Disclosure of Bank Fossil Fuel Exposures

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1. Introduction

Climate change is set to dramatically impact both financial markets and the wider economy. Most immediate risks that stem from climate change, relate to the risk of physical changes such as extreme weather events or alteration of climate patterns and the implied risk of economic impact and damages from such events. However, the impact of the transition to a low carbon economy manifests itself also in an alteration of the financial viability of a part of the capital stock and business models, particularly impacted are fossil-fuel companies and other high-carbon projects.

To meet the Paris Agreement goal to limit global warming to 2C or less, a major fraction of existing world fossil fuel reserves must go unburned (McGlade and Ekins, 2015). They calculate that globally, a third of oil reserves, half of gas reserves and over 80% of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2C. This would make obsolete billions of dollars of existing and planned investments in oil, gas and

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coal as these resources are stranded (Carbon Tracker Initiative, 2017). "Stranded assets" are assets at risk of becoming obsolete from unanticipated or premature write-offs, downward revaluation or being converted to liabilities due to regulatory or environmental changes. Ongoing policy initiatives to move to cleaner technology in the near future and increasing climate change awareness accelerate the process in which firms with fossil fuel reserves will lose economic value.

In this context, fossil fuel stranded assets - e.g., coal mines, oilfields, and gas reserves - are a cause of financial stability concern. As the world moves towards a target of net zero carbon emissions, energy companies may see that large parts of their oil, gas and coal reserves will never be extracted and hence loose value. The more ambitious the timeline to move towards net zero carbon emissions, the less fossil fuels will be extracted.

Many financial institutions have warned that an abrupt and coordinated increase in carbon prices could cause a major shock to fossil fuel valuation, with the potential for systemic risk. A carbon bubble is a hypothesized bubble in the valuation of firms that heavily depend on fossil fuels as inputs in their production processes, such as those active in the oil, gas, and coal industry (Delis, de Greiff, Iosifidi, and Ongena, 2021; Atanasova and Schwartz, 2019). Yet Beyene, De Greiff, Delis, and Ongena (2021) show that banks continue to provide financing to fossil fuel firms that the bond market would not finance as long as they do not price the risk of stranded assets. Hence stranded assets risks may have shifted to large banks.

Paramount in this whole setting is the possible lack of information on both firm and bank exposures to the risk that fossil fuel reserves may become stranded. Hence therefor in this paper we review the information sources and disclosure regime of firm and bank fossil fuel exposures.

2. Information Sources on banks' fossil fuel exposure

2.1. Disclosure of Fossil Fuel Exposure and Main Challenges

It is widely acknowledged that the disclosure of climate risks is an important driver in curbing global greenhouse gas emissions and achieving the goals of the 2015 Paris Agreement. High-quality information on firms'

climate risk exposures is critical for informed investment decisions as well as the appropriate pricing and management of these risks (Daniel, Litterman, and Wagner, 2016; Krueger, Sautner, and Starks, 2020). There is considerable evidence that investors value and demand climate risk disclosures and that the environmental, social, and governance performance of firms is strongly influenced by disclosure (Ilhan, Krueger, Sautner, and Starks, 2021). Moreover, with climate change increasingly considered to be a danger to the financial system, regulators across the globe have become concerned with the need for sound and consistent climate-related disclosure to protect financial stability (Financial Stability Board, 2021).

This growing demand for reliable information on transition risks led in recent years to the establishment of several climate change-related disclosure initiatives such as the Task Force on Climate-related Financial Disclosures (TCFD) or the CDP Financial Services Questionnaire. These voluntary initiatives generally aim to provide consistent climate-related financial risk disclosures to stakeholders. Regulatory efforts encourage climate-risk disclosures as well, some of them directly addressing financial institutions. For example, the UK is to enforce mandatory TCFD reporting from April 2022 on for large companies. Other jurisdictions that have already undertaken steps as well towards government-mandated disclosure for financial institutions are France, New Zealand, and Switzerland (Financial Stability Board, 2021; Mésonnier and Nguyen, 2021). Further, central banks and monetary authorities have been intensifying quantitative work aimed at capturing climate-related risks to financial stability (Basel Committee on Banking Supervision, 2021).

