerator), divided by the net turnover as defined in Article 2, point (5), of Directive 2013/34/EU (denominator) (C(2021) 4987). The turnover shall cover the revenue recognised pursuant to International Accounting Standard (IAS) 1, paragraph 82(a), as adopted by Commission Regulation (EC) 1126/20081. Hence the Turnover KPI ($TUKPI_i$) of company is defined as the ratio of Taxonomy-aligned turnover (TA_i) of company i in relation to the total turnover (T_i) of company i (equation 1). In the following, the KPIs and their components are mathematically formalised in order to facilitate the identification and analysis of the factors driving the respective KPI. This shall complement the verbal elaborations as documented in the respective annexes to the various regulations.

(1) $$TUKPI_i = \frac{TA_i}{T_i}$$

The capital expenditure-based Taxonomy ratio ("CapEx KPI", $CEKPI_i$) captures investments in assets or processes that qualify as environmentally sustainable under Articles 3 and 9 TR or are part of a plan ("CapEx Plan") to expand Taxonomy-aligned economic activities or to allow Taxonomy-eligible economic activities to become Taxonomy-aligned in the foreseeable future for company i (CTA_i) (equation 2). The denominator covers the total capital expenditure of company i (C_i), i.e. all additions to tangible and intangible assets during the financial year of company i (considered before depreciation, amortisation, revaluations and impairments). Any additions to tangible and intangible assets resulting from business combinations should be included. For non-financial undertakings applying international financial reporting standards (IFRS) the respective standards such as IAS 16 (Property, Plant and Equipment), IAS 38 (Intangible Assets), IAS 40 (Investment Property) or IFRS 16 (Leases) have to be considered.

(2) $$CEKPI_i = \frac{CTA_i}{C_i}$$

The KPI related to operating expenditure ("OpEx KPI") measures the proportion of OpEx related to assets or processes that qualify as environmentally sustainable under Articles 3 and 9 TR. The denominator shall cover direct non-capitalised costs that relate to research and development, building renovation measures, short-term leases, maintenance and repair, and any other direct expenditures relating to the day-to-day servicing of assets of property, plant and equipment by the undertaking or third party to whom activities are outsourced. Hence, operating expenses to be included in this KPI are more narrowly defined than under IFRS in general. In the latter case, they usually include research and development expenses, selling, general and administrative expenses, and other operating expenses.

However, besides disclosing the overall Taxonomy ratio based on Taxonomy-aligned turnover, CapEx or OpEx, companies are required to disclose the allocation to the respective sustainability objectives and fulfilment of the DNSH criteria (table 2). They also have to break down their business into different economic activities, including a subset of transitional and enabling economic activities. Moreover, non-financial undertakings have to report the proportions of Taxonomy-eligible and Taxonomy-non-eligible economic activities.

Table 1: Disclosure of Taxonomy-based turnover shares for non-financial undertakings (example)

*

Non-financial undertakings			Substantial Contribution Criteria (Taxonomy Regulation)										
Economic Activites	Turnover (absolute)	Turnover (relative)	Climate Change Mitigation	Climate Change Adaptation	Water and marine resources	Circular Economy	Pollution	Biodiversity/ ecosystems	DNSH-criteria	Minimum safeguards	Taxonomy-aligned proportion of turnover	Subset "enabling activities"	Subset "transitional" activities"
A. Taxonomy-eliigible activities													
A.1 Environmentally sustainable (Taxonomy-aligned)	€	%	%	%	%	%	%	%	Y	Y	%	%	%
A.2 Taxonomy-eligible but not environmentally sustainable	€	%							Y/N	Y/N	NA	NA	NA
Total A1+A2	€	%											
B. Taxonomy-non-eligible	€	%											
Total A+B	€	%											

Source: C(2021) 4987 final Annex II Templates for non-financial undertakings

It is important to note the scope of these disclosure obligations. According to §8 TR and the corresponding Disclosure Delegated Act (C(2021) 4987), any undertaking that carries an obligation to publish non-financial information pursuant to Article 19a or Article 29a of the Accounting rules - Directive 2013/34/EU amended by the Non-Financial Reporting Directive (NFRD, Directive 2014/95/EU) shall include in its non-financial statements or consolidated non-financial statements information on how and to what extent the undertaking's activities qualify as environmentally sustainable under Articles 3 and 9 TR.

These obligations cover so-called "public-interest entities", which comprise companies listed on a regulated stock exchange, credit institutions, insurance undertakings and other undertakings that are of public relevance exceeding on their balance sheet dates the criterion of an average number of 500 employees during the financial year. "Financial undertaking" means an undertaking that is subject to the disclosure obligations laid down in Articles 19a and 29a of Directive 2013/34/EU and is an asset manager, a credit institution, an investment firm, an insurance or a reinsurance undertaking as defined by the respective European regulations.

4. The Green Asset Ratio (GAR)

As the defined KPIs for corporates, such as the proportion of Taxonomy-aligned revenues, CapEx or OpEx are not meaningful for financial institutions, the TR and the Disclosure Delegated Act have set forth appropriate KPIs for financial undertakings depending on their business model (e.g. credit institutions, asset managers, investment firms or insurance companies). In general, the respective KPI should give the investors an indication of the degree to which the economic activities of the financial institution are Taxonomy-aligned. The relevant KPIs have to be reported on a consolidated level, as prescribed in the Capital Requirements Regulation (CRR (EU) No. 575/2013, Title II, Chapter 2, Section 2). In the following we transform the regulatory requirements defining the GAR, especially laid down in the TR, the Disclosure Delegated Act and the Single Rule Book (figure 1), into mathematical formulas. This formalised approach facilitates the disaggregation of the GAR along different dimensions, e.g. counterparties, environmental objectives and financial instruments. The resulting split of the GAR into various "partial" GARs allows for a detailed analysis of drivers of the GAR and makes the interdependencies between different components of the GAR more transparent.

