The Commitment to Sustainability in Financial Investments

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1 The Concept of Sustainability

In its broader view, the concept of sustainability is based on the definition formulated in 1987 by the Brundtland Commission[1] of the United Nations. Sustainability is based on a commitment between generations that ensures that the freedom of choice of future generations is not compromised by today's decisions and actions.[2] Over time, the vision of intergenerational equity has expanded towards a concept even wider than sustainable development, including the pursuit of environmental, economic, social, and institutional equilibria such as the protection of natural

[1] In the final Report of the World Commission on Environment and Development: Our Common Future in 1987 it was specified that: 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (World Commission 1987).

[2] For many years, reflections on sustainability have focused on the relationship between economic growth and natural resources scarcity. The works of the Club of Rome in the 70s, inspired among others by Aurelio Peccei, identified the risks associated with demographic growth, the pressure that this would have exerted on consumption and therefore on available resources. These analyses were criticised arguing that resources scarcity, through the price mechanism, would have promoted the emergence of new technologies and would have induced a more efficient use.

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ecosystems, the responsible use of resources, the capacity to generate income and work, the equal access to education and health, and the exercise of the fundamental political rights for all people. This vision offers an intra-generational dimension of the concept of sustainability.

In addition, the various aspects of sustainability can interact with each other in a dynamic way with synergistic effects.

In 2015, with the approval of the 2030 Agenda,[3] the United Nations have identified 17 Sustainable Development Goals, including, among others, the fight against climate change, the protection of ecosystems and biodiversity, good management of natural resources, social and gender equality, and the fight against poverty. In economics and finance, the main dimensions of sustainability have been empirically framed around the environment, society, and corporate governance. These dimensions are the well-known ESG (Environmental, Social and Governance) factors.

2 The Threat of Climate Change

In recent years, the urgency of climate change effects has become prominent in the sustainability debate. The effects of climate change, induced by global warming, are broadly but unequally hitting the areas of the planet, with greater effects on some regions and on the most vulnerable segments of the population, both in developed countries and the less developed ones, which do not have the necessary resources to adapt. With the 2015 Paris Climate Agreement, signatory governments have formalised the commitment to containing the average increase in temperature, 'well below' 2 degrees Celsius compared to pre-industrial levels. Most of the involved nations have announced strategies and targets to reduce emissions. After signing the 2030 Agenda and the Paris Agreement, the European Union launched the Action Plan on Sustainable Finance in 2018.

This strategic plan places environmental sustainability at the centre of the European policies, to redirect capital flows towards sustainable investment, manage financial risks stemming from sustainability issues, and foster financial and economic transparency.

[3]The 2030 Agenda for Sustainable Development is a plan of action for people, planet and prosperity. Signed on 25 September 2015 by the governments of the 193 Member Countries of the United Nations and approved by the UN General Assembly, the Agenda sets out 17 Sustainable Development Goals, SDGs, which are part of a broader programme of action consisting of 169 associated targets to be achieved in the environmental, economic, social, and institutional domains by 2030.

The policy programme was reinforced in early 2019 with the launch of the European Green Deal,[4] a programme of legislative initiatives and investment plans for the following ten years, with the aim of achieving net zero greenhouse emissions by 2050. This long-term green strategy has been further enhanced by the measures taken in response to the coronavirus pandemic: more than one-third of the investments from the Next Generation EU fund will be devoted to the environmental objectives.

Finally, the Green Deal was strengthened in 2021 with the plan 'Fit for 55', reflecting a new level of ambition that enhances the target of reducing net greenhouse gas emissions by at least 55 per cent by 2030 compared with 1990 levels, and becoming carbon neutral by 2050.

The European Commission has estimated that in the period 2021–2030 the achievement of the climate and energy targets for 2030 will require investments in the energy sector (excluding transport) by EUR 336 billion per year, equal to 2.3 per cent of GDP.[5]

As of September 2022, about 170 countries have announced that they will pursue climate neutrality by mid-century and about 90 parties, covering approximately 80 per cent of global greenhouse gas (GHG) emissions, have adopted net-zero pledges either in law, in a policy document such as National Determined Contribution, in a long-term strategy, or in an announcement by a high-level government official. Governments outline the next steps at the United Nations Conference of Parties on an annual basis.

Climate change is also at the top of the G20 agenda. Under the Italian Presidency in 2021, the G20 has resumed the work of the Sustainable Finance Study Group, which was elevated to a permanent working group. The Group has developed a roadmap in some key priority areas, such as market development to align investments to sustainability goals; information on sustainability risks, opportunities and impacts; assessment and management of climate and sustainability risks; and role of public finance, international financial institutions, and policy incentives.