Challenges related to lack of data and assessment methods complicate accurate monitoring and mapping of the financial system exposures stranded assets risks. From a general public, as well as regulatory, perspective, quantifying financial institutions' fossil fuel exposure is limited by a lack of publicly usable data. Stranded asset risks are almost invisible in corporate reports of financial institutions. The current sustainability reporting commonly focuses on greenhouse gas emissions and largely does not dictate any metrics that need to be reported with respect to the exposure to fossil fuel reserves and the fossil fuel sector. In principle, financial institutions themselves generate little or no greenhouse gas emissions in their day-to-day business, however, end-user scope 3 emissions from financing provided to

fossil fuel firms provide needed insights into the impact of the financed fossil fuel procurements. Particularly, a focus on scope 3 emissions reporting by financial institutions with regard to the fossil fuel sector is material in the context of assessing risk given that much of the global stock of carbon emissions can be traced to a small number of upstream fossil fuel firms (Ilhan, Sautner, and Vilkov, 2021).

To assess the underlying fossil fuel exposure on a transaction level for banks that lend to, insurers that underwrite, and asset managers that invest in fossil fuel businesses, relevant information includes the greenhouse gas emissions profile, type, location, expected lifetime, and cost of production of the underlying fossil fuel asset (Fulton and Weber, 2015). This data required to link financing to stranded assets risks are often not readily available and financial institutions may need to collect data from fossil fuel firms public information or client questionnaires in order to be able to assess these risks.

Mapping fossil fuel exposure to stranded assets risk is a complex task. A proxy metric for the risk of stranded assets based on underlying fossil fuel reserves needs to consider current and future public policies, potential technology changes, and customer sentiment. Most importantly, financial institutions' level of risk will depend on the regulatory and policy settings in a range of different jurisdictions. These assessment difficulties may exacerbate stranded assets risk and require particular guidance on how risk disclosure should be approached in this context. In any case, to achieve an assessment of stranded assets risk, the importance of effective disclosure from and monitoring of fossil fuel firms is immediate. Actual or expected changes in policy, technology, or the threat of litigation could prompt a rapid reassessment of the value of a large range of assets as changing costs and opportunities become apparent (Zenghelis and Stern, 2016). Overall, there is still not sufficient disclosure on unburnable carbon by the fossil fuel sector (Griffin and Myers Jaffe, 2018). For this reason, it appears that banks compared to other financiers are better suited to effectively assess stranded assets risks associated with debt or an investment portfolio. Nevertheless, Beyene et al. (2021) present evidence that banks in the syndicated loan market price the risk that assets held by fossil fuel firms strand less than the bond market.

Metrics for stranded assets, carbon footprint, or carbon intensity allow to better understand potential risks on a portfolio or firm level. Dedicated climate

stress tests may be applied to evaluate the impacts of plausible environmental scenarios on, portfolios, institutions, and even financial markets as a whole. Such stress tests would also contribute to the safety and soundness of the financial system as the outcome may ultimately inform supervisory actions. For example, the European Central Bank is running an economy-wide climate stress test, which has been developed to assess the resilience of non-financial corporates (NFCs) and euro area banks to climate risks, under various assumptions in terms of future climate policies (Alogoskoufis, Dunz, Emambakhsh, Hennig, Kaijser, Kouratzoglou, Muñoz, Parisi, and Salleo, 2021). However, climate-stress testing methods that look at the exposure of investors require data that are often absent or of too low a resolution, and hard to access for researchers outside financial regulatory bodies.

In the following subchapters, we provide an overview of what sources of information are available to gauge the exposure of banks and, if possible, that of other financial institutions towards fossil fuel companies, and to what extent can that information be extracted from sources of mandatory disclosure.

2.2. Climate-Related Financial Disclosures

2.2.1. Voluntary Climate Action Initiatives and Fossil Fuel Exposure Disclosure Commitments

The most prominent example of a climate change-related disclosure initiative is the Task Force for Climate-related Financial Disclosure (TCFD), a global initiative that has been first implemented by the G20's Financial Stability Board in 2015. A key element of the Task Force's mission was the development of climate-related disclosures that "would enable stakeholders to understand better the concentrations of carbon-related assets in the financial sector and the financial system's exposures to climate-related risks" (Financial Stability Board (2015)).