4.1 The aggregate Green Asset Ratio

The Green Asset Ratio (GAR) has been established as the corresponding KPI for credit institutions (C(2021) 4987 final, Annex V) which reflects the proportion of their exposures related to Taxonomy-aligned assets ("Green Assets", GA) compared to their total assets

covered (TAC, equation 3). As the GAR relates to the credit institutions' main lending and investment business, the denominator has to cover loans and advances (LN_i), debt securities (DS_i), equity holdings (EH_i), repossessed collaterals (RC_i) and all other covered on-balance-sheet assets (OA_i) with index i indicating a specific counterparty i (equation 4).

The aggregate volume of the Taxonomy-aligned ("green") assets represents the sum of the Taxonomy-aligned proportions of the respective asset categories ($LN_{TAi}, DS_{TAi}, EH_{TAi}, RC_{TAi}$) (equation 5) financing Taxonomy-aligned economic activities based on the turnover KPI and the CapEx KPI of the underlying assets.

(3) $$GAR = \frac{GA}{TAC}$$

(4) $$TAC = \sum_i LN_i + \sum_i DS_i + \sum_i EH_i + \sum_i RC_i + \sum_i OA_i$$

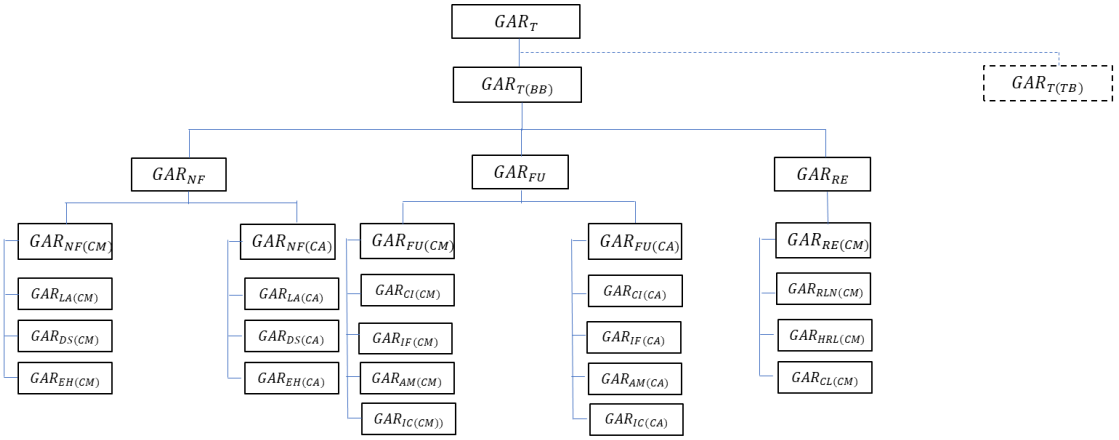
(5) $$GA = \sum_i LN_{TAi} + \sum_i DS_{TAi} + \sum_i EH_{TAi} + \sum_i RC_{TAi}$$

The Disclosure Delegated Act stipulates that the figures have to include financial assets at amortised cost, financial assets at fair value through other comprehensive income, financial assets designated at fair value through profit and loss, investments in subsidiaries, joint ventures, and real estate collaterals obtained by taking possession in exchange of cancellation of debts. However, credit institutions have to disclose not only the aggregate GAR (GAR_T) for covered on-balance-sheet assets but also a breakdown by environmental objective "climate change mitigation" (CM) and "climate change adaptation" (CA) and by type of counterparty (non-financial undertakings, financial undertakings and retail exposures (figure 2)), which allows for more detailed insights into the level and structure of Taxonomy-aligned activities.

Financial assets held for trading, derivatives, on-demand interbank loans and exposures to undertakings that are not obliged to publish non-financial information pursuant to Article 19a or 29a of Directive 2013/34/EU (NFRD) are excluded from the numerator of the GAR_T. Exposures to central governments, central banks and supranational issuers have to be excluded both from the calculation of the numerator and the denominator of the GAR, as there is currently no convincing method available to calculate a Taxonomy-alignment ratio for those issuers. However, credit institutions have to report the percentage of their total assets that are excluded from the numerator of the GAR.

Figure 2 illustrates that the total GAR_T which covers all relevant exposures of the banking book of the respective credit institution can be split into partial Green Asset Ratios for each group of counterparties, i.e. non-financial undertakings (NF), retail exposures (RE) and financial undertakings (FU). The Green Asset Ratio of the trading book (TB) is outside the scope of the calculation of aggregate GAR due to the temporary nature of trading positions. Nevertheless, credit institutions have to provide information on their trading portfolio, e.g. regarding their investment strategies, their Taxonomy-aligned exposures and the management of environmental risks associated with their portfolio. The disclosure of a GAR for the trading book has been postponed by the EBA to future versions of the pillar 3 ESG ITS.

