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Climate Challenges and Financial Institutions: An Overview of the Polish Banking Sector's Practices

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Abstract:

Purpose: *The article aims to present the key European Union activities aimed at transforming the economy and the resulting challenges for businesses, as well as examples of international initiatives to assist businesses in meeting these challenges.*
Design/Methodology/Approach: *Unfortunately, advances in technology and the resulting growth of the global economy have had a significant and negative impact on the global environment. Increasing demand for energy produced by burning fossil fuels has led to such non-renewable raw materials becoming more and more limited and directly translated into increased emissions of greenhouse gases, including carbon dioxide. Data cited by Our World in Data [2020] shows that the global consumption of energy generated through fossil fuel combustion has increased by as much as 170% over 50 years (1969-2019) – from 50 to 136 TWh. The amount of carbon dioxide generated from fuel combustion and cement manufacturing has increased by 165% over the same period – from nearly 14 billion to 36 billion tonnes annually. The main part of the article is a review of the market practices of Polish financial institutions and their methods of responding to these challenges in the first quarter of 2021.*
Findings: *The Task Force for Climate Disclosure recommendations emphasize that disclosures should be prepared according to the seven principles for effective disclosure, which outline the minimum disclosure standard, Relevance, Specificity and completeness, Clarity and balance, Comparability between reporting periods, Comparability with disclosures of other entities, Reliability, objectivity, verifiability, Cyclicality.*
Practical Implications: *Economic development has made it possible to improve the quality of life for people in many parts of the world. This was – and still is – thanks to constant technical progress, which began in earnest with the English Industrial Revolution, but only gained full momentum in the 20th century.*
Originality/Value: *The study is a detailed presentation of procedures, directives and decisions related to climate challenges in the Polish banking sector.*

Keywords: *Paris Agreement, sustainable development, ESG (Environmental, Social and Governance).*

Research type: *Research article.*

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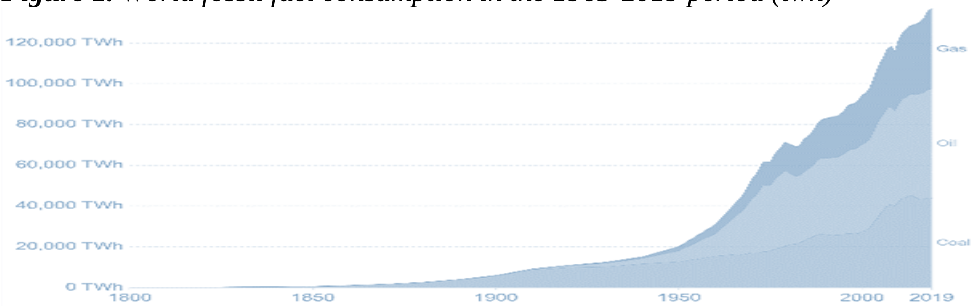
1. Introduction

Increasing greenhouse gas emissions are widely recognized as the primary cause of global warming. Climate Action Tracker (2020) indicates that while the global warming process cannot be stopped, it is possible to limit its scale, and as such, also the severity of its effects. If emission-causing economic activities were to cease by 2050 essentially, global temperatures would rise by 1.5 degrees Celsius compared to pre-industrial levels by the end of this century. This option is unlikely to be implemented. In the extreme adverse scenario – i.e., no decisive action is taken – global temperatures in 2100 will be 4.1 to 4.8 degrees Celsius higher than before the industrial revolution.

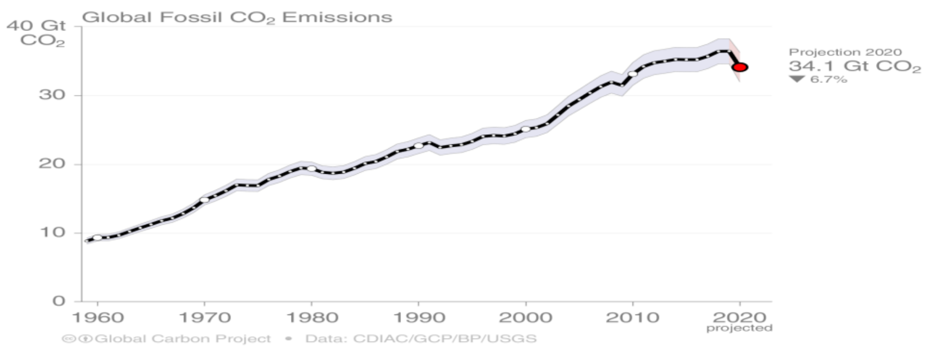
The international community's response to accelerating global warming is the Paris Agreement signed in December 2015. The agreement has been signed by more than 190 countries worldwide, including the European Union and all of its member states. The main goal of the signatories was to limit global warming so that the future temperature would be no more than 1.5 to 2 degrees Celsius higher than before the industrial revolution. The degree to which this goal is met depends primarily on the scale of the reduction in greenhouse gas emissions. (UN, 2015).

Figure 1. *World fossil fuel consumption in the 1965-2019 period (twh)*



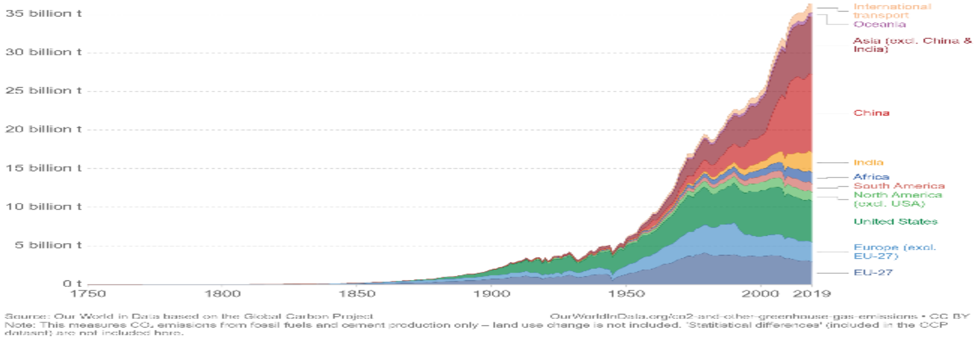
Source: *Our World in Data (2020).*

Figure 2. *Global co_2 emissions*



Source: *Our World in Data (2020). Retrieved from: https://www.icos-cp.eu/science-and-impact/global-carbon-budget/2020.*