The urgency of climate change reflects the growing sensitivity of the public opinion on this subject. Especially among the younger generations,[6] awareness of

[4]The Paris Agreement is an international treaty on climate change signed on 12 December 2015 during the XXI Conference of the Parties (COP) from 196 countries. Among its objectives, the most important goal is to limit the increase in the global average temperature below 2 °C compared to pre-industrial levels and preferably at 1.5 °C. According to the Report of the Intergovernmental Panel on Climate Change (2021), the planet has already experienced an average increase of the temperature of 1.09 °C compared to the temperature before the industrial revolution (1850–1900). In the absence of drastic reductions in the production of greenhouse gases, there would be an increase of temperatures between 1.4 and 4.4 °C by 2100, depending on the emissions path of greenhouse gases. It is necessary to halve emissions every 10 years to achieve carbon neutrality (equivalence of emissions produced and absorbed) in 2050.

[5]IPCC (2021) and European Commission (2019).

[6]Responses to the climate crisis have been spurred by increasingly alarming scientific data and by the protests of many movements, especially of young people, such as 'Fridays for future' (Figueres and Rivett-Carnac 2020).

the environmental risks is growing more and more, with a specific attention to the irreversible damages for ecosystems and human health.[7]

This awareness is fundamental to fuel better behaviours by tomorrow's adults and to guide future consumption choices and investment, making them more responsible.

As a consequence, more and more consumers and investors want to make climate-responsible choices.[8]

3 The Relevance of Sustainability for Financial Investments

In recent years, the importance of ESG factors has increased thanks to the growing interest of investors and authorities for socially responsible investments. Some empirical studies have explored the relationship between ESG profiles and the operational and financial performance of firms (Eccles et al. 2014; Antoncic et al. 2020; Conen and Hartmann 2019; Tsai and Wu 2021; Kim and Kim 2020).

Given the extent of research, literature reviews and meta-analyses have been performed on a number of issues, from the motivations underpinning the sustainability choices to the implications of ESG profiles for corporate performance.

Below we summarise the key results of recent research.

Friede et al. (2015) review more than 2000 studies and present the largest meta-analysis. Their review, largely relating to equity investments, reveals that about 90 percent of the studies identify a non-negative relationship between the ESG profiles and the financial performance of the companies. For a large majority of them, this relationship is positive and stable over time.

Clark et al. (2015) conduct a meta-study over the results of about 200 empirical works. They underscore that the market pressure towards short-term results is a major obstacle to the adoption of sustainable practices by corporate executives. Sound sustainability practices enable companies to benefit from the competitive advantages stemming from process and product innovation, consumer and employee satisfaction, and positive investor assessment. Favourable effects are also found in the mitigation of operational, legal, and reputational risks. These benefits translate into a more efficient allocation of resources, lower cost of capital and improvements in operational and market performance.

Whelan et al. (2021) review over 1000 studies on the relationship between ESG practices and corporate performance, by distinguishing financial performance (in terms of ROE, ROA, and stock return) and investment performance (in terms of alpha and Sharpe ratio). For the former, they find a direct relationship in 58 per cent of the studies; as concerns the investment performance, they find a direct relationship in 59 per cent of the studies. These percentages are similar or larger for the studies that focus on low-carbon policies by firms,

[7] IPCC (2021) and European Commission (2019).

[8] Italian Sustainable Investment Forum, BVA Doxa (2019), ISS ESG, Adelphi (2020).

According to Mervelskemper and Streit (2017), companies always benefit from communicating their ESG policies and disclosing the related indicators. This approach is a source of motivation for employees, which in turn raises their productivity (Burbano 2019; Hedblom et al. 2019). From a different perspective, investors can achieve extra returns by selecting companies with the highest ESG scores (Khan 2019; Madhavan et al. 2020).[9]

To overcome some limitations of the extant studies (like the unclear results in terms of correlation and causality, and the lack of economic interpretation of the results), Giese et al. (2019) consider three channels through which ESG factors can positively affect performance:

- cash flows (ESG companies generate higher dividends);
- risk (ESG companies have a lower corporate risk);
- valuation (ESG companies, thanks to a lower cost of capital, achieve a higher value).

Within the framework of a financial model based on the discounting of cash flows, a causal relationship is identified between changes in ESG ratings, the specific and systematic riskiness of the company and its financial indicators. The authors examine the effect of the changes in ESG ratings over a three-year period on idiosyncratic and systematic risk channels. The study shows that ESG factors, although less intense, are among the most persistent risk drivers, producing effects even after three years.

Naffa and Fain (2020) focus on equity investments based on particular aspects of sustainability, like gender equality, low carbon emissions, energy efficiency, and food safety. These features are related with important social, environmental, economic, political, and technological changes, with possible disruptive effects to daily life, as defined by Naisbitt (1982) and Boesl and Bode (2016). The analysis considers nine themes by defining appropriate portfolios and documents an excess return for most thematic portfolios compared to market indices.