Figure 2: The GAR of credit institutions – composition and subcategories



Each KPI to be calaculated for „stock" and „flow" figures and differentiated according to „known use of proceeds" and „general purpose financing"
NF = Non-Financial Undertaking; FU = Financial Undertaking; RE = Retail Exposure; CM = Climate Change Mitigation; CA = Climate Change Adaptation; BB = Banking Book; TB = Trading Book; CI = Credit Institution; IF = Investment Firm; AM = Asset Manager; IC = Insurance Company; RLN = Residential Real Estate Loan; HRL = House Renovation Loan; CL = Car Loan; LA = Loans and Advances; DS = Debt Securities; EH = Equity Holdings

Source: Own illustration

Nevertheless, detailed reporting templates have been published by the EBA as part of the pillar 3 ESG ITS, for which table 2 illustrates an example.

Table 2: Green Asset Reporting templates for credit institutions (simplified for stocks of assets)

	Climate Change Mitigation (CCM)					Climate Change Adaptation (CCA)					TOTAL (CCM + CCA)					
	Proportion of eligible assets funding taxonomy relevant sectors					Proportion of eligible assets funding taxonomy relevant sectors					Proportion of eligible assets funding taxonomy relevant sectors					Proportion of total assets covered
		Of which environmentally sustainable					Of which environmentally sustainable					Of which environmentally sustainable				
GAR % (compared to total covered assets in the denominator); Disclosure reference date T on stock			Of which specialised lending	Of which transitional	Of which enabling			Of which specialised lending	Of which adaptation	Of which enabling			Of which specialised lending	Of which transitional/adaptation	Of which enabling	
Loans and advances, debt securities and equity instruments eligible for GAR calculation																
Financial corporations																
Credit institutions																
Other financial corporations																
of which investment firms																
of which management companies																
of which insurance undertakings																
Non-financial corporations subject to NFRD disclosure obligations																
Households																
of which loans collateralised by residential immovable property																
of which building renovation loans																
of which motor vehicle loans																
Local government financing																
Housing financing																
Other local governments financing																
Collateral obtained by taking possession: residential and commercial immovable properties																

Source: Own illustration based on EBA pillar 3 ESG ITS

A similar template has to be filled out for the change of each relevant balance sheet position, e.g. the gross carrying amount of new loans and advances during the year prior to the disclosure reference date. This "flow perspective" gives investors an impression of whether and how the Taxonomy alignment ratios change over time, i.e. which parts of the business activities become more sustainable according to which environmental objective.

KPIs for other services of credit institutions

Nevertheless, credit institutions have to disclose further information on the degree of Taxonomy-aligned revenues, e.g. fees and commission income generated from services associated with Taxonomy-aligned economic activities. Such services include the issuance or other services related to third-party securities, the receipt, transmission and execution of trades on behalf of customers, private banking fees, advisory fees or fees for clearing and settlement services, custody or payment services. The proportion of Taxonomy-aligned revenues has to be calculated by applying the respective counterparty-specific Turnover KPI or CapEx KPI.

Additional disclosure obligations for credit institutions concern the degree of Taxonomy alignment of off-balance-sheet exposures such as financial guarantees or assets under management.

4.2 Breakdown of the aggregate Green Asset Ratio

The TAC and the overall proportion of GA can also be expressed as the sum of counterparty-specific GA and TAC, i.e. non-financial undertakings (NF), retail exposures (RE) and financial undertakings (FU) (equations 6 and 7). The financial undertakings are further segmented into asset managers (AM), investment firms (IF), credit institutions (CI) and insurance/reinsurance companies (IC). Hence equations (8) and (9) follow.

(6) $TAC = TAC_{NF} + TAC_{RE} + TAC_{FU}$

(7) $GA = GA_{NF} + GA_{RE} + GA_{FU}$

(8) $TAC_{FU} = TAC_{AM} + TAC_{IF} + TAC_{CI} + TAC_{IC}$

(9) $GA_{FU} = GA_{AM} + GA_{IF} + GA_{CI} + GA_{IC}$

The GAR_T of credit institutions measuring the aggregate proportion of Taxonomy-aligned exposures can be further broken down by type of counterparty, i.e. the GAR_T of a credit institution is a function f of the partial Green Asset Ratios for each group of counterparties (equation 10), i.e. $GAR_{NF,}, GAR_{RE,}\, GAR_{FU}$, while the GAR_{FU} itself is a function *g* of the partial GAR of the financial counterparties, i.e. GAR_{AM}, $GAR_{IF}, GAR_{CI}, GAR_{IC}$ (equation 11).

(10) $GAR_T = f(GAR_{NF,}, GAR_{RE,} GAR_{FU})$

(11) $GAR_{FU} = g(GAR_{AM}, GAR_{IF}, GAR_{CI}, GAR_{IC})$

In the following we look at the different GAR components in more detail to get a better understanding of the underlying drivers of the total GAR.

4.2.1 GAR for exposures to non-financial undertakings

The $GAR_{NF,}$ covering the exposure to mostly corporate clients, together with the $GAR_{RE,}$ covering the exposures primarily to private clients, are often the most important components of a commercial bank. For each counterparty i, α_i stands for the Taxonomy-aligned proportions of loans including advances (LN_i); β_i stands for the Taxonomy-aligned proportions of total debt securities (DS_i); γ_i stands for the Taxonomy-aligned proportions of total equity holdings EH_i; and δ_i stands for the Taxonomy-aligned proportions of repossessed collaterals RC_i. The respective weighing factors are the Turnover KPI and the CapEx KPI, representing the Taxonomy alignment ratios of the respective counterparty i. Therefore, two versions exist for each weighting factor, and by extension two versions of the GAR. As the pillar 3 ESG ITS requires only the turnover-based version of the respective GAR, we define the respective weighting factors as turnover-based going forward. But it should be noted that a second CapEx KPI-based version of the GAR exists. Hence the following equations hold for the Taxonomy-aligned exposures (TA) towards counterparty i.