Figure 3. *Annual total co₂ emissions by world region*



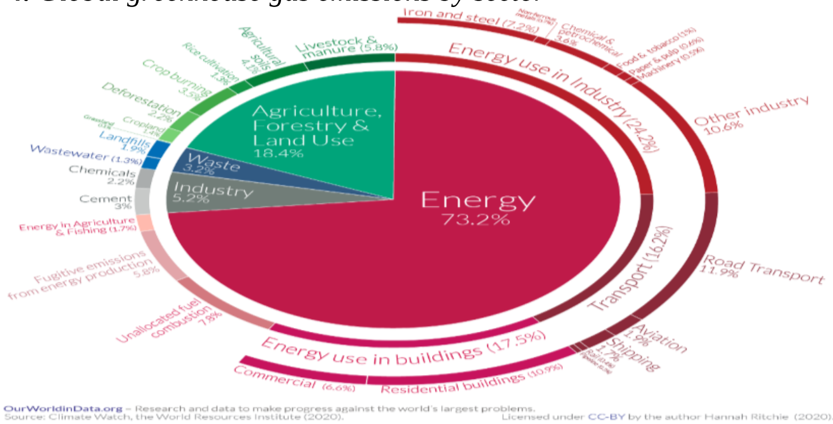
Source: *Our World in Data (2020). Retrieved from: https://ourworldindata.org/grapher/annual-co-emissions-by-region.*

As a side effect of economic development, the current climate conditions pose a significant challenge for researchers, policymakers, and businesses. All participants of the economic life must develop solutions that enable further economic development while taking into account the limitations resulting from the need to protect the environment. In this regard, the primary responsibility rests with highly developed countries capable of transforming their economies into low- or zero-carbon ones. Developing countries will likely increase their greenhouse gas emissions as they continue to focus on their development, irrespective of sustainability. This mainly applies to China and India.

"Sustainable development" applies to individual entities and the economy as a whole; it refers to businesses, investment projects, and assets owned. World (2020), "Sustainable development" means striking a balance between economic development and the interests of the given community, as well as minimizing negative environmental impacts. The term first appeared in the so-called Brundtland Report in 1987. In 2015, the United Nations General Assembly adopted the "Transforming our world: The 2030 Agenda for Sustainable Development" document, which outlines the UN's 17 Sustainable Development Goals.

In 2019, European Union authorities adopted the European Green Deal, which includes a commitment to achieve zero greenhouse gas emissions in 30 years – by 2050. Meeting this commitment requires a significant overhaul of specific sectors of the economy, particularly energy, transport, heating, and specific industries, in all European Community countries. This makes the European Green Deal a significant challenge for policymakers and businesses in need of a significant overhaul and the financial sector as it is impossible to transform the European economy without it. The European Commission estimates that this transformation will cost €3.6 trillion over the next ten years. At the same time, the European Green Deal financing plan assumes that the majority of this expenditure will be financed with the help of the financial sector (EC, 2020).

Figure 4. *Global greenhouse gas emissions by sector*



Note: *This is shown for the year 2016 – global greenhouse gas emissions were 49.4 billion tonnes CO_2 eq.*
Source: *Retrieved from: https://ourworldindata.org/emissions-by-sector?country=.*

The European Union's financial sector is faced with adapting its operations to the low-carbon economy framework created by EU policymakers. This leaves financial institutions with little choice but to adjust their balance sheets accordingly. On the one hand, they must stop providing financing to companies and investment projects that they deem carbon-intensive, or more broadly, environmentally damaging. On the other, they should gradually withdraw from any such investment projects that they are already involved in. They must also consider other aspects of the sustainable development concept in both cases. Therefore, financial institutions must consider a range of manifestations of the risk of change and use transparent criteria for granting and not granting financing to specific types of economic activity. Transformation processes can be implemented with the help of the financial sector's "green products," primarily the green bonds.

Businesses seeking to obtain financing should make public their environmental impact transparent and minimize the negative manifestations thereof. Increased transparency can be achieved by publishing the ESG ratings, joining UN initiatives, or applying the TCFD (Task Force for Finance Disclosures) recommendations.

Transparency also serves to minimize the risk of the so-called Greenwashing – a practice of creating the illusion that the products and services offered by a company are eco-friendly when, in fact, they are not.

2. Research Methodology

This section discusses the most important European Union actions included in the European Green Deal, aiming to achieve zero greenhouse gas emissions by 2050. Additionally, EU tools for identifying and promoting environmentally sustainable investment projects, i.e., the European Taxonomy, SFDR, and European Green Bond Standard, are listed and discussed.

The European Green Deal is part of a broader European Union strategy leading to a sustainable, closed-loop economy. By design, it is intended to address the challenges related to the deteriorating climate situation. However, the European Green Deal sets much more ambitious challenges than those resulting from the Paris Agreement commitments. The Paris Agreement's signatories reached a consensus to reduce emissions by at least 40% by 2030. Meanwhile, the EGD assumes reducing emissions by 55% by that time and zero by 2050 (Sikora, 2020).