According to the above studies, sustainable investing generates extra returns. In addition to sustainability, this general result may also be due to other factors. ESG risk may have been underestimated in the past, while investors have not correctly predicted the higher returns resulting from the sustained growth of the green sector.

The empirical application of the traditional risk-return model employs past data series, which inevitably makes the model retrospective, while sustainability assessment requires a forward-looking and long-term approach.

[9]Even before the meta-study by Friede et al. (2015), a positive effect of environmentally sound business management on yields was found (Klassen and McLaughlin 1996). Gompers et al. (2003) show that corporate governance provides a key (positive) contribution to returns; a weak governance negatively affect financial performance (Core et al. 1999). Auer (2016) finds that investment selection based on corporate governance profiles improves financial results and that companies with higher ESG scores are able to attain higher returns. In another influential series of articles, Edmans (2011, 2012) shows that portfolios invested in companies with highly satisfied employees generate significant excess returns.

In theory, constraining portfolio choices—by narrowing the set of stocks or imposing non-financial constraints—might hamper the portfolio return. The counterargument is that stock selection based on an ESG filter can help exclude securities with overestimated return expectations and/or high idiosyncratic risk (Hoepner 2010). The net balance of these two effects, of uncertain entity, must then be combined with the resulting positive externalities from the adoption of virtuous practices by companies. These externalities can foster sustainable growth, when firms adopt production methods that respect the environment, guarantee an inclusive workplace that is mindful of human rights, and align themselves to the best corporate governance standards.

4 The Main Initiatives of International and European Authorities Toward Sustainable Finance

In view of the political agenda, and against the background of the empirical results, the financial system will play a crucial role towards mobilising resources in support of the transition to a more sustainable economy. Twenty years after the Brundtland Commission report, several international initiatives have been adopted to step up the role of finance.

Launched in 2006 by the UNEP Finance Initiative[10] and the UN Global Compact,[11] the United Nations Principles of Responsible Investments[12] (UNPRI)

[10] The commitments undertaken by the institutional investors to the UNPRI reflect the duty to act in the best long-term interests of the beneficiaries of the managed financial resources. In this fiduciary role, environmental, social, and corporate governance (ESG) issues can affect the performance of investment portfolios. The signatories also recognise that applying these Principles may better align investors with broader objectives of society. Therefore, the commitments undertaken by UNPRI signatories are:

1. integrate ESG issues into investment analysis and decision-making processes;
2. be active shareholders and incorporate ESG issues into ownership policies and practices;
3. seek appropriate disclosure on ESG issues by the companies and organisations in which they invest;
4. promote acceptance and implementation of the Principles within the investment industry;
5. work together to enhance our effectiveness in implementing the Principles; and
6. report on their activities and progress towards implementing the Principles.

[11] The financial initiative of the United Nations Environment Program (*United Nations Environment Program Finance Initiative*, UNEP FI) is a collaboration between the Environment Program of the UN and the global financial sector. UNEP FI works closely with over 200 financial institutions signatories of the UNEP FI Statement on Sustainable Development, as well as with a number of organisations partners, to develop and promote links between sustainability and financial services.

[12] The *United Nations Global Compact* (UNGC) is a global and multilateral initiative to help aligning business activities and strategies to ten universally accepted principles in the fields of human rights, labour, the environment and fight against corruption, as well as catalysing private sector actions in support of the wider objectives of United Nations.

provide a voluntary framework whereby all investors can incorporate ESG criteria in their decisions.

In 2015, the Financial Stability Board created the Task Force on Climate-related Financial Disclosures (TCFD) to develop a set of voluntary disclosure recommendations to be used by companies in their provision of decision-useful information to investors, lenders, and insurance underwriters about the climate-related financial risks and opportunities of the companies.

In 2017, a group of central banks and supervisory authorities established the Network for Greening the Financial System (NGFS) to promote the exchange of experiences and the development of best practices for managing environmental and climate risks.

In 2018, the European Commission launched the European Action Plan for sustainable finance to mobilise the huge volume of resources needed to finance its decarbonisation strategy and to catalyse the support of the private sector. The Action Plan helps implement the Paris Agreement on Climate and the United Nations 2030 Agenda, defining the strategy and initiatives towards a sustainable financial system. Within this framework, the Commission has defined important measures, such as the reporting on sustainability, the taxonomy of environmentally sustainable economic activities, the European standards for green bonds, and the criteria for climate benchmarks.

The European Regulation on sustainability reporting in the financial services sector (Sustainability Financial Disclosure Regulation, SFDR)[13] strengthens the integration of ESG factors and sustainability risks in the asset managers' decision-making.