(12a) $LN_{TAi} = \alpha_i \cdot LN_i$

(12b) $DS_{TAi} = \beta_i \cdot DS_i$

(12c) $EH_{TAi} = \gamma_i \cdot EH_i$

(12d) $RC_{TAi} = \delta_i \cdot RC_i$

Equations (13a) and (13b) show how the overall Green Asset Ratio for non-financial undertakings (GAR_{NF}) can be calculated based on the individual Turnover KPI of the respective counterparties.

(13a) $$GAR_{NF} = \frac{GA_{NF}}{TAC_{NF}} = \frac{\sum_i LN_i \cdot \alpha_i + \sum_i DS_i \cdot \beta_i + \sum_i EH_i \cdot \gamma_i + \sum_i RC_i \cdot \delta_i}{\sum_i LN_i + \sum_i DS_i + \sum_i EH_i + \sum_i RC_i + \sum_i OA_i}$$

In addition to the total GAR_{NF} for non-financial undertakings, credit institutions shall disclose the breakdown by environmental objectives – so far restricted to "climate change mitigation" ($GAR_{NF(CM)}$) and "climate change adaptation" ($GAR_{NF(CA)}$), which sum up to the (GAR_{NF}) (equation 14).

(14) $GAR_{NF} = GAR_{NF(CM)} + GAR_{NF(CA)}$

As soon as the respective screening parameters have been defined for the other four environmental objectives according to the TR, the disclosure obligations will be extended to those as well.

Furthermore, the (GAR_{NF}) for non-financial undertakings can be spilt into asset-class specific GAR, i.e. Green Asset Ratios for loans and advances (GAR_{LA}), for debt securities (GAR_{DS}), equity holdings (GAR_{EH}) and repossessed collaterals (GAR_{RC}). All of them can be further split along the environmental objectives climate change mitigation and climate change adaptation (figure 2). In the following we concentrate on the aggregate version of the counterparty-specific GAR, which covers sustainable exposures pursuant to the TR and the Disclosure Delegated Act without differentiating along the environmental objectives.

The GAR_{LA} shall cover total loans and advances to non-financial undertakings, recognised under the accounting categories loans and advances at amortised cost, at fair value through other comprehensive income and loans and advances not held for trading at fair value through profit or loss. The GAR_{LA} is defined as the proportion of Taxonomy-aligned loans (LN_{TA}) aggregated over all counterparty-specific proportions of Taxonomy-aligned loans (LN_{TAi}) in relation to the sum of all loans and advances (LN_T) (equation 15). The respective proportions of enabling and transitional activities must also be disclosed.

(15) $$GAR_{LA} = \frac{LN_{TA}}{LN_T} = \frac{\sum_i LN_{TAi}}{\sum_i LN_i}$$

For each Taxonomy-aligned loan, one can distinguish between those loans that have a dedicated known use of proceeds and general-purpose loans whose use of proceeds is not specified. Depending on the proportion of Taxonomy-aligned uses of proceeds, one can designate up to 100% of the loan as Taxonomy-aligned, which may be the case for project funding facilities, for example. If more than one environmental objective is being addressed, the credit institution has to allocate the loan to the most relevant objective.

The partial GAR for debt securities (GAR_{DS}) has to be calculated analogously to the GAR_{LA}, which is equivalent to the sum of debt securities financing Taxonomy-aligned economic activities (DS_{TA}) including transitional and enabling activities in relation to the total debt securities (DS_T) of non-financial undertakings. Depending on the proportion of Taxonomy-aligned uses of proceeds, one can designate up to 100% of the debt security as Taxonomy-aligned, which may be the case for bonds issued according to the EU Green Bond standard,

for example. The figure is based on the gross carrying amount of debt securities at amortised cost and at fair value through other comprehensive income, and debt securities not held for trading at fair value through profit or loss (equation 16).

(16) $$GAR_{DS} = \frac{DS_{TA}}{DS_T} = \frac{\sum_i DS_{TAi}}{\sum_i DS_i}$$

Credit institutions shall also disclose separately the part of the KPI that refers to enabling and transitional activities. GAR_{DS} has to be calculated based on the Turnover KPI and the CapEx KPI as well as in a stock-and-flow version. A breakdown for enabling and transitional activities, and for specialised lending, has to be reported as well. Depending on the proportion of Taxonomy-aligned uses of proceeds, one can designate up to 100% of the debt security as Taxonomy-aligned, which is the case for bonds issued according to the EU Green Bond standard, for example.

The next partial GAR is the Green Asset Ratio for equity holdings of credit institutions in non-financial undertakings (GAR_{EH}), which reflects the proportion of equity holdings in non-financial undertakings performing Taxonomy-aligned economic activities (EH_{TA}) compared to total equity holdings in non-financial undertakings (EH_T) (equation 17).