The European Green Deal (EGD) was adopted in December 2019. The EGD has been prepared following the concept of sustainable development, and more specifically, with the goals enshrined in the UN Sustainable Development Agenda (Rudzki *et al.*, 2020). It is supposed to create conditions for further economic development without using non-renewable natural resources and a negative impact on climate (Marchewka- Bartkowiak, 2020). The European Commission has defined three areas that are to drive the "green" economic development. First of all, it pointed to the need to invest in sustainable businesses. Secondly, the Commission suggested integrating climate considerations into risk management systems and encouraging operators to be more transparent. Thirdly, the Commission promotes long-term value-building strategies for business entities (Rudzki *et al.*, 2020).

The objectives of the European Green Deal are to be achieved through a dedicated investment plan adopted for the 2021-2031 period (The European Green Deal Investment Plan – EGDIP.) The plan calls for at least one trillion euros to be spent on environmentally sustainable investments, particularly clean energy production and the costs of adapting the economy to operate as a closed-loop system.

The European Commission points out that those above €1 trillion will not cover the total transformation cost incurred by 2031 since it estimates the latter to be €3.6 trillion (EC, 2020). This means that the effectiveness of the EGD's implementation is dependent on private funding (PWC, 2020). On the one hand, this transformation necessitates that carbon-intensive activities (e.g., conventional power industry) be "pushed out" by "green" investment projects that do not harm the environment. On the other, transforming the economy to a low- and then zero-carbon one requires financing businesses willing to reduce their negative environmental impact (TEG, 2020).

The taxonomy was adopted in December 2019. It is a matrix – a set of criteria enabling the identification of environmentally sustainable undertakings and contributing to the pro-ecological transformation of the EU economy (Bacia, Grabowski, 2020). Rafał Rudzki defines the taxonomy as "the classification of economic activities in terms of their impact on the adaptation to climate change or its mitigation." Its adoption is meant to result in the reduction of the negative impact of businesses on the climate, as well as the adjustment of their activities to management with respect for natural resources (Rudzki *et al.*, 2020), while also enabling investors to identify and analyze them in terms of their environmental impact.

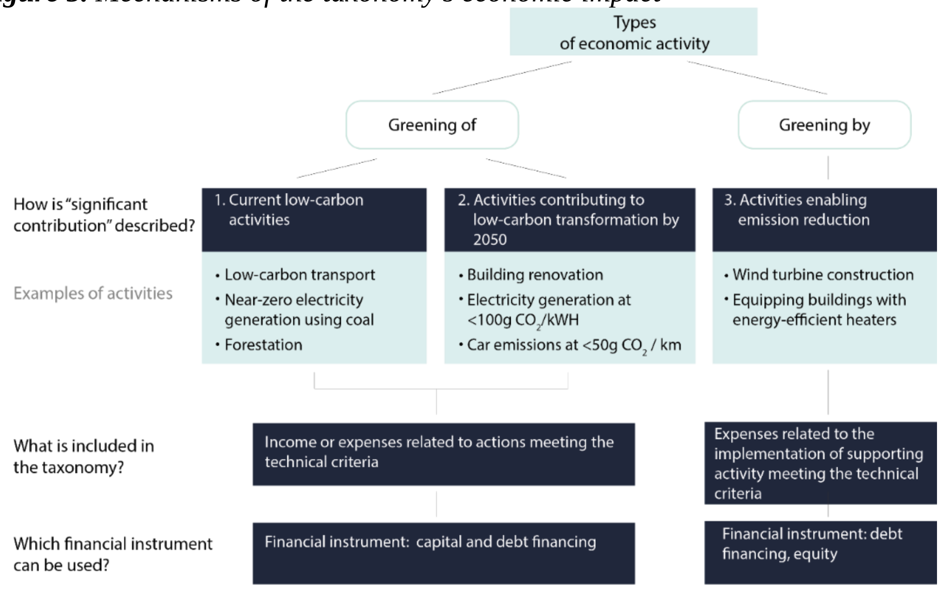
According to the taxonomy, an undertaking must meet the following three criteria to be deemed environmentally sustainable (Deloitte, 2021):

1. Significantly contributing to the implementation of at least one of the six environmental goals adopted (see the diagram);
2. Minimising the harmful impact on the natural environment;
3. Compliance with safety principles.

Maciej Bukowski – the only Polish member of the TEG – notes that the so-called "significant contribution" may be affected through two types of activities:

– *"Greening of" activities* – ones leading to reductions in the scale of emissions; and
– *"Greening by" activities* – ones that lead to avoiding emissions altogether.

Figure 5. *Mechanisms of the taxonomy's economic impact*



Source: *Bukowski, 2020.*

The taxonomy is based on an extensive analysis of the European economy. It provides a set of criteria to analyze sectors that account for 93% of greenhouse gas emissions – it does not address aerospace and rare earth sectors, among others (TEG, 2021). The following types of bodies have been obliged to apply the taxonomy:

– national regulators, which are faced with the task of aligning national law with the principles contained therein;

- financial institutions that offer sustainable products. Interestingly, banking activities are not subject to the taxonomy, except for asset management (Rudzki, 2020).

The taxonomy was prepared by the *Technical Expert Group on Sustainable Finance (TEG)*, which was composed of 35 experts from 17 countries. Apart from the taxonomy, the group also proposed solutions for such areas as (Bukowski, 2019):

- European Green Bond Standard;
- low carbon emission indicators;
- reporting standards.

The first green bonds had been created before the 2008 global financial crisis. "Green" bonds are issued with a promise that the proceeds gained from them will be used for environmentally sustainable projects. The EU Green Bond Standard (EU GBS) is another tool introduced by the European Commission to foster pro-ecological changes in the European economy.

Unlike the taxonomy, its use is entirely voluntary. However, the Green Bond Standard remains firmly tied to the taxonomy because it uses the taxonomy's criteria for assessing environmental impact. Entities issuing bonds in compliance with the EU GBS are required to publish the so-called green bond frameworks and regularly report on the environmental impact of their undertaking. The use of the EU GBS is thus a clear signal to potential investors that their issuer conducts business in line with the taxonomy criteria (Grabowski and Kotecki, 2019). The bond framework should include information regarding such things as (TEG, 2019):

1. the environmental goals, along with the indication of how they align with the issuer's strategy and reasons for the issuance itself;
2. the process of identifying the project's compliance with the taxonomy criteria;
3. the characteristics of projects financed through the bonds' issuance;
4. form and frequency of reporting.

