Box 3.1

THE FINANCIAL SYSTEM AND CLIMATE CHANGE

Climate change associated with global warming has become a major social concern in recent years. In consequence, the authorities of various countries have assumed multilateral commitments to try to mitigate this phenomenon. Specifically, the 2015 Paris Agreement[1] established a plan of action with the aim of holding the increase in the global average temperature below 2°C above pre-industrial levels[2] and pursuing efforts to limit the temperature increase to 1.5°C. According to the estimates of the Intergovernmental Panel on Climate Change (IPCC), human activities have already caused approximately 1°C of global warming over pre-industrial levels. At the current pace, warming of 1.5°C would be reached between 2030 and 2052.[3] Considerable reductions in greenhouse gas emissions would have to be achieved in coming decades to keep global warming below 2ºC.

Climate change could have a highly negative impact at the macroeconomic level,[4] and in the financial sector, particularly in the long term. The potential mitigating measures will have a short-term but smaller impact, especially if they are implemented on a step-by-step basis, allowing agents to adapt to the changes gradually. It seems logical that the later the measures are adopted, the more aggressive they will have to be, and this will heighten their negative impact as they will be concentrated in a shorter period of time.[5]

Given these considerations, the climate change-related risks facing the financial system may be divided into two categories: physical risks and transition risks. Physical risks are those associated either with global warming or with the increased frequency and intensity of climate events such as droughts, floods or storms. Such events can, for instance, cause property damage and business disruption that may lead to financial losses. If these losses are insured they will be covered by the insurance sector,[6] but if that is not the case they will have to be met by the households or firms concerned, which could drive up customer NPLs. Additionally, gradual physical risks, which can deteriorate relatively extensive economic areas, could lead to increases in NPLs and lower the valuation of some assets.

Transition risks are associated with the process of adjustment towards a low-carbon economy, for which purpose greenhouse gas emissions must be reduced. This transition is also relevant for the financial system, given that the introduction of certain policies, such as CO_2 emission limits or carbon taxes, technological innovation or changes in agents' preferences or in market sentiment, could affect an economy's demand and production patterns and could prompt valuation losses for certain financial assets, with an adverse effect on some branches of activity and a favourable effect on others, similarly to the effects on the firms themselves.[7]

The banking sector is subject both to physical and transition risks, which may manifest as credit, market and operational risks [see Bank of England (2018)].[8] In its risk map for 2019, the ECB banking supervision again included climate change-related risks among the risks to be monitored from a supervisory standpoint.[9] The ECB, drawing on an analysis of the exposure of the euro area banking sector, notes that, despite the limited data availability, climate change-related risks have the potential to become

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1 See Paris Agreement (2015).

2 Likely ranging between 0.8ºC and 1.2ºC. See IPCC (2018), "Summary for Policymakers. In: Global Warming of 1.5 °C".

3 IPCC (2018). "Summary for Policymakers. In: Global Warming of 1.5 °C".

4 For a compilation of studies on the macroeconomic impact, see NGFS (2019), "Macroeconomic and financial stability. Implications of climate change". July 2019.

5 European Systemic Risk Board (2016), "Too late, too sudden: Transition to a low-carbon economy and systemic risk". ESRB. Reports of the Advisory Scientific Committee No 6 / February.

6 In Spain, the functions of the Consorcio de Compensación de Seguros (Insurance Compensation Consortium), a public body attached to the Ministry of Economy and Enterprise with legal personality, include coverage of extraordinary risks, providing compensation for damage caused by natural phenomena.

7 See NGFS (2019), "Macroeconomic and financial stability. Implications of climate change". July 2019.

8 See Bank of England (2018), "Transition in thinking: The impact of climate change on the UK banking sector". Bank of England. Prudential Regulation Authority. September 2018.

9 See ECB (2019), "ECB Banking Supervision: Risk Assessment for 2019".

Table 1
PHYSICAL AND TRANSITION RISKS

Strength of response
(based on whether climate targets are met)

Transition pathway		Met	Not met
	Disorderly	**Disorderly** Sudden and unanticipated response is disruptive but sufficient enough to meet climate goals.	**Too little, too late** If we don't do enough to meet climate goals, the presence of physical risks spurs a disorderly transition.
	Orderly	**Orderly** We start reducing emissions now in a measured way to meet climate goals.	**Hot house world** We continue to increase emissions, doing very little, if anything, to avert the physical risks.