The SFDR aims at improving transparency in the market for sustainable investment, thus favouring investors and more generally the real economy and the long-term stability of the financial system. Transparency is also crucial to steer investors towards greater awareness of the impacts on the environment and society of the allocation choices of savings.

The goal of the Action Plan is the definition of a taxonomy of sustainable investments,[14] i.e. a set of detailed technical criteria to evaluate whether an economic activity can be considered as environmentally sustainable, that is whether it contributes to the achievement of the European environmental objectives.

The taxonomy was defined in June 2020. To become fully effective, this Regulation requires the definition of the technical screening criteria for the evaluation of the activities, to be adopted through delegated acts.[15]

[13] EU Regulation n. 2019/2088.

[14] The EU taxonomy is one of the three pillars of the Action Plan, which also includes the European standards for green bonds and the EU Climate benchmark standard. These two initiatives set the reference criteria for classifying bond issues and indices in relation to specific sustainability criteria.

[15] In 2022, the Commission adopted a Complementary Climate Delegated Act including, under strict conditions, specific nuclear and gas energy activities in the list of economic activities covered by the EU taxonomy.

According to the Regulation, an eco-sustainable activity must:

- make a substantial contribution to the achievement of at least one of six environmental objectives of the European Union[16];
- not cause significant harm to any of the other environmental objectives ('do no significant harm' principle, DNSH);
- ensure compliance with minimum ethical and social principles (so-called minimum safeguard guarantees), and ensured by compliance with international standards and conventions.

The taxonomy will be used by financial market participants (investment firms, fund managers, pension funds, insurance, etc.) and by issuers offering instruments, financial products, and services within the European Union.

By creating an International Platform for Sustainable Finance,[17] the EU acts as a forerunner to similar initiatives that may be undertaken by other countries in the future.

The European Regulation on a standard for green bonds, under negotiations, is intended to favour the inflow of funding to projects that make activities more sustainable and, at the same time, ensure transparency in the use of funds. For a proper functioning of this segment of the bond market, it is necessary to certify a green bond, namely, to define standardised criteria for evaluating the environmental impact of the projects.

The International Capital Market Association (ICMA) has defined voluntary guidelines, the Green Bond Principles (GBP), as a reference for green bond issues. Taking stock of the ICMA guidelines, the European Commission has worked on a proposal to define more advanced standards to increase transparency and reliability for green bonds issued within the EU, giving further impetus for the development of this market segment. In 2019, the Commission proposed a standard for green bonds (European Union Green Bond Standard, EU GBS). In July 2021, this was translated into a proposed regulation to which issuers will adhere on a voluntary basis to gain the European Green Bond status for their securities.

In recent years, various categories of low carbon emission indices have been proposed and used by investors to measure the climate profiles of their portfolios. In view of the heterogeneity of the existing methodologies, objectives, and strategies,

[16]The six goals are: climate change mitigation; climate change adaptation; the sustainable use and protection of water and marine resources; the transition to a circular economy; pollution prevention and control; the protection and restoration of biodiversity and ecosystems.

[17]In 2019, the EU launched at the annual meetings of the Monetary Fund and the World Bank in Washington, the International Platform on Sustainable Finance (International Platform on Sustainable Finance, IPSF). The ultimate objective of the IPSF is to scale up the mobilisation of private capital towards environmentally sustainable investments. The IPSF therefore offers a multilateral forum of dialogue between policymakers that are in charge of developing sustainable finance regulatory measures to help investors identify and seize sustainable investment opportunities that contribute to climate and environmental objectives. Through the IPSF, members can exchange and disseminate information to promote best practices, compare their different initiatives and identify barriers and opportunities of sustainable finance, while respecting national and regional contexts.

the European Commission has introduced two new climate benchmarks: the climate transition benchmarks and the benchmarks aligned with the Paris Agreement.

This rapidly growing market deserves an improvement in the quality of information. The methodology for building climate benchmarks[18] has been developed to provide an official and clear reference in the offer of market indices that pursue the objective of fighting climate change; this also prevents the risk of illegitimate or ambiguous use of green labels.