(17) $$GAR_{EH} = \frac{EH_{TA}}{EH_T} = \frac{\sum_i EH_{TAi}}{\sum_i EH_i}$$

The numerator contains the gross carrying amount of the equity holdings not held for trading, including financial assets at fair value through other comprehensive income and financial assets at fair value through profit or loss and investments in subsidiaries, joint ventures and associates, conducting Taxonomy-eligible economic activities. The proportions are calculated based on the Turnover KPI and the CapEx KPI. The denominator represents the total gross carrying amount of the equity holdings in non-financial undertakings. The credit institution has to disclose the stock-and-flow version of the GAR_{EH} as well as a breakdown into enabling and transitional activities. The partial Green Asset Ratio for repossessed collaterals (GAR_{RC}) is defined in the same manner.

The relative proportions of the asset categories can be calculated as follows:

$$l = \frac{\sum_i LN_i}{TAC_{NF}};\ d = \frac{\sum_i DS_i}{TAC_{NF}};\ e = \frac{\sum_i EH_i}{TAC_{NF}};\ r = \frac{\sum_i RC_i}{TAC_{NF}};\ o = \frac{\sum_i OA_i}{TAC_{NF}} \text{ with } l + d + e + o = 1$$

or equally as:

$$l = \frac{LN_T}{TAC_{NF}};\ d = \frac{DS_T}{TAC_{NF}};\ e = \frac{EH_T}{TAC_{NF}};\ r = \frac{RC_T}{TAC_{NF}};\ o = \frac{OT_T}{TAC_{NF}} \text{ with } l + d + e + o = 1$$

Hence the GAR_{NF} can be formulated as a weighted average of asset-class-specific Green Asset Ratios (equation 18).

(18) $$GAR_{NF} = (GAR_{LA} \cdot l) + (GAR_{DS} \cdot d) + (GAR_{EH} \cdot e) + (GAR_{RC} \cdot r)$$

It can be concluded that the GAR_{NF} for non-financial undertakings can be segregated along the various products (equation 18) and the different environmental objectives (equation 14) or even a combination of both. Both dimensions allow investors to gain a better understanding of which parts of the business of the reporting credit institution are more or less sustainable in terms of the TR.

4.2.2 GAR for retail exposures

The Green Asset Ratio for retail exposures (GAR_{RE}) is another important component of the total Green Asset Ratio of a credit institution. The GAR_{RE} considers asset financing for private households, i.e. residential real estate loans (RLN_i), house renovation loans (HRL_i), each of them collateralised by mortgages, and car loans (CL_i). In order to be Taxonomy-aligned and thus qualifying for the GAR_{RE} the respective technical screening criteria pursuant to Annex I to the Climate Delegated Act need to be fulfilled, e.g. building renovations need to reduce primary energy demand (PED) of at least 30%, or cars need to fulfil very low or zero CO_2 emission standards. Other use cases include installation, maintenance and repair of charging stations for electric vehicles and devices for measuring, regulating and controlling the energy performance of buildings. The GAR_{RE} can then be calculated as the sum of the Taxonomy-aligned proportions of the respective types of loans ($RLN_{TAi}, HRL_{TAi}, CL_{TAi}$) in relation to the total retail exposures (equation 19)

(19) $$GAR_{RE} = \frac{GA_{RE}}{TAC_{RE}} = GAR_{RE} = \frac{\sum_i RLN_{TAi} + \sum_i HRL_{TAi} + \sum_i CL_{TAi}}{\sum_i RLN_i + \sum_i HRL_i + \sum_i CL_i}$$

It should be noted, that the GAR_{RE} is applied only to investments relevant for climate change mitigation and should include disclosures of stock and flow figures and the reporting of transitional activities. Similar to the GAR_{NF} the GAR_{RE} can be broken down into its loan-specific components, i.e. Green Asset Ratios for real estate loans (GAR_{RLN}), for housing renovation loans (GAR_{HRL}), and car loans (GAR_{CL}). These partial GAR cover exposures recognized under the accounting categories at amortised cost, at fair value through other comprehensive income and loans and advances not held for trading at fair value through profit or loss.

The GAR_{RLN} is defined as the proportion of Taxonomy-aligned real estate loans (RLN_{TA}) in relation to the sum of all real estate loans to retail customers (equation 20).

(20) $$GAR_{RLN} = \frac{\sum_i RLN_{TAi}}{\sum_i RLN_i}$$

The partial GAR for housing renovation loans GAR_{HRL} and for car loans GAR_{CL} can be calculated accordingly(equations 21 and 22).

(21) $$GAR_{HRL} = \frac{\sum_i HRL_{TAi}}{\sum_i HRL_i}$$

(22) $$GAR_{CL} = \frac{\sum_i CL_{TAi}}{\sum_i CL_i}$$

The relative proportions of the asset categories in relation to the total retail exposure are calculated as follows:

$r = \frac{\sum_i RLN_i}{TAC_{RE}}$; $h = \frac{\sum_i HRL_i}{TAC_{RE}}$; $c = \frac{\sum_i CL_i}{TAC_{RE}}$ with r+$h + c = 1$

Hence the GAR_{RE} can be formulated as weighted average of asset class specific GAR (equation 23).

(23) $$GAR_{RE} = (GAR_{RLN} \cdot r) + (GAR_{HRL} \cdot h) + (GAR_{CL} \cdot c)$$

It can be concluded that the GAR_{RE} for retail exposures can be segregated along the various products, which allows investors to gain a deeper insight into the sustainability of the retail business of a credit institution.

Without going into further details, it should be mentioned that credit institutions may have to disclose further partial GAR depending on the materiality of the underlying business segments. These may include a GAR reflecting the Taxonomy-aligned proportion of loans and advances financing public housing and other specialised lending to public authorities. Besides, credit institutions may need to disclose the proportion of Taxonomy-aligned commercial and residential repossessed real estate collateral compared to total commercial and residential repossessed real estate collateral. Information has to be provided for the stock of loans as of the disclosure reference date and the flows of new assets during the disclosure period.