In 2017, the TCFD released for the first time its framework with a set of comprehensive recommendations and guidance on climate-related financial disclosures applicable to organizations across sectors and jurisdictions (Task Force on Climate-related Financial Disclosures, 2017; Task Force on Climate-related Financial Disclosures, 2020).

The Framework includes detailed recommendations on governance, strategy, risk management, and metrics and targets. In addition, the TCFD

offered supplemental guidance for the financial as well as certain other sectors. With regards to disclosures on carbon-risk-related metrics; financial institutions are asked to report on more than just greenhouse gas emissions. Task Force recommends **asset owners** and **asset managers** to report a weighted average carbon intensity metric, although some asset managers effectively may be able to report weighted average carbon intensity for only a portion of the assets they manage given data availability and methodological issues. The same holds for **insurance companies'** investment activities. **Banks** should provide the metrics used to assess the impact of (transition and physical) climate-related risks on their lending and other financial intermediary business activities in the short, medium, and long term and should also provide the amount and percentage of carbon-related assets relative to total assets as well as the amount of lending and other financing connected with climate-related opportunities (Task Force on Climate-related Financial Disclosures, 2017).

Today, the TCFD framework has somewhat become a global standard, having gained traction among public companies - over 2,300 non-financial and financial organizations officially support the TCFD. Moreover, governments have started to build on the TCFD to implement mandatory disclosure requirements. Recently, New Zealand, the United Kingdom, and Switzerland announced that TCFD reporting would become mandatory in their jurisdictions.

Bingler, Kraus, and Leippold (2021) explore whether voluntary reporting within the framework of the TCFD had a significant impact on disclosures of TCFD-supporting companies, or if it needs to be made mandatory. They come to the conclusion that firm's announcing TCFD support does not lead to an increase in disclosures as firms cherry-pick to report primarily non-material climate risk information, disclosures on strategy and metrics and targets are generally lower. It has become increasingly clear that the voluntary sustainable-finance mandates backed by financial intermediaries need to be significantly more stringent than they are today.

CDP (formerly the Carbon Disclosure Project) is a UK-based organization that polls investor-requested companies worldwide each year about their carbon footprint, climate risks, and climate protection strategies. Over 300 financial institutions have been already reporting to CDP as of 2021. Key takeaways from the 2020 CDP questionnaires for the finance industry are that

only about 25% of disclosing financial institutions report their financed emissions – 84 financial institutions worth US$27. Furthermore, only about half of the responding banks and asset managers and only less than 30% of insurers are taking action to align lending portfolios with a net-zero carbon world. Overall, the disclosure made to CDP also hints that institutional investors may be underestimating their climate-related risks. (CDP, 2021))

Along with voluntary reporting initiatives, common standards have been emerging that quantify the emissions financed by financial institutions and the impact of climate change on the industry's portfolios and may enable a standardized way to assess climate-related risks in line with the TCFD and other disclosure regimes. The **PCAF Global Greenhouse Gas Accounting and Reporting Standard for the Financial industry** provides detailed methodological guidance to measure and disclose emissions for specific asset classes.[25] The **Science Based Targets initiative (SBTi)** released its **Financial Sector Science-Based Targets Guidance** that aims to enable companies to set emission reduction targets in line with leading climate science. To date, more than 70 financial institutions have publicly committed to set emissions reduction targets through the SBTi (Science-Based Targets initiative (SBTi), 2021).