The Green Bond Standard proposed by the European Commission is another document of this type. Kotecki and Grabowski note that the most popular green bond standard is the *Green Bond Principles* announced in 2018 by the *International Capital Market Association (ICMA)*. Nonetheless, the European Commission decided to create a proprietary standard that would apply universally to all EU member states (Grabowski and Kotecki 2019). SFDR (Sustainable Finance Disclosure Regulation) concerns two groups of market entities:

- Representatives of the financial sector offering products listed in the SFDR;
- Financial advisors who provide services in the area of insurance or investing.

The regulation does not cover insurance brokerage and investment advisory entities with fewer than three employees (KNF, 2021). SFDR was adopted in December 2019 and entered into force on 10 March 2021. According to Deloitte, a consulting company, SFDR aims to achieve greater transparency regarding the methods of analyzing sustainability risks in the activities of financial market participants and financial advisors." Entities covered by the SFDR are required to make public such things as:

– Their approach to risk in the area of sustainable development;
– The most serious undesirable effects (from the sustainable development perspective);
– Information on compliance with responsible business practices and remuneration policies.

3. Results and Discussions

This section discusses international initiatives created by financial market participants to improve the standards of published reports, and as such, to increase entity credibility in the eyes of potential investors. The concept of ESG ratings that serve the same purpose is also presented.

TCFD (Task Force for Climate Disclosure) is a working group formed by 31 specialists from G20 countries. The TCFD was established by a decision of the Financial Stability Board (FSB) in 2015. The primary purpose of its establishment is to make recommendations on the form and content of climate-related critical business disclosures. Providing greater access to such information, including the manifestation of climate risk and the carbon-intensive asset concentration, was expected to foster informed investment.

The recommendation package was published in 2017. The recommendations concern four areas, i.e., management and corporate governance, strategy, risk management, goal setting, and the appropriate indicators.

Table 1. *Disclosure areas proposed by TCFD*

	Management and corporate governance	Strategy	Risk management	Goal setting and indicator selection
Disclosures	Climate risk area management processes and opportunities resulting from climate change	Examples of risks and opportunities resulting from climate change analysed in the short, medium and long term	Processes for identifying, assessing and managing climate risk and their integration	Used in the assessment and management of climate change risks and opportunities

	The role of management in implementing risk management processes and seize opportunities brought about by climate change	The impact of the above risks and opportunities on the company's business strategy and financial health. The impact of alternative global warming scenarios on corporate strategy	with the risk management system	Scale of greenhouse gas emissions

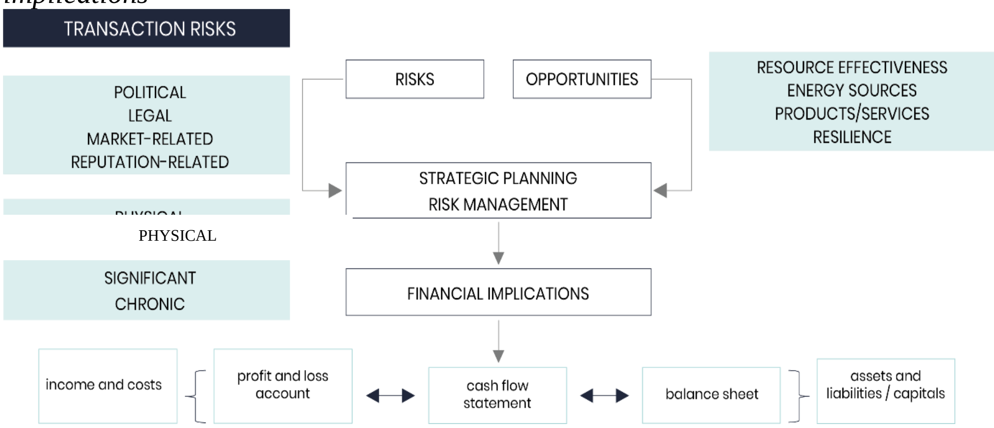
Source: *TCFD.*

The TCFD recommendations emphasize that disclosures should be prepared according to the seven principles for effective disclosure, which outline the minimum disclosure standard:

1. Relevance;
2. Specificity and completeness;
3. Clarity and balance;
4. Comparability between reporting periods;
5. Comparability with disclosures of other entities;
6. Reliability, objectivity, verifiability;
7. Cyclicality.

The chart below presents the relationship between the financial implications of climate risk and the potential benefits stemming from climate change.

Figure 6. *TCFD recommendations: climate risks, opportunities, and financial implications*



Source: *TCFD (2017) Final Report. Recommendations of The Task Force on Climate-related Financial Disclosures, 8.*

By early 2020, more than 1,000 entities adopted the TCFD principles, with the total capitalization of private entities using them exceeding USD 12 trillion (TCFD, 2020).

The United Nations Environment Programme Finance Initiative (UNEP FI) is a platform supporting coordination between financial institutions and the UN, which was created in 1992. It aims to promote and enhance sustainable operations in the financial sector. Until now, UNEP FI – which includes 350 financial sector members – has prepared three independent sets of principles addressed to investors, bankers, and insurers.

The Principles for Responsible Investment story dates back to 2005 when UN Secretary-General Kofi Annan called on the representatives of major global financial institutions to create a set of guidelines for investors considering the social, environmental, and governance-related impact of investment decisions. The six voluntary principles for responsible investing signed by 100 institutions were made public on the New York Stock Exchange in April 2006.