The Shareholder Rights Directive[19] (SRD II), which strengthens the accountability mechanisms of corporate governance, requires an adequate commitment of institutional investors (insurance and pension funds) and asset managers. They are asked to be transparent on their engagement policy, describing the methodologies whereby they assess investee companies on the most important issues, such as strategy, corporate governance, social and environmental risks, and impact. The engagement policy should also clarify whether and how investors engage in a dialogue with the companies, exercise their voting rights, collaborate with other stakeholders, and manage possible conflicts of interest.[20]

The European legislation on non-financial information is at an advanced stage, thanks to a specific directive concerning corporate communication on sustainability (Corporate Sustainability Reporting Directive, CSRD[21,22]) that entered into force in January 2023. Companies will have to apply the new rules for the first time in the financial year 2024, for reports to be published in 2025.[23] From that date, a broader set of large companies, as well as listed small and medium enterprises (SMEs)—approximately 50,000 companies in total—will be required to report on

[18] The minimum standards associated to these indices were introduced by the Commission Delegated Regulation (EU) 2020/1818, which supplements the regulation (EU) 2016/1011/EU of the European Parliament and of the Council as regards the standards for the indices of EU Climate Transition Benchmark (CTB) and for EU Paris Aligned Benchmarks (PAB).

[19] Directive (EU) 2017/828 of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement.

[20] Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.

[21] Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting.

[22] The Corporate Sustainability Reporting Directive amends the existing reporting requirements of the Non-Financial Reporting Directive (NFRD). The Directive: (a) extends the perimeter to all large companies and all companies listed on regulated markets; (b) requests verification of the reported information; (c) introduce more detailed reporting requirements and the obligation to report according to mandatory standards; and (d) requires companies to digitally mark the information communicated so that it can be interpreted by a computer.

[23] The rules introduced by the NFDR (Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014) remain in force until companies have to apply the new rules of the CSRD.

sustainability adopting a double materiality perspective.[24] The non-financial statement will be based on the European Sustainability Reporting Standards (ESRS), a draft of which was published by the European Financial Reporting Advisory Group (EFRAG) in November 2022.

The new rules will ensure that investors and other stakeholders have access to the information they need to assess investment risks arising from climate change and other sustainability issues. The CSRD also makes the audit of the sustainability information mandatory for companies.

The most recent regulatory proposal regards the Corporate Sustainability Due Diligence Directive (CSDDD).[25] It should foster sustainable and responsible corporate behaviour and anchor human rights and environmental considerations in companies' operations and corporate governance. The new rules should ensure that businesses address adverse impacts of their actions, including in their value chains inside and outside Europe. Finally, the CSDDD should introduce the obligation for large companies to prepare transition plans for a decarbonisation pathway consistent with the Paris Agreement.

These laws provide guidance on corporate reporting and communication on the main risks stemming from their business and on the policies and results with reference to ESG factors. The disclosure of such information may enable to manage these risks, reduce the information asymmetry between investors and companies, and facilitate the companies' access to capital markets.

5 Trends in Sustainable Finance

In recent years, the share of sustainable investment in the financial market has rapidly grown, in parallel with the investor awareness on the effects of ESG factors on asset prices. The ESG-labelled instruments and the number of portfolio managers applying sustainability criteria have sharply increased.

According to the report of the Global Sustainable Investment Alliance (2021), in 2020 at least USD 35,300 billion (of which 12,000 in Europe and 17,000 in the United States) were allocated to sustainable investments, up by 15 percent compared to 2018. This amount is approximately equal to one-third of global equity assets under management; in some countries, it has exceeded half of the total. The assets

[24] Whereas n. (29) '. . .reporting not only on information to the extent necessary for an understanding of the undertaking's development, performance and position, but also on information necessary for an understanding of the impact of the undertaking's activities on environmental, social and employee matters, respect for human rights, anti-corruption and bribery matters. Those Articles therefore require undertakings to report both on the impacts of the activities of the undertaking on people and the environment, and on how sustainability matters affect the undertaking. That is referred to as the double materiality perspective, in which the risks to the undertaking and the impacts of the undertaking each represent one materiality perspective'.

[25] Corporate Sustainability Due Diligence Directive, published on 23 February 2022.

managed by the 4902 signatories of the UN PRIs have exceeded USD 121 trillion.[26] At the end of September 2022, the number of ESG-type ETFs in circulation on a global scale was 1449, with a market value of USD 368 billion, and a range of objectives covering, albeit not uniformly, all of the United Nations Sustainable Development Goals (Trackinsight 2022).[27]

Green and sustainable bond issues exceed USD 2000 billion on a global scale[28]; private sector issues with these labels are around 3 percent of total corporate bonds; and public issues are under 1 percent of total public sector securities.

Since the start of 2021, the new security issues have exceeded USD 400 billion, with a significant growth of those of social nature, also favoured by the adoption of the ICMA standards; among them are the EU issues to finance the temporary Support to mitigate Unemployment Risks in an Emergency (SURE) instrument.