In recent years, new efforts have emerged within the financial sector to coordinate climate actions for financial institutions and commit to align their lending and investment portfolios with net-zero emissions by 2050. These high-profile initiatives have made it harder for financial institutions to escape inaction. Among other things members of Net-Zero Alliances commit to establish an emissions baseline and annually measure and report the emissions profile of their portfolios and investment. Signatories also commit to transparent and rigorous accountability. As of December 2021, the **Net-Zero Banking Alliance** counts 95 members from 39 countries,[26] representing 43% of global banking assets equivalent to US$ 66trn. The **Net-Zero Insurer Alliance** is joined by 15 global insurers.[27] The **Net-Zero Asset Owner Alliance currently consists of 69** institutional investors representing over $10.4 trillion in assets under management. The **Net Zero Asset Managers**

25. https://carbonaccountingfinancials.com/standard
26. https://www.unepfi.org/net-zero-banking/
27. https://www.unepfi.org/net-zero-insurance/

Initiative counts 220 signatories and represents $57 trillion in assets under management.[28] Signatories generally are supposed to support TCFD reporting and submit reports through the PRI and/or CDP platforms. The Glasgow Financial Alliance for Net Zero (GFANZ), chaired by Mark Carney, UN Special Envoy on Climate Action and Finance, unites financial institutions from the leading net-zero initiatives across the financial system. As of November 2021, GFANZ is joined by over 450 firms that are together responsible for assets in excess of US$130 trillion.[29]In the context of these wide range commitments to net-zero across governments and financial institutions, Bolton, Kacperczyk, and Samama (2021) suggest that regulators could require that systemically important institutions estimate and report their carbon pathways to determine systemic execution risk associated with the necessary alignment of carbon emissions with global net-zero targets.

2.2.2. Mandatory Fossil Fuel Exposure Disclosure Commitments

Regulators are increasingly considering implementing mandatory carbon risk-related disclosures for financial institutions. **Article 173-VI of French TECV law**, for Transition Energétique et Croissance Verte (Energy Transition and Green Growth) that passed in 2015 and entered into force in January 2016 pioneered such government initiative.[30] **Article 173-VI** of the law imposes - although on a comply-or-explain basis - climate-change and more general ESG reporting requirements on institutional investors registered in France and concerns all asset classes. In particular, it requires investors to report in their annual reports information on how they integrate ESG into their investment processes, on the integration of climate change-related risks - hence including stranded asset risks, on the alignment of voluntary decarbonisation targets with national and international goals. Investors are generally free to choose their preferred evaluation methodologies.[31]

Mésonnier and Nguyen (2021) assess the effect of the introduction of Article 173-VI focusing on euro area investors' holdings of bonds and stock

28. https://www.netzeroassetmanagers.org
29. https://www.gfanzero.com/progress-report/
30. https://www.legifrance.gouv.fr/eli/loi/2015/8/17/DEVX1413992L/jo#JORFARTI000031045547, 17 August 2015
31. https://www.unepfi.org/fileadmin/documents/PRI-FrenchEnergyTransitionLaw.pdf

issued by firms in the fossil energy industry. They show that imposing climate-related disclosures on financial institutions actually leads them to divest themselves of these carbon-intensive securities. However, the comply-or-explain principle, provides investors with broad flexibility, resulting in many of the financial services companies to not meet expectations with regards to reporting changes.[32]

The UK government is the first of soon to be several governments to implement mandatory TCFD reporting. Financial Conduct Authority (FCA)-regulated asset managers and asset owners - including life insurers and pension providers - will have to disclose how they take climate-related risks and opportunities into account in managing investments. The implementation of the rule will be staggered, hence from 1 January 2022 the rule will come to effect for the largest firms with more than £50 billion in assets under management (or £25 billion assets under administration for asset owners) will, while it will be becoming into effect for smaller firms one year later.[33]

New Zealand's **Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 (FSAA)** will prospectively require large financial organisations to disclose climate risks in line with TCFD recommendations. The new law will require around 200 large financial institutions covered by the FMC Act, including large registered banks, managers of registered investment schemes, licensed insurers, as well as most listed issuers, licensed insurers, and managers of investment schemes to start making climate-related disclosures for financial years commencing in 2023, with disclosures being made in 2024 at the earliest. A comply-or-explain approach creates exceptions from compliance.[34]

Switzerland is also gearing to implement binding TCFD reporting for large Swiss firms, including banks and insurance companies. The binding implementation of the TCFD recommendations is expected to take place from