Table 2. *Principles for responsible investment* **.**

1.	Incorporating ESG issues into decision-making and investment analysis processes.	*We will incorporate ESG issues into investment analysis and decision-making processes.*
2.	Active integration of ESG principles into all entities owned.	*We will be active owners and incorporate ESG issues into our ownership policies and practices.*
3.	Expecting ESG disclosures from entities constituting potential investment targets.	*We will seek appropriate disclosure on ESG issues by the entities in which we invest.*
4.	Promoting *responsible investment principles* among investors;	*We will promote acceptance and implementation of the Principles within the investment industry.*
5.	Collaborating on the effective implementation of the principles.	*We will work together to enhance our effectiveness in implementing the Principles.*
6.	Reporting on the principal implementation progress.	*We will each report on our activities and progress towards implementing the Principles.*

Source: *UNEP FI.*

Table 3. *Principles for responsible banking*

1.	Alignment principle	Alignment	The alignment of business strategy to be consistent with the Sustainable Development Goals, *Paris Agreement arrangements* and national regulations.
2.	Impact and target setting principle	Impact and target setting	Maximising the positive and minimising the negative external effects – both those affecting society and the natural environment.

3.	Client and customer involvement principle	Clients & customers	Increasing client and customer awareness and involving them in the ESG ideas
4.	Stakeholder involvement principle	Stakeholders	Striving for active participation of stakeholders in the implementation of ESG goals
5.	Responsible governance and organisational culture principle	Governance & culture	Effective governance enabling the implementation of the remaining responsible banking principles
6.	Transparency and accountability principle	Transparency & accountability	Making public the information on progress in implementing responsible banking principles and positive or negative external effects.

Source: *UNEP FI.*

By March 2021, the number of the initiative's signatories exceeded 3,000 entities from around the world. The Principles for Responsible Banking were announced in September 2019. They were prepared under the auspices of the UNEP Finance Initiative by 137 financial sector institutions. Their authors included: BNP Paribas, Citi, ING, Nordea, Santander, Societe Generale, Santander, National Bank of Australia, Arab African International Bank. The Principles' authors aimed to develop broad principles relating to strategy, portfolio, and transactions in all types of banking activities. The basis for their development were the arrangements of the Paris Agreement and the Sustainable Development Goals. A total of six principles was developed. (UNEP FI, 2021).

A total of 217 banks adopted the principles by March 2021, however, the list does not include any institutions registered in Poland (UNEP FI, 2021). The final category of principles introduced by the UNEP FI is the Principles for Sustainable Insurance (PSI) announced in 2012.

Table 4. *Principles for sustainable insurance*

Principle 1	Embedding the ESG issues in the decision-making process	*We will embed in our decision-making environmental, social and governance issues relevant to our insurance business.*
Principle 2	Work with customers and partners to increase ESG awareness. Integrating ESG issues into the risk management process.	*We will work together with our clients and business partners to raise awareness of environmental, social and governance issues, manage risk and develop solutions.*

Principle 3	Working with authorities, regulators, shareholders and other relevant stakeholders to publicly promote activities in the ESG area.	*We will work together with governments, Regulators and other key stakeholders to promote widespread action across society on environmental, social and governance issues.*
Principle 4	Full transparency	*We will demonstrate accountability and transparency in regularly disclosing publicly our progress in implementing the Principles.*

Source: *UNEP FI.*

As of today, more than 140 organizations worldwide, which manage a total of USD 14 trillion, have already adopted the principles.

Standard & Poor's, a global rating agency, assumes that an ESG rating constitutes an assessment of an entity's performance in developing and implementing an ESG strategy and its ability to create new growth opportunities and adapt to circumstances creating new risks (S&P, 2021). Companies use ESG ratings for the same reason they use credit ratings. Their primary motivation is their desire to be credible in the eyes of current or potential business partners or to meet the expectations of such partners. Companies can undergo an ESG assessment to optimize their ESG processes, resulting in improved investor relations, increased access to funding, and lower costs.

Like credit ratings, ESG ratings allow potential investors to estimate the scale of risk that could materialize after committing funds to a company or venture. Entities may be evaluated based on publicly available information or additional information (when they commission the assessment). A company's ESG rating affects its value.

4. Examples of Practices of Polish Banks

This section discusses examples of practices used by banks operating in the Polish market, which point to their attempts to meet the climate challenges and follow the directions of transformation of the European economy outlined in the European Green Deal.

The practices used in the study group comprising banks included in the *WIG-ESG*[3] index of the Warsaw Stock Exchange was analysed. The following institutions were included in the study group:

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[3]On 3 September 2019, the Warsaw Stock Exchange has introduced a new index – WiG-ESG. Its purpose is to make it possible to assess the performance of stock-exchange-listed companies deemed socially responsible in the areas of social, economic, environmental and corporate governance impact. The index comprises companies traded on the WSE regulated market that also fulfil two criteria, i.e., (1) they are listed in the WIG20 and mWIG40 indices and (2) they are considered socially responsible.

1) Alior Bank S.A.
2) Millennium Bank S.A.
3) BNP Paribas S.A.
4) PEKAO S.A
5) PKO BP S.A.
6) Santander S.A.
7) ING S.A.
8) Bank Handlowy S.A. (CitiHandlowy)
9) mBank S.A.

It was decided to narrow down the study group to banks because they play a key role in the Polish financial sector, and as such, are also key sources of funding for the Polish economy (Capital Strategy, 2021). Figure 7 below compares two measures:

– bank shares in the WIG-ESG index, obtained from the WSE website (right axis); and
– the measure of the total credit exposure to carbon-intensive sectors, which was created specifically for this study.