The strong growth of sustainable finance has spurred a variety of investment strategies. They can be grouped according to the following criteria[29]:

(a) exclusion of certain securities or sectors, based on national rules or international treaties (for example, relating to weapons and tobacco);
(b) 'best in class', focused on positive selection of companies with the best ESG profile compared to their sector peers or in general;
(c) ESG integration, consisting in the explicit and systematic inclusion of important ESG factors in financial analysis;
(d) thematic (or positive impact) investments that try to generate a positive impact, voluntary and quantifiable, in some areas including the environment (e.g. energy, water, and waste), in addition to financial returns;
(e) voting and engagement with issuers, as tools to improve business conduct, contribute to sustainable development and maximise risk-adjusted returns.

These strategies may sometimes be combined. According to the latest survey conducted by Eurosif (2018) on European professional managers, at the end of 2017, the most popular strategies were those under exclusion, followed by voting and engagement, with a strong growth of ESG integration in recent years.

Sustainable investments require the availability of reliable data to guide investors and prevent the risk of an improper use of sustainability labels (the so-called green-washing and ESG-washing). ESG scores, the basis of many investment strategies,

[26] UN PRI data for the fourth quarter of 2022. The value considers the assets managed by fund managers and fund owners, the latter weighing slightly more than 20 billion.

[27] According to Trackinsight data, 15 of the 17 Sustainable Development Goals (Sustainable Development Goals, SDG) set by the United Nations, are covered by ESG ETFs. More than 400 ETFs are lined up with an SDG and most of the resources are aligned with three goals: a) climate action (SDG 13); b) industry, innovation and infrastructure (SDG 9); and c) affordable and clean energy (SDG 7) (Trackinsight 2023).

[28] Data on green and sustainable bonds, referred to mid-August 2021, are computed from Bloomberg Finance L.P. data.

[29] The classification has been developed by Eurosif and is included in the Principles of Responsible Investment of the United Nations (UNPRI).

currently show limitations in terms of completeness and quality of information, also due to the heterogeneity of the assessment methodologies.

The entities that provide ESG scores often express very different views on the same issuer. The scores are based on proprietary methodologies and there is no reference model, unlike financial evaluations and credit ratings. The discrepancies of ESG scores and ratings may also arise from the selection of different sustainability profiles and indicators, and from the relative importance assigned to them by the analysts. [30]

The heterogeneity among ESG indicators may also depend on the objective of the evaluation, i.e. whether it is aimed at investors interested only in the financial impact on the company, or whether it is addressed at stakeholders with relevant interests in all factors that can have a significant impact on the environment and society.[31] The solutions adopted by the providers of ESG scores are affected by the quality of corporate information, which is rather heterogeneous across geographical areas and business sectors. The initiatives aimed at fostering non-financial reporting and data validation will increase the consistency of ESG assessments in the future.[32]

Finally, most available indicators are backward looking.[33] This is at odds with the concept of sustainability, which is inherently forward looking. It would thus be advisable for companies to adopt sustainability commitments with quantitative targets and a clear timing.[34]

6 Climate Risks and the Role of Central Banks

The fight against climate change is primarily within the responsibility of national governments. They can design and implement incentives (e.g. a carbon tax), regulations, and sanctions. Yet, given the complexity of this challenge, the contribution at global level of authorities, firms, and individuals is crucial.[35] Central banks pay

[30] Berg et al. (2019).

[31] In the first case, factors affecting the company financial value will be identified (revenues, costs, profitability, etc.), in the second case all the factors that have an impact on the environment will be identified, regardless their financial relevance.

[32] A significant initiative is the agreement signed by the five main sustainability standard-setters: Sustainability Accounting Standards Board (SASB), Global Reporting Initiative (GRI), Carbon Disclosure Project (CDP), Climate Disclosure Standards Board (CDSB), International Integrated Reporting Council (IIRC), in order to coordinate their standards and create a global reporting system, able to integrate with financial reporting (see Statement of Intent to Work Together Towards Comprehensive Corporate Reporting) or the proposal to set up a global body for the definition of reporting rules that integrate sustainability data with accounting data (Sustainability Standards Board) under the aegis of the IFRS.

[33] Shoenmaker and Shramade (2019).

[34] 2° Investing Initiative (2017).

[35] Visco (2020).

attention to the sustainability profiles, and in particular to climate risks, for their potential effects on the ability to pursue the institutional goals, such as price stability and financial stability.[36] Sustainability factors can interfere in a number of ways with the transmission of monetary policy and banking supervision.

Physical and transition risk factors[37] affect the macroeconomic variables that matter for monetary policy, including production, investment, labour productivity, and inflation expectations.[38]

To evaluate these effects, it is necessary to adapt the macroeconomic models in order to have more accurate projections for monetary policy decision-making.[39]

Sustainability risks require a broadening of the analysis and a wider time horizon to factor in the effects of climate change which now seem unavoidable, although uncertain in intensity and frequency. This paradigm shift has been dubbed the 'tragedy of the horizon' by the former Governor of the Bank of England Carney.[40]

The climate-related macroeconomic risks are also a source of instability at the microeconomic level through the potential effects on profitability and solvency of bank debtors, on the value of the collateralised assets and on the overall stability of the financial system.