32. https://www.i4ce.org/download/article-173-overview-of-climate-related-financial-dislosure-after-two-years-of-implementation/
33. https://www.fca.org.uk/publication/policy/ps21-24.pdf
34. https://www.mbie.govt.nz/about/news/climate-related-disclosures-bill-passes-third-reading/ https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/mandatory-climate-related-financial-disclosures/

2024 for the 2023 financial year; the Finance Ministry is set to prepare a legal text on mandatory reporting by the end of summer 2022.[35]

While New Zealand, the UK, and Switzerland have implemented or announced that they will implement mandatory TCFD reporting, the EU is expectedly also on track to align sustainability reporting with TCFD recommendation. In April 2021, the European Commission adopted a proposal for the new Corporate Sustainability Reporting Directive (CSRD), which would introduce more detailed sustainability reporting requirements that are to be developed in consideration of existing standards such as the TCFD.[36]

Table 1 provides an overview of the financial institutions' main fossil fuel disclosure commitments.

2.3. Information from Financial Databases

In addition to the voluntary and binding disclosure discussed in the previous sections, investments in debt securities and stocks issued by fossil energy companies can be tracked via financial databases gathered by commercial data providers.

Equally important syndicated bank loans issued by fossil fuel firms can be tracked via DealScan from Refinitiv Loan Connector (in this context see for example their usage by Benincasa, Kabas, and Ongena (2021)). Other than banks, various types of institutional investors partake in syndicated bank loans despite having different costs and hence return expectations of providing debt capital. In contrast to traditional single-lender loans, syndicated loans are jointly extended by a group of lenders and are structured, arranged, and administered by one or several lead arrangers, that negotiate the key terms of the loans. As Figure 1 shows, this exposure to fossil fuel firms has not been decreasing much, an assessment that is consistent with more comprehensive credit data (in various ways) collected in Rainforest Action Network (2021) for example. To collect individual bilateral bank to firm credit exposures one needs access to the European Central Bank's AnaCredit and/or to national credit registers.

35. https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-84741.html
36. https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en

While bank exposures to fossil fuel firms are one element of exposure to stranding risk, another one is the policy stringency of the countries where the fossil fuel reserves are located, the fossil firms are headquartered, and/or the fossil fuels are sold. To this end, Delis et al. (2021) and Beyene et al. (2021) measure climate policy risk with the Climate Change Performance Index by Germanwatch (see Burck, Marten, Bals, Hagen, Frisch, Höhne, and Nascimento, 2018) which is available for the period 2007-2017 for 58 countries. They both also use an alternative index called the Climate Change Cooperation Index by Bernauer and Böhmelt (2013) which evaluates countries' overall climate policy performance, as well as performance in terms of political behavior (output) and emissions (outcome). However, this index only covers the period 1996-2014 (for up to 172 countries). In their work they find these two indices to perform quite similarly.

3. Conclusion

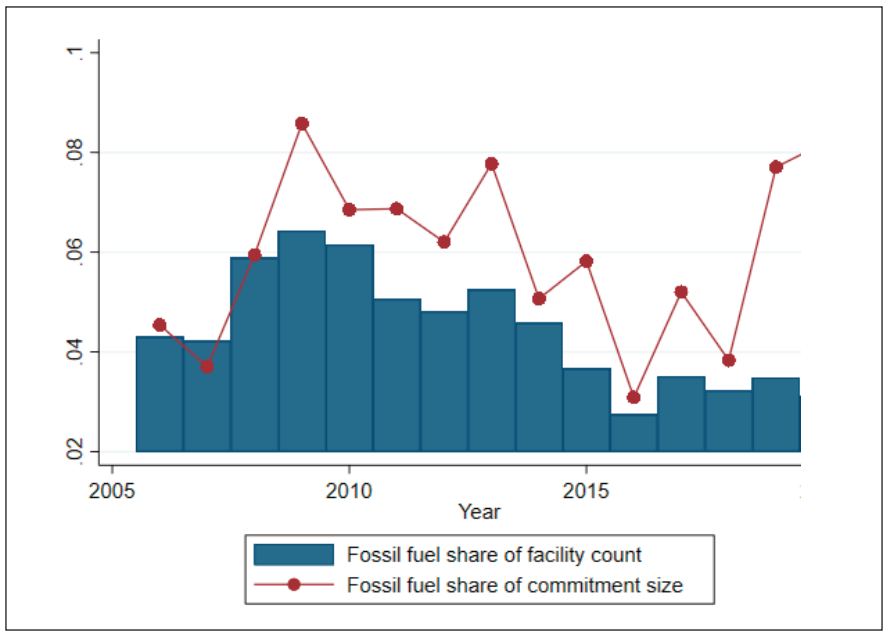
We think banks and other financial institutions may actually need enhanced international agreements on the proper accounting practices for carbon so that these institutions can all measure their progress towards net-zero the same way. At this stage unfortunately no institution can be entirely sure how much carbon the non-financial companies are producing because the data simply is not readily and universally available.