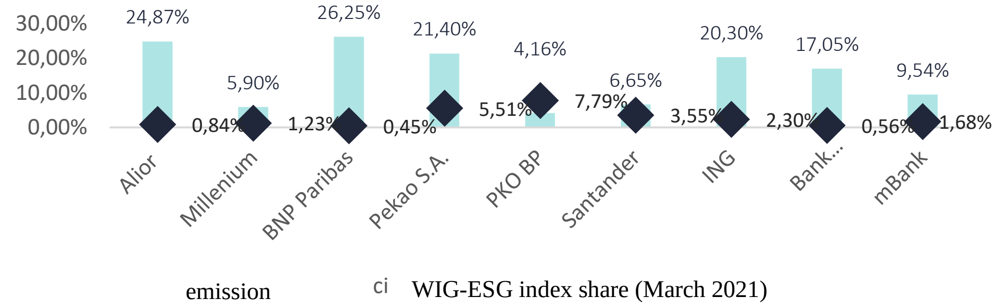
Creating such a synthetic measure became necessary as the analyzed banks presented credit exposure broken down by sectors classified differently, which made comparison impossible. When calculating the values of this measure for individual banks, the values of exposures to sectors deemed carbon-intensive were summed. The Our World in Data typology was used to that effect, which points to the energy, heating, transport and logistics, refining and mining, and metal processing sectors being carbon intensive. The value of this measure assigned to the given bank corresponds to the percentage of carbon-intensive sectors in its loan portfolio.

There is a substantial variation in the values of the two indicators presented below. Two banks owned by the State Treasury, i.e., PKO BP and Pekao S.A, had the largest share in the WIG-ESG index, amounting to 7.8% and 5.5%, respectively. This reflects their size and thus their position in the Polish market. Subsidiaries of international banking groups held smaller shares in the index: Santander (3.55%), ING (2.3%), mBank (1.68%), Millennium Bank (1.23%), with the share of other banks not exceeding 1%. In turn, the total credit exposure to carbon-intensive sectors exceeded 20% in the case of four banks, i.e., BNP Paribas (26.3%), Alior Bank (24.9%), Pekao S.A. (21.4%), and ING (20.3%). Citibank Handlowy was slightly below this level

Whether a company is recognised as socially responsible is determined by its ESG ranking and best practice ranking position. Both rankings are prepared once a year after the final session in July. The ESG ranking is based on company assessment prepared by the Sustainalitics B.V. *agency, whereas the Best Practice Ranking is prepared by the WSE upon verifying the degree to which the companies have implemented the practices adopted in 2016. R. (WSE, 2019)*
Being part of the WIG-ESG index plays a vital role in environmental terms, i.e., building the image of a sustainable company, but also in other aspects of the ESG sphere.

(17.1%), and in the case of the remaining banks, the indicator value did not exceed 10%.

Figure 7. *Banks listed in the WIG-ESG index: summary of the total emission volume and index share. (as of March 2021)*



Source: *Own study based on WSE data and bank financial statements.*

The practices carried out by Polish banks, as presented below, were collected in a review of the consolidated financial and non-financial reports for 2019. It was decided to use consolidated reports, which provide information covering the full spectrum of capital group activities. The primary business profile of these capital groups is broadly understood banking activity carried out by their parent companies. Subsidiaries provide other financing services such as factoring, leasing, and others.

All of them must adapt their activities to the provisions of the EGD, SDFR, and other European Union-level regulations. Additionally, "green" issues are increasingly more critical in terms of image, which creates the need to establish the reputation of a sustainable institution among customers and other market participants. This concerns both climate and environmental impact and other elements of the ESG sphere.

These challenges require adjustments to risk management processes as well as modified product and service offers. Examples of practices in both areas are shown below.

4.1 Practice 1: Examples of Emphasizing the Approach to Climate Risk in Released Documents

The approach to climate risk has been emphasized to varying degrees in the reports or statements made public by banks. In its non-financial statement, Alior Bank acknowledges that it identifies the environmental risk that manifests itself by the deterioration of a customer's creditworthiness through negative financial or legal consequences caused by activities negatively impacting the environment or the community undertaken by such a customer (Alior Bank, 2020b) BNP Paribas. The CSR report of the BNP Paribas Group includes ESG risks among the risk types identified. However, no manifestations of this risk are identified (BNP Paribas, 2020b). A document released by Pekao S.A. states that assessing the environmental risk constitutes an element of the Bank's credit transaction evaluation process.

Table 5. *Approach of WIG-ESG listed banks to financing coal mining and coal-fired power industry*

	Alior Bank	Millennium Bank	BNP Paribas	PEKAO	PKO BP	Santander	ING	Bank Handlowy	mBank
Coal mining financing	no*	no*	no	no	limited	no	no data		no
Financing of coal-fired power plants	no*	no*	no	unclear	limited	no	no data		no

Source: *Own elaboration based on bank documents.*

Additionally, the Bank pledged to support customers in identifying potential hazards stemming from environmental risks. Credit agreements may also be accompanied by dedicated clauses obligating the credit takers to undertake specific environmental actions during the agreements' duration (Pekao S.A., 2020).

4.2 Practice 2: Adoption of Environmental Goals: Positive Selection Versus Negative Selection

On the one hand, the environmental goals adopted by the banks relate to the operational sphere – the day-to-day business. On the other hand, they imply adopting policies for granting or not granting financing to certain types of economic activities or investments. Thus, positive selection occurs when "green" projects are identified, and adverse selection occurs when, under exclusion policies, a bank does not finance certain activities by definition.

Adverse selection: Most banks from the WIG-ESG index declare to limit the level or categorically refrain from financing coal-fired power industry and coal mining. Alior Bank and Millennium Bank documents indicate the possibility of financing projects leading to reducing the negative impact or supporting energy transformation. There is no information in the documents from Bank Handlowy and ING Group regarding financing the mining and coal-fired power industry. ING indeed adopted a sectoral policy on coal, but its details were not published.