For these reasons, central banks and supervisory authorities are at the forefront of the assessment of these risks and are reviewing their policy instruments accordingly. Several initiatives have been taken to prepare the financial system to face climate-related risks, encouraging financial institutions to widen their operational and risk management practices. Leading by example, central banks favour the channelling of funds towards the transition to a low-carbon economy.

7 Central Bank Initiatives

Central banks have taken significant joint efforts to tackle climate risks and seize the opportunities of an orderly transition towards a more sustainable economic and financial system. Among these initiatives, the NGFS was established in 2017. The Bank of Italy has joined the NGFS since 2019 and actively contributes to all of its work streams, such as micro and macro-prudential supervision, macroeconomic analysis, monetary policy, sustainable investments, and sustainability data and research on climate and environmental issues.

[36] Bernardini et al. (2021).

[37] Physical risk arises from progressive climate change and, in particular, from growth of temperatures, by the greater irregularity of the precipitations and by the increase of the probability of extreme natural events. Transition risk arises from the possibility of a disorderly transition towards a low-carbon economy.

[38] NGFS (2020a).

[39] Signorini (2020).

[40] Carney (2015).

The NGFS plays a central role in sharing the experiences of central banks and supervisors and facilitating multilateral research and initiatives. The uncertainty, endogeneity, and non-linearity of climate phenomena[41] make the analysis of climate risks very complex.

For this reason, cooperative action can help build intellectual capacity and develop appropriate methodologies in a shorter time frame. Some recent NGFS studies offer a methodological contribution and stimulate intermediaries in the analysis and consideration of climate risks:

- the macroeconomic scenarios, published in June 2020 and updated yearly since then, provide the basis for conducting analyses and stress tests of climate risks[42];
- the overview of environmental risk analysis by financial institutions, published in September 2020, highlights that such practices are still not widespread, due to data challenges and limited internal capabilities of the intermediaries. The overview encourages the dissemination of supervisors' expectations to stimulate banks to measure and disclose their own environmental risk assessments[43]; and
- the review, published in March 2021, of the central banks' options for adjusting the monetary policy implementation framework for climate-related risks. Credit operations, collateral eligibility criteria, and securities purchase programmes are three important policy areas with climate-related operational options.[44]

In July 2021, the Eurosystem decided to include the analysis of climate risks in the overall review of its monetary policy strategy. Without prejudice for the primary objective of price stability, the mandate of the ECB foresees the support for the general economic policies of the European Union, including environmental protection and sustainable growth.

Central banks are also exposed to climate risks as investors (NGFS 2020c). In this role, it is important that these risks are duly taken into account in the management of their balance sheets, with a view to preserving financial soundness and independence. To the extent that the current market prices do not adequately reflect climate risks, there is a possibility that a disorderly adjustment of prices occurs, with negative effects on investor portfolios.[45]

[41] Monasterolo (2020).

[42] NGFS (2021b).

[43] NGFS (2020b).

[44] As far as credit operations are concerned, the interventions may consider adjustments on valuation (to reflect the exposure to climate risks of loan counterparty or composition of the collateral), the eligibility criteria of the counterparties on the basis of their sustainability reporting and green investments. As far as collateral is concerned, the interventions may regard margins, negative (or positive) screening in the eligibility criteria, or the alignment of the collateral with climate indicators. As far as purchases are concerned, different weighting strategies can be envisaged based on the climate change indicators (tilting) or negative screening (NGFS 2020a, 2021a).

[45] Schnabel (2020).

The general principle of central banks as investors is market neutrality, aimed at avoiding price distortions and preserving the efficient functioning of financial markets. Yet, it is becoming clear that this principle should be adapted, in a context in which market forces are leading the concentration of greenhouse emissions to levels not in line with another type of neutrality, i.e. climate neutrality.[46] Within the Eurosystem, central banks agreed in February 2021 on a common stance for climate-related sustainable investments in non-monetary policy portfolios.[47] The common stance promotes the assessment and disclosure of climate-related risks for these portfolios. In March 2023, the Eurosystem has started the publication of climate-related data for the non-monetary policy portfolios, based on the recommendations of the TCFD. Several Eurosystem central banks had already published climate-related data on their non-monetary policy portfolios, including the Bank of Italy since 2022.[48]

8 The Bank of Italy as a Sustainable Investor

The Bank's investment policy pursues the twofold strategic objective of preserving the capital invested under adverse scenarios and prudently seeking a return, to help cover the operational costs. For foreign exchange currency reserves, the Bank also aims at a high degree of liquidity.