4.2.3 GAR for exposures to financial undertakings

The GAR_{FU} can also be considered as the ratio between the cumulative proportion of loans and advances, debt securities and equity holdings towards financial undertakings GA_{FU} financing Taxonomy-aligned economic activities ("Green Assets") and the total loans and advances, debt securities and equity holdings of financial undertakings TAC_{FU} (equation 24).

(24) $$GAR_{FU} = \frac{GA_{FU}}{TAC_{FU}}$$

Furthermore, the GAR_{FU} needs to be amended by disclosures on contributions to climate change mitigation and climate change adaptation, including a breakdown for enabling activities. For climate change mitigation, the GAR shall also contain a breakdown into transitional activities and adaptation activities. Information on stock and flow of the exposures must also be disclosed.

The cumulative sum of green exposures to financial undertakings can be formulated as the sum of counterparty-specific green exposures for each type of financial undertaking, i.e. asset managers (GA_{AM}), investment firms (GA_{IF}), credit institutions (GA_{CI}), and insurance companies (GA_{IC}) (equation 25).

The same applies to the Total Assets Covered for financial undertakings (TAC_{FU}), which is the sum of counterparty-specific exposures covered, i.e. the exposures towards asset managers (TAC_{AM}), investment firms (TAC_{IF}), other credit institutions (TAC_{CI}) and insurance companies (TAC_{IC}) (equation 26).

(25) $$GA_{FU} = GA_{AM} + GA_{IF} + GA_{CI} + GA_{IC}$$

(26) $$TAC_{FU} = TAC_{AM} + TAC_{IF} + TAC_{CI} + TAC_{IC}$$

Therefore, the GAR_{FU} can be broken down into its counterparty-specific components, i.e. the Green Asset Ratios for the business with asset managers (GAR_{AM}), with investment firms (GAR_{IF}), other credit institutions (GAR_{CI}), and insurance companies (GAR_{IC}) with the following definitions (equations 27a to 27c):

(27a) $$GAR_{AM} = \frac{GA_{AM}}{TAC_{AM}}$$ (27b) $$GAR_{IF} = \frac{GA_{IF}}{TAC_{IF}}$$

(27c) $$GAR_{CI} = \frac{GA_{CI}}{TAC_{CI}}$$ (27d) $$GAR_{IC} = \frac{GA_{IC}}{TAC_{IC}}$$

In order to calculate the Taxonomy-aligned exposures of a credit institution towards other financial undertakings, the respective exposures need to be weighted against the suitable counterparty-specific KPI, i.e. the GAR disclosed by this counterparty. Although the detailed calculation of the GAR or the equivalent KPI of other financial undertakings is outside the scope

of this paper, some general remarks are useful to fully understand the GAR for credit institutions.

If the financial counterparty of the reporting credit institution is an asset manager, the Turnover KPI and the CapEx KPI, i.e. the reported GAR_{AMi} of this counterparty, will be multiplied by the gross carrying amount of debt securities, loans and advances and equity holdings of the reporting credit institution provided to the asset management firm i (in accordance with Annex III and IV to (C2021 4987)). The GAR_{AMi} in turn is calculated as the weighted average value of investments in Taxonomy-aligned economic activities of its investee companies in relation to the total value of investments.

It has to be taken into account that asset management companies have different types of investee companies, typically non-financial undertakings and other financial undertakings which may or may not include other asset management companies. Hence the proportion of Taxonomy-aligned assets managed by the asset management firm needs to apply Taxonomy alignment ratios that are published by the respective investees. Asset managers need to disclose the KPI both on an aggregate level and for each environmental objective separately, including a subset of transitional and enabling economic activities.

Where the counterparty of the reporting credit institution is an investment firm j, the calculation of the proportion of Taxonomy-aligned exposures towards that investment firm depends on the type of investment firm, i.e. investment firms dealing on their own account and other investment firms. For investment firms dealing on own account, the gross carrying amount of debt securities, loans and advances and equity holdings shall be weighted by the Turnover- and CapEx-based Green Asset Ratio (GAR_{IFj}) disclosed by the investment firm j for each environmental objective. The proportions of transitional and enabling activities have to be reported as well. Hence, the GAR_{IFj} represents the value of Taxonomy-aligned investments in relation to the overall investments of investment firm j. For investment firms other than those dealing on own account, the gross carrying amount of debt and equity exposures has to be weighted by the proportion of revenues (e.g. fees, commissions) from services to Taxonomy-aligned economic activities in relation to total revenues (C2021 4987, Annex VII, VIII).

The KPIs to be disclosed by insurance companies differentiate between their investment activities and their underwriting activities. With regard to investment activities, the Turnover-based and CapEx-based KPIs, i.e. the respective Green Asset Ratios (GAR_{ICl}) have to be based on the weighted average of those investments (e.g. investments in collective investment undertakings, participations, loans and mortgages) that are used for funding, or are associated with Taxonomy-aligned economic activities (in accordance with Annexes X and XI to C2021 4987). Insurance and reinsurance undertakings other than life insurance undertakings have to calculate the KPI related to underwriting activities as the proportion of revenues corresponding to Taxonomy-aligned insurance or reinsurance activities (in accordance with points 10.1. and 10.2. of Annex II to the Climate Delegated Act) in relation to the total revenues generated by those services. These include revenues from e.g. medical expense insurance, income protection insurance, workers' compensation insurance, motor vehicle liability insurance or fire and other damage to property insurance. The disclosures shall be broken down by environmental objective as well.