The energy and coal sectors are not the only ones for which banks adopted financing exclusion policies. For example, Bank Pekao S.A. does not finance activities such as:

- Trade in wildlife and its products;
- Release of genetically modified organisms into the environment; Manufacture, distribution and sale of pesticides prohibited by international

agreements (e.g., organochlorine compounds and other difficult-to-degrade compounds) and herbicides;
- Fishing at sea with drift nets longer than 2.5 km;
- Manufacture, storage or processing of radioactive products, including radioactive waste;
- Storage, processing or disposal of hazardous waste;
- Manufacture of equipment and appliances containing fluorochlorocarbon (CFC), halons;
- Manufacture of electrical equipment containing polychlorobiphenyl (PCB); Manufacture of products containing asbestos."

Positive selection: support for "green" initiatives: Examples of green initiatives include financing renewable energy sources (RES), promoted by mBank and BNP Paribas. An important manifestation of support for green initiatives is the offering of dedicated products - including green bonds, which must meet the requirements defined in the European standard.

PKO BP Bank Hipoteczny conducts the so-called green mortgage bonds – bonds backed by mortgage loans. There were two issues in 2019 with a total value of PLN 500 million and a five-year maturity. The issues were conducted based on strict criteria – funds can only be used to finance new or existing low-energy investments or building retrofits that lead to increased energy efficiency and reduced emissions. The mortgage bonds are listed on the WSE and the BondSpot market. For the issuance conducted, PKO BP Bank Hipoteczny was awarded the 2019 Green Bond of the Year award at the Environmental Finance Bond Awards 2020 (Grabowski and Kotecki, 2019).

Another example of the involvement of a bank operating on the Polish market in the green bonds market is the participation of BNP Paribas in the issue of green bonds of Cyfrowy Polsat. Series C bonds with a total value of PLN 1 billion were issued in February 2020. The buyers consisted of domestic and foreign institutional investors, including the European Bank for Reconstruction and Development, which acquired 20% of the issue. The issue was certified as compliant with the Green Bond Principles as certified by Sustainalytics. Funds from the issue are to refinance the company's green projects (BNP Paribas, 2020a).

4.3 Practice 3: Credibility Building/ ESG Ratings

The mere participation in the WIG-ESG index of the institutions in question indicates that they are subject to ESG ratings performed by Sustainalytics. However, these ratings are not published. Only the websites of three of the nine banks surveyed published the results or references to the ESG ratings obtained. The most comprehensive information was provided by PKO BP, which published ratings provided by four rating agencies: Sustainalytics, MSCI, FTSE Rusell, and VIGEO EIRIS. In turn, on its website, Pekao S.A. mentioned that the bank had maintained the highest possible score – A – in the MSCI rating. Finally, mBank published the score assigned by Sustainalytics – 13.4 (min=100, max=0).

Table 6. *ESG Ratings of PKO BP*

	Sustainalytics	MSCI Rating	FTSE Rusell	VIGEO EIRIS
PKO BP's rating	25.7	BBB	3.1	29
scale	Min.: 100	Min.: CCC	Min.: 0	Min.: 0
	Max.: 0	Max: AAA	Max: 5	Max: 100

Source: *PKO BP website.*

5. Conclusions

Maciej Orczyk noted that "not only does no Polish bank report according to TCFD standards but also none has officially supported the initiative nor has declared its intention to report according to TCFD standards in the future." However, PKO BP provides GHG emissions data in the format indicated by TCFD. (Orczyk, 2020).

On the other hand, only two of the banks analyzed, PKO BP and Santander, report applying the Principles for Responsible Banking. However, it is worth noting that the foreign parent units of two other banks – BNP Paribas and ING –apply these rules. This allows us to assume that the Polish branches will also adjust their activities to these principles.

Based on the reports and statements published by the nine banks listed in the WIG-ESG index of the Warsaw Stock Exchange, it can be observed that they are, to varying degrees, involved in sectors considered not green. However, regardless of the level of their involvement in these sectors, all of these institutions have been faced with adapting their business and the structure of their assets under management to the challenges of the European Green Deal. The challenges are forcing banks to adapt their risk management systems to include the so-called transformation risk.

From an image perspective, i.e., building credibility, it may seem curious why only three of the nine banks listed in the WIG- ESG index – PKO PB, PEKAO, and mBank – make their ESG ratings public. Furthermore, it is intriguing why only PKO BP and Santander follow the principles for responsible banking. It should not be excluded that the mere inclusion in the WIG-ESG index allows companies to enjoy the reputation of a sustainable enterprise on the Polish market.

Main conclusions:

– The unprecedented technical progress in the twentieth century enabled the improvement of the quality of life of people in many parts of the world, but it significantly and negatively affected the environment. If no changes are made and current trends in greenhouse gas emissions continue, global temperatures will be as much as 5 degrees Celsius higher by the end of the century than before the industrial revolution. In the best-case scenario, the increase in global temperatures will be reduced to 1.5 degrees Celsius.

- 190 countries of the world agreed to reduce global levels of greenhouse gases, thus inhibiting global warming. The responsibility lies primarily with highly developed countries that can more easily finance the transformation of their economies than developing countries or developing countries due to their level of development. In trying to catch up with the developed countries, poorer countries are likely to increase their emissions.
- The European Union set more stringent targets than those provided for in the Paris Agreement. The European Green Deal aims to achieve zero greenhouse gas emissions as early as 2050 and is in line with the Sustainable Development Goals of the United Nations.
- The achievement of the goals set out in the European Green Deal requires the active involvement of the financial sector. The costs of transforming the EU economy between 2021 and 2031 alone will amount to more than €3.6 trillion, of which only one trillion is to come from EU resources.
- The financial sector needs to review its approach towards the high-carbon sectors of the economy, which must undergo a significant modification under the European Green Deal. Thus, financial institutions need to:
    - Stop funding projects that harm the environment,
    - Gradually reduce the proportion of such projects in its portfolio.
- The European Union developed a comprehensive tool to help identify environmentally sustainable projects. It is the Taxonomy.
- Especially in environmental impact reporting, transparency plays a crucial role in identifying environmentally sustainable activities. To this end, appropriate initiatives were created – including TCFD recommendations and UNEP FI standards

References:

Alior Bank. 2020a. Raport Skonsolidowany za rok 2019. Warszawa Alior Bank.