Since 2019, the Bank of Italy has integrated sustainability criteria in its financial investment strategy, based on a review of the available evidence and an in-depth analysis of sustainable strategies and ESG indicators. This decision also aims at promoting corporate social responsibility and improving financial and reputational risk management. As a result, more resources are available for firms that respect the environment, ensure inclusive workplaces which are mindful of human rights, and adopt the best corporate governance practices.[49]

ESG criteria were initially adopted for the internally managed equity portfolios for the Italian market and the rest of the euro area, owing partly to the wide availability of ESG data for equities. In 2020, the sustainable investment policy was gradually extended to other asset classes. In particular, the ESG criteria were applied to equity investments in the United States and Japan, by replacing the collective investment instruments used for these markets with similar instruments linked to ESG benchmarks.

[46] Visco (2019).

[47] The agreement has been reached following extensive preparatory work carried out by the Eurosystem and it benefited from the analysis developed at the NGFS, whose recommendations it incorporated.

[48] Hoepner et al. (2020).

[49] Bank of Italy (2019) and Cipollone (2021).

The replication of ESG indices in place of standard indices has been applied also to the management of the corporate bond portfolios, which is carried out internally for euro-denominated securities and through external managers for those denominated in US dollars.

In 2020, a portfolio of green bonds issued by supranational institutions and agencies was also set up. These euro- and dollar-denominated bonds came on top of the subscription made in 2019 of a share of the USD green bond fund managed by the Bank for International Settlements, mainly composed of sovereign and supranational bonds.

The commitment to sustainability was reaffirmed in 2021 with the Responsible Investment Charter, which presents the Bank's sustainable investment strategy.[50] The Charter defines the Bank's broad vision of sustainability, including all ESG aspects, and the principles and criteria that inspire its investment activity. It identifies the perimeter of the application and draws up the operational guidelines for the Bank's commitment. The Charter applies to the financial portfolio and foreign exchange currency reserves over which the Bank has full decision-making autonomy. It does not apply to portfolios relating to monetary policy, whose management is under the responsibility of the Eurosystem (Angelini 2021).

In its Charter, the Bank identifies three strategic lines of action: (a) promoting the disclosure of information on sustainability by issuers and other financial system operators; (b) integrating the ESG criteria into the management of its own investments, thus helping to disseminate good practices in this field; and (c) publishing data and analyses on sustainable finance, regularly communicating the achievements, thereby contributing to the spreading of an ESG culture in the financial system and among citizens.

In 2022, the Bank started the publication of its annual Report on sustainable investments and climate-related risks. The Report addresses the commitment, undertaken with the publication of the Charter, to disclose the methodologies adopted for ESG risks in the investment policy for the Bank's non-monetary policy portfolios, and the results obtained. The Report is inspired by the recommendations prepared by the TCFD and the NGFS 'Guide on climate-related disclosure for central banks'.

In 2022, the Bank outlined a pathway to further decarbonise equity and bond portfolios. The new measures involve the assessment of the companies' commitments, their long-term transition plans, and the results achieved in this field. In addition, new initiatives will be launched to raise the awareness of and hold dialogues with companies on the disclosure of sustainability data. To contribute to the emission reduction, a thematic equity portfolio has been created, including companies operating in renewable energy sources, energy efficiency, electric mobility, and green construction. These investments can contribute to the ecological

[50] The exclusion criteria are based on the fundamental conventions of the International Organization of labour, on international treaties on controversial weapons, on the non-proliferation treaty of nuclear weapons, and on the protocols to the Convention on the prohibitions or restrictions on the use of some conventional weapons.

transition by fostering the necessary technological innovations. The portfolio of green bonds will be enlarged.

9 Conclusions

Sustainability considerations have gained importance for investment decisions. The pandemic has increased the awareness of sustainability-related risks, such as climate risks, which typically materialise in the long run. The opportunities offered by the transition to a low-carbon economy may be important drivers of portfolio choices. To evaluate these prospects, reliable and comparable information is key. The initiatives underway require a coordination effort to avoid the proliferation of different standards by geographic area and instrument type and to build trust in users. The integration of sustainability factors into financial risk management[51] and portfolio allocation[52] are challenging new areas.

Central banks are playing an important role towards the climate transition, leading by example the financial system. The Bank of Italy has undertaken initiatives to promote sustainable finance and to integrate its principles into the management of its investments. This path, which extends over a number of asset classes, has recently been reaffirmed in the Sustainable Investment Charter, which defines the principles and actions that the Bank intends to implement in the coming years.

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[51] Engle et al. (2019).

[52] Lanza et al. (2020).

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