Transition risks

Physical risks

SOURCE: NGFS (2019).

systemic for the euro area, in particular if markets are not pricing the risks correctly.[10] Figure 1 shows the disruptive potential of the possible combinations of physical and transition risks.[11]

The financial system also has a role to play in this transition. One of the Paris Agreement's goals was that financial flows be made consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. The changes needed to comply with the Paris Agreement's goals entail increasing investment and shifting resources. The estimates depend on the scenarios assumed, but according to the European Commission's Action Plan on Financing Sustainable Growth, an annual investment gap of almost €180 billion would have to be met to achieve the energy and climate goals in the period 2021-2030.

In the institutional sphere, several initiatives have been launched related to the role of the financial system in climate change, notably the G20's work,[12] the FSB's Task Force on Climate-Related Financial Disclosures (TCFD), the European Commission's Action Plan on Financing Sustainable Growth and the EBA's work on sustainable finance.

Central banks are also working to include the possible implications of climate change in their analysis and their supervisory and macroprudential policy. At the end of 2017 the Network for Greening the Financial System (NGFS)[13] was launched and now comprises (at September 2019) 42 central banks and supervisors and eight observers. Its purpose is to define and promote best practice both within and outside of its membership, conduct analytical work on green finance, contribute

10 See ECB (2019), "Climate change and financial stability", Financial Stability Review, May 2019.

11 European Commission (2018), "Action Plan: Financing Sustainable Growth", COM(2018) 97 final.

12 G20 GFSG (Green Finance Study Group) (2016), "G-20 Green Finance Synthesis Report", September.

13 At the initiative of the Banque de France at the Paris One Planet Summit, initially comprising eight central banks and supervisors. The Banco de España joined the network in April 2018; the Deputy Governor is a member of the Plenary Meeting.

to the development of environment and climate risk management in the financial sector, and mobilise the necessary finance to make the transition toward a sustainable economy.[14]

As indicated in the ECB's Financial Stability Review (2019), a deeper understanding of the relevance of climate change-related risks for the euro area financial system is needed. For that purpose, better data availability and the development of a forward-looking framework for assessment of these risks are important.[15] The TCFD's work to develop climate-related financial disclosures (albeit not compulsory but only voluntary for firms and institutions) is helping to achieve progress in the field of information disclosure. Likewise, development of the European Commission's Action Plan on Financing Sustainable Growth, which includes development of a taxonomy of sustainable activities and standards, will help to move towards a better assessment of these risks. There is, however, still more work to be done to understand all the possible implications for the financial system.

The Banco de España is aware of the importance of this and is also beginning to develop its own strategy to analyse the possible implications of climate change for the stability of the Spanish financial system and determine the responses it may adopt in its supervisory role. In addition, several activities and initiatives are under way to help raise awareness of the importance of this issue.

Specifically, a number of high-level meetings have been held with representatives of credit institutions, audit firms and portfolio managers, to convey to them the institutional and regulatory developments in this field, verify how prepared they are in respect of climate change-related risks and establish a dialogue with them. At the same time, the necessary analytical tools are being developed for assessing and modelling transition risk and its potential impact on credit institutions.[16]

Data availability is one of the main challenges in this area, and one of the Banco de España's first goals is to correct the data shortfalls in this field, for example relating to firms' individual CO_2 emissions and to environmental certificates of real assets such as housing.

The Banco de España has also begun to include environmental sustainability goals in its reserves management, participating, for example, in the open-ended green bond investment fund launched by the BIS.[17]

Lastly, it should be noted that the Banco de España actively participates in several international groups such as the NGFS, and in the remit of the ECB, ESRB, SSM and EBA, helping to make headway in the analysis of the implications of climate change for the financial system and the regulatory discussions this may entail.

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14 The NGFS's initial work focused on six recommendations: i) including climate-related risks in financial stability monitoring and microsupervision; ii) including sustainability factors in own portfolio management; iii) remedying data gaps; iv) raising awareness and fomenting knowledge exchange; v) obtaining sound and coherent climate and environmental data at the international level; and vi) supporting the development of a taxonomy of economic activities.

15 See ECB (2019), "Climate change and financial stability", Financial Stability Review, May 2019.

16 The forthcoming Financial Stability Review of Banco de España will present a study on Spanish banks' exposure to the sectors most susceptible to transition risk, together with an analysis of their credit quality.

17 See press release of 26 September 2019.