Alior Bank. 2020b. Sprawozdanie grupy kapitałowej Alior Banku S.A. na temat informacji niefinansowych za 2019 rok. Warszawa Alior Bank

Bacia, B. 2020. Oceny ESG a ratingi kredytowe: konkurencja czy komplementarność. In: Kotecki, L. (Ed). Zielone Finanse w Polsce. Sopot, Instytut Odpowiedzialnych Finansów.

Bacia, B., Grabowski, M. 2020. Standard Zielonych Obligacji -co zmieniła przyjęta taksonomii. Sopot, Klub Odpowiedzialnych Finansów przy Europejskim Kongresie finansowym.

Bank Handlowy. 2020. Skonsolidowany Raport Roczny. Warszawa, Bank Handlowy.

Bank Millenium. 2020. Skonsolidowany Raport Roczny. Warszawa, Bank Millenium.

BNP Paribas. 2020a. BNP Paribas współorganizatorem obligacji Cyfrowego Polsatu. Warszawa, BNP Paribas.

BNP Paribas. 2020b. Sprawozdanie finansowe za rok zakończony 31 grudnia 2019. Warszawa, BNP Paribas.
Bukowski, M. 2019. Rola finansów w niskoemisyjnej transformacji. Taksonomia: europejski system klasyfikacji zrównoważonych inwestycji. Warszawa, WISE EUROPA.
Climate Action Tracker.org. 2020. Global Temperatures.
Deloitte. 2021. Zgodność z unijnym planem działania w sprawie finansowania zrównoważonego wzrostu gospodarczego. Warszawa, Deloitte.
EU Technical Expert Group on Sustainable Finance. 2020. Taxonomy: Final report of the Technical Expert Group on Sustainable Finance. Brussels, TEG.
Grabowski, M., Kotecki, L. 2020. Zielone Obligacje w Polsce. Przewodnik dla emitenta. Sopot, Instytut Odpowiedzialnych Finansów.
Huck-Wettstein, M. 2020. ESG Ratings and Rankings: why they matter and how to get started. SustainServ.com t-started/.
ING. 2020. Raport Skonsolidowany 2019. Warszawa, ING.
KE. 2020. The European Green Deal Investment Plan and Just Transition Mechanism Explained. Warszawa, Komisja Europejska.
KNF. 2020. Finansowanie Zrównoważonego Rozwoju. Warszawa, KNF.
Marchewka-Bartkowiak, K. 2020. Alokacja wpływów budżetowych uzyskanych ze sprzedaży praw do emisji gazów cieplarnianych - przykład Polski. In: Kotecki, L. (Ed.) Zielone Finanse w Polsce. Sopot, Instytut Odpowiedzialnych Finansów.
mBank. 2020. Raporty Finansowe Grupy mBanku 2019. Warszawa, mBank.
mBank. 2021. Ratingi ESG. Warszawa, mBank.
ONZ. 2015. Porozumienie Paryskie. Nowy Jork, ONZ.
Orczyk, M. 2020. Zarządzanie ryzykiem bankowym a zmiany klimatyczne, Praca magisterska napisana w Instytucie Finansów Korporacji i Inwestycji pod kierunkiem naukowym dr hab. Lecha Kurklińskiego prof. Warszawa, SGH.
Our World in Data.org. 2020. Emissions by Sector.
PEKAO, S.A. 2020. Skonsolidowane Sprawozdanie Finansowe Grupy Kapitałowej Banku Pekao S.A. za rok zakończony dnia 31 grudnia 2019 Skonsolidowane Sprawozdanie Finansowe Grupy Kapitałowej Banku Pekao S.A. za rok zakończony dnia 31 grudnia 2019. Warszawa, Pekao S.A.
PEKAO, S.A. 2020. Sprawozdanie z działalności Grupy Banku Pekao S.A. za 2019 rok.
PKO, BP. 2020. Sprawozdanie Finansowe PKO Banku Polskiego SA za rok zakończony 31 grudnia 2019. Warszawa, PKO BP.
PKO, BP. 2021. Ratingi ESG. Warszawa, PKO BP.
PWC, Netherlands. 2020. Green Deal Monitor #1 – Financing. Amsterdam, PWC.
Rudzki, R., Bieńkowski, M., Średzińska, K. 2020. Jak dzięki Taksonomii zapewnić zrównoważoną odbudowę europejskiej gospodarki? In: Kotecki, L. (Ed.) Zielone Finanse w Polsce. Sopot, Instytut Odpowiedzialnych Finansów.
S&P Global. 2021. ESG Evaluation. Nowy Jork, S&P.
Santander. 2020. Sprawozdanie Finansowe. Warszawa, Santander.
Serafeim, G., Yoon, A. 2021. Stock Price Reactions to ESG News: The Role of ESG Ratings and Disagreement (January 13, 2021). Harvard Business School Accounting & Management Unit Working Paper No. 21-079.
Sikora, A. 2020. European Green Deal – legal and financial challenges of the climate change ERA Forum, Nov. 1-17.
Summit Consulting. 2017. Environmental, Social, and Governance (ESG) Investment Tools: A Review of the Current Field. Waszyngton, Summit Consulting.

TCFD. 2017. Final Report Recommendations of the Task Force for Climate Disclosures. Bazylea, Financial Stability Board.

TCFD. 2020. More than 1,000 Global Organizations Declare Support for the Task Force on Climate-related Financial Disclosures and its Recommendations. Bazylea, Financial Stability Board.

TCFD. 2021. About us. Bazylea, Financial Stability Board.

UNEP FI. 2021. About Geneva. UNEP FI.

Youmatter.world. The Official Definition of Sustainable Development.