If the counterparty is another credit institution, the total GAR to be disclosed by the respective credit institution k (GAR_{CIk}) has to be applied (in accordance with Annex V to C2021 4987). The GAR_{CIk} shall reflect the cumulative value of all environmentally sustainable exposures to non-financial undertakings, financial undertakings and retail exposures in relation to the total on-balance-sheet assets (excluding exposures referred to in Article 7(1)). Taxonomy-aligned proportions of loans to local governments for house financing and other specialised lending as well as commercial and residential repossessed real estate collateral held for sale are also included in the numerator of GAR_{CIk}. The percentage of assets that are excluded from the

numerator of the GAR_{CIk} has to be reported as well (in accordance with Article 7(2) and (3) and Section 1.1.2 of Annex V of C2021 4987).

We now demonstrate how the exposures of a credit institution towards financial undertakings can be disaggregated, in order to enhance the transparency of the structure and different components of the Green Asset Ratio of financial undertakings.

We define GA_{AMi}, GA_{IFj}, GA_{CIk}, GA_{ICl} as the Taxonomy-aligned exposures of asset management firm i, investment firm j, and credit institution k and TAC_{AMi}, TAC_{IFj}, $TAC_{CIk,}$ TAC_{ICk} as the corresponding counterparty-specific total assets covered. The following equations 28a to 28d then apply as the counterparty-specific green assets can be further broken down into their individual exposures towards an individual counterparty.

(28a) $GA_{AM} = \sum_i GA_{AMi} \qquad TAC_{AM} = \sum_i TAC_{AMi}$

(28b) $GA_{IF} = \sum_j GA_{IFj} \qquad TAC_{IF} = \sum_j TAC_{IFj}$

(28c) $GA_{CI} = \sum_k GA_{CIk} \qquad TAC_{CI} = \sum_k TAC_{CIk}$

(28d) $GA_{IC} = \sum_l GA_{ICl} \qquad TAC_{IC} = \sum_k TAC_{ICk}$

GA_{FU} and TAC_{FU} can be formulated as follows (equations 29 and 30):

(29) $GA_{FU} = \sum_i GA_{AMi} + \sum_j GA_{IFj} + \sum_k GA_{CIk} + \sum_l GA_{ICl}$

(30) $TAC_{FU} = \sum_i TAC_{AMi} + \sum_j TAC_{IFj} + \sum_k TAC_{CIk} + \sum_l TAC_{ICl}$

The following definitions (equations 31a to 31d) hold, as the counterparty-specific GAR_{AMi}, GAR_{IFj}, GAR_{CIk}, GAR_{ICl} have to be disclosed by the respective financial undertakings according to the Taxonomy Regulation and the Disclosure Delegated Act. The Taxonomy-aligned counterparty-specific exposures are defined as the sum of the financial exposures covered, e.g. the loans and advances granted to asset management firm i (LN_{AMi}, DS_{AMi}, EH_{AMi}) multiplied by the counterparty-specific KPI disclosed by asset management firm i (GAR_{AMi}).

(31a) $GA_{AMi} = (LN_{AMi} + DS_{AMi} + EH_{AMi}) \cdot GAR_{AMi}$

(31b) $GA_{IFj} = \left(LN_{IFj} + DS_{IFj} + EH_{IFj}\right) \cdot GAR_{IFj}$

(31c) $GA_{CIk} = (LN_{CIk} + DS_{CIk} + EH_{CIk}) \cdot GAR_{CIk}$

(31d) $GA_{ICl} = (LN_{ICl} + DS_{ICl} + EH_{ICl}) \cdot GAR_{ICl}$

The GAR per group of counterparties, i.e. for all asset managers, investment firms, credit institutions and insurance companies, can also be calculated. For instance, the GAR_{AM} covering all exposures to asset management companies is equivalent to the weighted average sum of the counterparty-specific Green Asset Ratio disclosed by asset management firm i (GAR_{AMi}). The weighting factors represent the proportion of the total exposure towards asset management company i (TAC_{AMi}) in relation to the cumulative exposures to all asset management counterparties (TAC_{AM}) (equations 32a to 32d).

Similarly, the GAR for exposures towards investment firms represents the weighted average sum of the counterparty-specific GAR_{IFj}, while the weighting factor reflects the proportion of

the total exposure towards investment firm j (TAC_{IFj}) in relation to the total exposure to all investment firms (TAC_{IF}). The analogue methodology is applied to the counterparty-specific GAR for the group of credit institutions GAR_{CI} and insurance/reinsurance companies GAR_{IC}.

(32a) $GAR_{AM} = \sum_i GAR_{AMi} \cdot \alpha_i$ with $\alpha_i = \frac{TAC_{AMi}}{TAC_{AM}}$

(32b) $GAR_{IF} = \sum_i GAR_{IFj} \cdot \beta_j$ with $\beta_j = \frac{TAC_{IFj}}{TAC_{IF}}$

(32c) $GAR_{CI} = \sum_i GAR_{CIk} \cdot \gamma_k$ with $\gamma_k = \frac{TAC_{CIk}}{TAC_{CI}}$

(32d) $GAR_{IC} = \sum_i GAR_{ICl} \cdot \delta_l$ with $\delta_l = \frac{TAC_{CIl}}{TAC_{CI}}$

The relative proportions of Taxonomy-aligned assets of the respective group of counterparties (asset managers, investment firms, credit institutions, insurance/reinsurance companies) in relation to the cumulative value of green assets of all financial undertakings can be defined as follows (equations 33a to 33d).