In this context it is promising to note that reporting on climate change risk under consideration of carbon risk is gaining traction, with ever more implementations triggered by voluntary disclosure commitments and recent government mandated reporting requirements. In this context, the Task Force on Climate-related Financial Disclosures (TCFD) recommendations are the first in line to become the much-needed global standards. Important to note however that there is first (somewhat worrying) evidence that voluntary commitments and comply-or explain approaches may not suffice to avoid climate cheap talk.

Stranded assets risk is complex to evaluate as it cannot be observed. Stranded assets risks are difficult to quantify; sound and consistent disclosure requirements are therefore essential to counteract jurisdictional differences/uncertainty as well

as for the oversight of cross-border risks by financial authorities to protect financial stability. The current disclosure initiatives do not dictate what needs to happen in the fossil-fuel sector and are inclined more towards target-setting, and corporate engagement; this reliance on corporate reporting may be contributing to the current inertia in the financial sector.

Figure 1. Commercial Bank Exposure to Fossil Fuel Firms in DealScan



Notes: Figure 1 shows the total share of facilities extended to the fossil fuel sector relative to the total count of facilities provided by loan syndicates with at least one commercial bank. Similarly, Figure 1 also shows the fossil fuel share of the total commitment size of Dealscan facilities provided by loan syndicates with at least one commercial bank.

Table 1. Overview of Financial Institutions' Main Fossil Fuel Disclosure Commitments

	Financial institutions	Total FI assets under management	Disclosure Commitments	Starting Date	Type
TCFD	As of October 2021, 1'069 financial institutions have Supported TCFD	$194 trn	Recommendations on reporting on climate-change risk related governance, strategy, risk management, and metrics and targets	2017	Voluntary disclosure
CDP Financial Services Questionnaire	Diverse group of 332 financial institutions (incl. asset managers, asset owners, insurers and banks)	$109 trn	Self-reported data on climate performance (including financed emissions)	2002	Voluntary disclosure
French Article 173 -VI of the TECV law	Institutional investors (but **not banks**) registered in France[i]	€ 2.2 trn	Reporting on ESG criteria, climate change-related risks, and decarbonization targets	January 2016	Mandatory comply-or-explain
UK FCA Rules on Climate-Related Disclosures	Asset managers, life insurers and FCA-regulated pension providers	£ 12.1 trn	Disclosures in relation to climate-related risks and opportunities in line with TCFD recommendations	January 2022 (initially for largest firms)	Mandatory
New Zealand's Financial Sector (Climate-related Disclosures and Other Matters) Amendment Act 2021 (FSAA)	200 large financial institutions covered by the FMC Act	90% of assets under management in New Zealand	Disclosures in relation to climate-related risks and opportunities in line with TCFD recommendations	January 2023	Mandatory comply-or-explain
Binding TCFD implementation for large Swiss companies	Public and private companies with over 500 employees, over CHF20 million or CHF40 million in annual turnover	N/A	Disclosures in relation to climate-related risks and opportunities in line with TCFD recommendations	(expectedly) January 2023	(expectedly) Mandatory

Notes. [i] Smaller investors, defined as those with a total balance sheet (or belonging to a group with a total balance sheet) of less than €500m, only must provide a general overview of how they integrate ESG factors.

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