(33a) $am = \frac{GA_{AM}}{GA_{FU}}$ (33b) $if = \frac{GA_{IF}}{GA_{FU}}$ (33c) $ci = \frac{GA_{ci}}{GA_{FU}}$ (33d) $ic = \frac{GA_{ic}}{GA_{FU}}$

With $am + if + ci + ic = 1$

Similarly, the relative proportions of total assets of the respective group of counterparties in relation to the cumulative value of total assets of all financial undertakings can be defined as follows (equations 34a to 34d).

(34a) $a = \frac{TAC_{AM}}{TAC}$ (34b) $f = \frac{TAC_{IF}}{TAC}$ (34c) $c = \frac{TAC_{ci}}{TAC}$ (34d) $i = \frac{TAC_{ic}}{TAC}$

With $a + f + c + i = 1$

Based on these calculations, the GAR covering all financial undertakings as counterparties GAR_{FU} is equivalent to the weighted sum of counterparty-specific Green Asset Ratios. The weighting factors represent the relative proportion of counterparty-specific total assets in relation to the total assets invested in financial undertakings (equation 35).

(35) $GAR_{FU} = GAR_{AM} \cdot a + GAR_{IF} \cdot f + GAR_{CI.} \cdot c + GAR_{IS} \cdot i$

Like the Green Asset Ratios for non-financial undertakings and for retail exposures, the GAR_{FU} for financial undertakings needs to provide separate disclosures for the environmental objectives climate change mitigation and climate change adaptation, with a breakdown for enabling activities. For climate change mitigation, the GAR shall also contain disclosures of transitional activities and adaptation activities. For each environmental objective, credit institutions have to give information on the respective stock of assets as of the respective reporting date and the respective change of assets during the reference period (flow perspective).

Finally, it should be noted that the total Green Asset Ratio of a credit institution (GAR_T) can be formulated as the weighted sum of the partial Green Asset Ratios towards non-financial undertakings (GAR_{NF}), retail exposures (GAR_{RE}) and financial undertakings (GAR_{FU}), whereby the weighting factors represent the respective counterparty-specific exposures in relation to

the overall exposures of the reporting credit institution. It should be noted that only on-balance-sheet exposures are taken into account, with the exclusion of some exposures, e.g. from derivatives, central banks and other sovereign institutions (equation 36).

(36) $$GAR_T = (GAR_{NF} \cdot \frac{TAC_{NF}}{TAC}) + (GAR_{RE} \cdot \frac{TAC_{RE}}{TAC}) + (GAR_{FU} \cdot \frac{TAC_{FU}}{TAC})$$

4.3 Discussion of the Green Asset Ratio

Various regulatory initiatives in the EU aim to improve transparency in relation to the sustainability of economic activities. This concerns the alignment of financial products with sustainability objectives as well as the extent to which the business activities of non-financial or financial undertaking are sustainable. Therefore, specific KPIs have been defined that need to be disclosed on a regular basis by undertakings to allow stakeholders, such as investors, rating agencies or the general public, to understand the level and development of the sustainability of the respective activities. For credit institutions, the Green Asset Ratio has been established as a KPI for measuring the proportion of Taxonomy-aligned on-balance-sheet exposures in relation to its total exposure. Credit institutions are expected to report not only one aggregated GAR, but also disaggregated figures differentiating between environmental objectives and type of counterparty. Hence stakeholders will obtain detailed information on which business activities show a relatively high or low degree of sustainability and how these figures develop over time. However, the complex design of the disclosure obligations will create significant additional costs of collecting, evaluating and reporting sustainability data for financial and non-financial undertakings.

On the other hand, one needs to take into account some limitations and weaknesses of the GAR in its current version. Firstly, the scope of the GAR for credit institutions is somewhat limited. For instance, so far it only covers non-financial and financial undertakings that are subject to the NFRD. Furthermore, it should be noted that the GAR per definition relates solely to on-balance-sheet exposures. Hence KPIs for off-balance-sheet activities, e.g. generating fee and commissions income, need to be considered together with the GAR in order to get a more complete picture of the sustainability profile of a credit institution. Furthermore, the GAR is based on the precise definition of sustainability pursuant to the TR and the related delegated acts. This means that so far only the two environmental objectives “climate change mitigation” and “climate change adaptation” are covered. Conversely, other environmental objectives are so far not included, and the same applies to the social and governance dimensions of ESG. This will change in the foreseeable future, once the Environmental Delegated Act and the Social Taxonomy have been adopted.

5. Conclusions

In summary, it can be said that the detailed reporting requirements provide manifold insights into the degree of Taxonomy-aligned activities of credit institutions. The breakdown of the total GAR by type of counterparty, environmental objective and type of asset allows stakeholders to conduct an analysis of the sustainability of the particular credit institution along different dimensions. This information, which has been so far not available for most credit institutions, may also initiate discussions between management and shareholders or other stakeholders regarding the future sustainability strategy of credit institutions. The enhanced disclosure requirements could also boost the importance of non-financial performance indicators in general, for instance if sustainability ratings attain a level of importance comparable to credit ratings. Furthermore, credit institutions will face the challenge of integrating the GAR and its drivers into their credit decision and controlling processes.

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